



**BlueBRIDGE External Advisory Board (EAB) - Fisheries and Resources  
Monitoring System (FIRMS)**

**Technical Working Group Joint Meeting on the Global Record of Stocks  
and Fisheries BlueBRIDGE TWG3 and FIRMS TWG6**

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**REPORT**

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## EXECUTIVE SUMMARY

The sixth session of the Fisheries and Resources Monitoring System (FIRMS) Technical Working Group (TWG6) jointly with the third External Advisory Board (EAB) Technical Working Group (TWG3) of the BlueBRIDGE European-funded project offered the opportunity to present and discuss the on-going and the future activities of the Global Record of Stocks and Fisheries (GRSF) among FIRMS, BlueBRIDGE and External Advisory Board partners.

GRSF was created as a Virtual Research Environment (VRE) during the BlueBRIDGE project to offer: 1) increased dissemination and monitoring of stocks and fisheries information, including in support to the Sustainable Development Goal Indicator 14.4.1 “Proportion of fish stocks within biologically sustainable levels” of 2030 UN Agenda for Sustainable Development ([A/RES/71/313](#)), 2) support to traceability needs including catch documentation schemes, ecolabelling schemes, food safety, and sustainable fisheries. A business plan is being elaborated to ensure its long-term exploitation and development. The basis of this business plan is a proposal by FIRMS during its 10<sup>th</sup> FIRMS Steering Committee (FSC10) to take over the ownership of the GRSF VRE for its sustainable maintenance and development, however with some concerns.

With this context, the goals of the meeting were: 1) to review the options for the business plan (= exploitation plan) in terms of value proposition, business model and governance, and 2) to address the concerns expressed during the FSC10.

### Value proposition

GRSF will assign Universally Unique Identifiers (UUIDs) to stocks and fisheries after a thorough quality control of data collated from three database sources [Fisheries and Resources Monitoring System \(FIRMS\)](#), [RAM Legacy Stock Assessment Database](#), [FishSource](#) owned respectively by the FIRMS partnership, the University of Washington (UWA) and the Sustainable Fisheries Partnership (SFP). These UUIDs allow a more efficient aggregation (centralized or distributed) of selected data from different sources that can be used: 1) by FAO to support countries and Regional Fisheries Bodies for their reporting on fisheries and its own global reports, e.g., on the UN Sustainable Development Goals (especially SDG14.4 related to fisheries), and 2) by organizations involved in the traceability and certification activities in the seafood industry through the development of information/data products and services on stocks and fisheries.

### Business model

The Public / not-for-profit Private partnership business model was selected under the form of a FIRMS-GRSF expanded Partnership, as FIRMS and GRSF share one goal, to gather and disseminate data on stocks and fisheries, and use the same data sources primarily originating from countries. It was preferred over a Public-only partnership because of the involvement of organizations already connected to the seafood industry and potential opportunities to develop data products and services for the sector.

### Governance

The choice of the governance model was guided by the FIRMS Partnership Agreement which remains unaltered as well as the roles of the Partners. It is viewed as an expansion of the FIRMS partnership controlled by FAO/FIRMS rules. FIRMS will be the owner of the GRSF VRE. The

data standardization and content activities, and the daily administration will be completely integrated into the FIRMS organization; SFP and UWA will become FIRMS members/collaborative institutions (with no voting rights) as defined by a specific Collaborative Arrangement (to be elaborated) and by any amendment of the Rules of Procedures as needed; CNR and FORTH, as technology providers: 1) they will operate under Memorandum of Understanding (MoU) and specific Service Level Agreements (SLAs) with FAO/FIRMS Secretariat, and 2) similarly to SFP and UWA, they can become FIRMS members/collaborative institutions to contribute to the GRSF knowledge base and to participate to FIRMS technical committees with their respective expertise. This organizational scheme remains open to the development of data products and services, including any generation of income that might also cover the GRSF sustainability aspects. However, this type of activities are outside the FIRMS scope, and the consistency with the underlying principles of the FAO Organization will be further evaluated.

By adding specific arrangements and by amending/integrating the current documentation on FIRMS governance, new types of membership can be created for non-RFB non-country partners such as NGOs, universities, research institutes, etc. The GRSF can be managed under the current FIRMS Partnership Agreement that is unlikely to be amended thanks to the flexibility already offered by the existing FIRMS governance mechanism. Some precisions of the relationship between the different FIRMS bodies may need to be further described.

### **Business plan**

The business plan was fully developed from the conclusions and recommendation of the joint FIRMS TWG6 - BlueBRIDGE TWG3 meeting and is available as a separated document.

### **Response to FSC10 concerns**

The meeting allowed to address all FIRMS concerns that were expressed by its latest Steering Committee and to adapt the business plan accordingly (section 13).

As per FIRMS Partnership Agreement, FIRMS Steering Committee (FSC) will take decisions on the basis of FIRMS TWG's advice contained in this report and in the business plan document.

### **Next steps**

The business plan will be presented to the 7th meeting of the Regional Fishery Body Secretariats' Network (RSN) in July 2018, and the 11th FSC in early 2019 for final adjustments and endorsement. Up to that date, UUIDs to be tested with some technical fine tuning and more data collation and validation will be performed under a testing pilot phase. The development of the Service Level Agreement with CNR and FORTH will be finalized. Meanwhile, GRSF will look how to contribute more to the SDG 14.4.1 indicator 'Proportion of fish stocks within biologically sustainable levels' as its methodology progresses.

After endorsement by the 11th FSC, the business plan should be implemented. It contains a strong component of outreach and dissemination to rapidly increase the uptake of GRSF by the data providers but also by the actors of the seafood industry.

## **Suggestions, recommendations, conclusions**

Here follows a list of statements from the discussion arranged by main sections.

### **Value proposition**

- GRSF may be used by countries or RFBs as their own repository.
- GRSF is scalable thanks to the D4Science infrastructure.
- The operational characteristics of stocks and fisheries are changing, thus the need to be able to consider the management of unique identifiers over time.
- There is a need to introduce SDGs to RFBs by increasing the capacity building and guidance on how to estimate and report SDG Indicator 14.4.1.
- GRSF is focused to stock status descriptors, metadata and annual catch or landing values.
- FORTH and CNR committed themselves to continue the maintenance of the GRSF VRE after the end of BlueBRIDGE (at least 2 years).
- The RFBs partners of FIRMS are supportive of GRSF in general, a few will wait for further developments. There is a concern about the extra work it can generate, to this it was requested to keep providing data to FIRMS which in turn will be also used by GRSF.
- SFP and MSC are also supportive for the traceability and certification sector, as well as UWA from the academic sector.
- The TWG concluded that much good discussion ensued on the value proposition and in general there seems to be a strong consensus on supporting the ownership of the GRSF by the FIRMS partnership.

### **The GRSF development status**

- The TWG listed the potential added values of GRSF, beside the assignment of UUIDs: i) all data collated together are accessible from only one entry point, in particular collation of data that is not publicly available elsewhere, e.g. in data-limited contexts, ii) standardization of stock status on top of the values provided by the data sources.
- The expert validation process is a key step for the quality of the GRSF data.
- Additional knowledge is generated while identifying the overlapping stocks and fisheries among the different databases.

### **Realizing the value proposition**

- GRSF standards and application are mature enough to support developments for new tools or products on request, which is part of the business plan.

### **Business model**

- The FIRMS-GRSF expanded Partnership was confirmed as the option to pursue.
- The current FIRMS Partnership Agreement will be applied. At this stage, it seems it does not need to be amended.
- A specific collaborative arrangement together with updates in the documentation on the FIRMS governance can be the way to accommodate the integration of the GRSF partners in FIRMS.

- Selected countries can be part of the FIRMS-GRSF if not covered by RFBs, or as champions for SDG purposes to coordinate the work in their regions and to reduce data harmonization needs between countries. Duplication of data should be also avoided.

### **Governance**

- The FIRMS Rules of Procedures could be also the tool to adapt the integration of the GRSF activities in FIRMS like delimiting some committees in the FIRMS TWG.
- The technology partners maintain the GRSF VRE under a SLA with FAO and the FIRMS Secretariat.
- RFBs and countries keep the entire control of the publication of their data in GRSF. In case of issues with their data, they remain the ultimate validator.
- The FIRMS database and the GRSF knowledge base could constitute one unique FIRMS-GRSF platform, which is consistent with the fact that RFBs serve the same data to FIRMS, RAM and FishSource.
- RFBs would submit data once only to FIRMS by merging the import templates of the three databases, decreasing their workload.
- The TWG suggested that the GRSF should include also the SDGs status and SOFIA stock status when they are published by the countries and FAO.

### **Consolidating working group conclusions**

- The general principles of the FIRMS partnership are maintained.
- New standards will be submitted to the CWP as appropriate.
- Precisions about the relationships between the FIRMS Steering Committee and its TWG for the GRSF will be adapted mainly through a specific arrangement and any other modification in documentation pertaining to the FIRMS Governance during the next FSC.
- The FIRMS TWG meetings should include an agenda item for the GRSF and its content management, and actions to be taken over the year should be listed.



## **ABBREVIATIONS AND ACRONYMS**

ASFIS	List of Species for Fishery Statistics Purposes
CECAF	Fishery Committee for the Eastern Central Atlantic
CNR	Consiglio Nazionale delle Ricerche
COFI	FAO Committee on Fisheries
CWP	Coordinating Working Party on Fishery Statistics
EAB	External Advisory Board
FAO	Food and Agriculture Organization of the United Nations
FIRMS	Fisheries and Resources Monitoring System
FORTH	Foundation for Research & Technology
FSC	FIRMS Steering Committee
GFCM	General Fisheries Commission for the Mediterranean
GRSF	Global Record of Stocks and Fisheries
IATTC	Inter-American Tropical Tuna Commission
LME	Large Marine Ecosystem
MSC	Marine Stewardship Council
MoU	Memorandum of understanding
MPA	Marine Protected Area
NAFO	Northwest Atlantic Fisheries Organization
RAM	Ransom A. Myers Legacy Stock Assessment Database
RECOFI	Regional Commission for Fisheries
RFB	Regional Fishery Body
SDG	Sustainable Development Goal
SEAFDEC	Southeast Asian Fisheries Development Center
SEAFO	South East Atlantic Fisheries Organisation
SFP	Sustainable Fisheries Partnership
TWG	Technical Working Group
UUID	Universally Unique Identifier
WECAFC	Western Central Atlantic Fishery Commission
VRE	Virtual Research Environment
UWA	University of Washington

## **IMPORTANT REMARKS**

The term ‘partner’ is used herein in its general meaning of member of a formal collaboration. It has a specific meaning under the FIRMS partnership: the RFBs that have a voting right in the FIRMS Steering Committee. It is referred herein to as “voting partners” in that meaning.

TWG mentioned alone is the current TWG joint meeting. FIRMS TWG and EAB TWG are used when a distinction is necessary.



## **WELCOME ADDRESS, OBJECTIVES OF THE MEETING AND ADOPTION OF AGENDA (AGENDA ITEM 1)**

1. The joint meeting between the FIRMS TWG6 and the BlueBRIDGE EAB TWG3 on the Global Record of Stocks and Fisheries (GRSF) was held at FAO Headquarters in Rome, Italy, 7–9 February 2018. Mr Taconet, FAO-FIAS Branch Head, FIRMS Secretary and EAB Chairperson, officially opened the meeting at 09.00 hours on 7 February 2018. Mr Taconet thanked the participants for attending the meeting and welcomed them in FAO that hosted the meeting.
2. Mr Manuel Barange, Director of the FAO Fisheries and Aquaculture Division welcomed the participants to FAO and Rome. He emphasized that solutions for complex problems must be adapted for all parties and people, simple ones usually do not. Beneficial solution for all must be elaborated on standards and global systems built upon them. GRSF is an important project in that respect, and participants should make their time count. Mr Taconet thanked the Director for his motivating starting address.
3. Mr Taconet reminded the previous meetings of the Technical Working Groups of BlueBRIDGE and FIRMS, highlighting that the current one is a joint meeting to be reported to the BlueBRIDGE project and to the 11th FIRMS Steering Committee (FSC11), and detailed the meeting objective:
  - Examine the achievements of the Global Record of Stocks and Fisheries, and its sustainability prospects in an expanded FIRMS Partnership,
  - Report to: BlueBRIDGE project External Advisory Board, which will make recommendations to the EU donor regarding sustainability prospects,
  - Report to: FIRMS Steering Committee for decisions that could concern the Arrangement, Membership, Governance, Rules of Procedures, Business plan.
4. Depending on the results, a FIRMS extraordinary Steering Committee could be convened back-to-back with the 33<sup>rd</sup> Session of COFI, 9–13 July 2018.
5. In terms of business model, Mr Taconet:
  - reminded FIRMS' expression of interest for GRSF during the FSC10 through a preferred business model, a FIRMS-GRSF expanded Partnership, while recognizing the challenge ahead of this ambitious project, necessarily collaborative;
  - acknowledged the necessity to be realistic on what can be done and what cannot be done in the framework of this business model;
  - noted further that we are all convinced that no one in isolation could achieve the monitoring and traceability goals at global scale;
  - emphasized the need to shape together what partners are willing and able to do, finding the best synergies among the partners' respective goals and duties to achieve/reach the GRSF objectives.
6. Mr Taconet reviewed the structure of the workshop briefly. Participants introduced themselves, followed by brief discussions about relevant points, noting key points and developing recommendations.

7. Mr Taconet introduced the agenda noting the breakout by day:
  - Day 1 – Scene setting, achievements/outcomes of 30 months of project, first feedback by the attendants.
  - Day 2 – Core of the discussions – Business model, Governance. This discussion will shape the way forward. Some of the important key points will be discussed.
  - Day 3 – Business/exploitation plan. The consolidation of the TWG conclusions and recommendations will be the guidelines for the GRSF activities before COFI33 and FSC11.
8. Mr Taconet proposed the option for Mr Ramm and himself to be Co-Chairpersons like in the previous GRSF meeting, which was approved. They thanked the FIRMS Secretariat for hosting and organizing the meeting, and the partners of FIRMS and BlueBRIDGE for their ongoing contributions and commitment.
9. The list of present participants can be found in Annex 2.

***FIRMS partners:***

- Food and Agriculture Organization of the United Nations (FAO);
- Inter-American Tropical Tuna Commission (IATTC);
- Northwest Atlantic Fisheries Organization (NAFO);
- Southeast Asian Fisheries Development Center (SEAFDEC);
- South East Atlantic Fisheries Organization (SEAFO);

***FIRMS associated members:***

- Fishery Committee for the Eastern Central Atlantic (CECAF);
- Western Central Atlantic Fishery Commission (WECAFC);

***BlueBRIDGE EAB members:***

- Food and Agriculture Organization of the United Nations (FAO);
- Western Central Atlantic Fishery Commission (WECAFC);
- Sustainable Fisheries Partnership (SFP);
- University of Washington (UWA);
- Marine Stewardship Council (MSC);

***BlueBRIDGE GRSF team***

- Food and Agriculture Organization of the United Nations (FAO) - FIRMS database;
- Consiglio Nazionale delle Ricerche (CNR);
- Foundation for Research and Technology - Hellas (FORTH);
- Sustainable Fisheries Partnership (SFP) - FishSource;
- University of Washington - RAM Legacy Stock Assessment Database

## 10. Apologies

- The General Fisheries Commission for the Mediterranean (GFCM) expressed the intention to attend the meeting, unfortunately due to health problems, Mr De Rossi was not able to join the group.
- Mr Pasquale Pagano (CNR), Technical Director of BlueBRIDGE, attended remotely due to health problems.

11. The agenda was reviewed and adopted (see Annex 1). All meeting documents were made available online from the FIRMS, FAO, and iMarine/BlueBRIDGE websites.

## **VALUE PROPOSITION FOR A FIRMS-GRSF-SDG 14.4.1 PARTNERSHIP INITIATIVE (AGENDA ITEM 2)**

### **Agenda 2a: Introduction to the value proposition**

#### **Improving global dissemination and monitoring of stock status**

12. With reference to the topic, Mr Taconet and Mr Bailly (FAO) delivered an introductory presentation “Value Proposition for a FIRMS GRSF SDG 14.4.1 partnership initiative” (Doc GRSF/2018/2), outlining the main topics developed in the document. The presentation mainly focused on the use of GRSF in the context for improving global dissemination and monitoring of stock status. Under the BlueBRIDGE EU funded project and the iMarine initiative, the GRSF VRE was developed inside the collaborative D4Science e-infrastructure. GRSF standardizes stock and fishery data across different sources to assign unique identifiers after detection of duplicates, using the identifiers to aggregate other key information (e.g. status, catches). This huge amount of authoritative, freely available information, may also serve in return many purposes such as global fisheries assessment including but not limited to contributions to SDG 14.4.1 and SOFIA, traceability and certification in seafood trade and fishery research. The workshop participants were reminded that the main goal of the joint meeting is to plan the future of GRSF through developing further a business model/governance that was sketched during the previous EAB TWG2 and selected during the 10<sup>th</sup> FIRMS Steering Committee<sup>1</sup> meeting known as the FIRMS-GRSF expanded Partnership, as well as a business/operation plan.

#### **Discussion**

13. Ms Minte-Vera (IATTC) asked if a country has not its own database, would it be possible to use GRSF as its primary database? Mr Taconet responded this was a planned option.
14. Mr Spear (SFP) noted the importance of quality control (QA/QC) for the data record cleaning and inquired if this activity would be considered in the context of discussions of the business model during the meeting. Mr Taconet and Mr Bailly jointly responded affirmatively.

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<sup>1</sup> [www.fao.org/fishery/nems/40942/en](http://www.fao.org/fishery/nems/40942/en)

15. Ms Minte-Vera noted that GRSF includes the status of stock as well as fisheries, and inquired if the intent of GRSF was to provide the indicator of the stock status as well as the data. Mr Taconet responded that, as per “minimum requirement” approach, necessary metadata to identify the stocks and fisheries, and when available annual catch values will be gathered, but not the detailed data that were used and produced during the assessment.

### **Supporting needs for traceability**

16. Mr Spear presented a summary on the ‘Supporting needs for traceability’ (GRSF/2018/3).
17. Mr Spear noted that the unique codes for fisheries maintained as part of the GRSF will save time and money for the seafood supply chain, traceability/technology companies, governmental and non-governmental organizations (NGOs). Currently, most of these entities are using a wide range of bespoke standards and systems for identifying and sharing source fishery information. In other words, to date, a universal standard and code for identifying source fisheries has been unavailable, making the whole traceability and data exchange system in seafood limited in scale and inefficient. As a universal global standard, the codes available through the GRSF will initially supplement and ideally replace existing fishery identification systems for companies, governments, and NGOs interested in sharing information and traceability.

### **Discussion**

18. Ms Segurado (SFP) inquired if the GRSF initiative would include options for scalability. Mr Taconet responded that if needs are identified, the services would be developed, thanks to the D4Science infrastructure. The TWG will further address scalability, and proper scalars and standards would be further developed. Mr Bailly added that at this stage, there is flexibility, and discussions expected.
19. Mr Lefebure (MSC) noted the ambitious nature of the project, and that the largest challenge is the global acceptance by users, and further recognized the future potential for the GRSF. Mr Spear concurred to the recognition of the scope and further noted that attaching FAO to the custodianship could aid the acceptance of the partnership. Further as to the source of identification at the fishery level, this was considered relevant, however not at the fisher/vessel level.
20. Mr Gutierrez (FAO) noted that the operational characteristics of fisheries are fluid and changing, as well as the definition of ‘stocks’, thus the need to be able to consider the management of unique identifiers over time.

### **Partners views in respect of the value proposition**

21. Following the two introductory presentations on the value of the FIRMS-GRSF partnership, presentations were provided by the FIRMS/GRSF partners on the value of the partnership in the context of the informing Sustainable Development Goal (SDG) 14.4.1.

## **FAO**

### ***SOFIA and SDG14.4***

22. Mr Ye, FAO-FIAF Branch Head, delivered a presentation on the stock status indicator of the State of the World Fisheries and Aquaculture (SOFIA) and SDG 14.4.
  
23. The Sustainable Development Goals, adopted in 2015 by 193 countries, have 17 Goals and 169 targets to be measured by 268 indicators. The SDGs include a specific goal - Goal 14 – aimed at conserving and sustainably using the oceans, seas and marine resources for sustainable development. In particular, Target 14.4 states: “By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time possible, at least to levels that can produce Maximum Sustainable Yield (MSY) as determined by their biological characteristics”. Progress by countries towards this Target will be measured and monitored through the annual reporting of SDG Indicator 14.4.1 - Proportion of fish stocks within biologically sustainable levels. FAO is the ‘custodian’ UN agency for this and additional 20 indicators and a contributing agency for four more. A Technical Workshop on the Estimation and Reporting of SDG Indicator 14.4.1 was held at FAO headquarters on 21-24 Nov 2017. Its objectives are: (i) Raising awareness of SDGs and Indicator 14.4.1: significance & current status; (ii) Providing technical training in data requirements, data collection process, analytical methods to produce the indicator, and in monitoring process; (iii) Discuss the practicality of estimating and reporting the indicator at country level; (iv) Produce guidelines on the best practices in the estimation and reporting of Indicator 14.4.1.

### **Discussion**

24. The TWG noted that some participants knew little about SDGs:
  - Several countries have limited data and capacity for stock assessment and therefore may face various challenges in the production of the Indicator;
  - The need for capacity development and guidance on how to estimate and report SDG Indicator 14.4.1;
  - Simple methods can be tried for estimating fish stock status, as long as due attention is given to the potential uncertainty involved in results;
  - Communication and coordination between national statistical agencies, stock assessment institutions and those responsible for reporting and implementing SDG Indicator 14.4.1 should be enhanced;
  - FAO, as a custodian agency, needs to provide member states with technical supports for the estimation and reporting of SDG 14.4.1.
  
25. Mr Bailly asked whether it is the ‘proportion of stocks fished sustainably in the world’ or a composite index from the country reports. Mr Ye responded that the global SDG indicator would not be necessarily the sum of the national indicators. The matter is more complex with respect to the way each country distinguishes between species and stocks.

26. Mr Gutierrez noted the challenge is how ‘stock’ is defined, potentially as ‘unit of assessment’. FAO has defined what a stock is, but realistically the definition might differ from what SDG could define. It will be necessary to reach a consensus on what is a unit of assessment (biological unit, assessment unit, management unit), and maybe multiple definitions will be needed. For SDGs it is not clear whether FAO or countries will define the protocols to define a stock. Mr Bailly noted the conceptual definition of ‘stock’ is not important as long as the operational definitions and resolutions of selected ‘stocks’ do not change across time: more important is the trend of the statuses. Ms Gorelli (FAO) said that whatever method is used for aggregation, all the units that are used for reporting can be used in the final aggregation. Ms Ribeiro (FAO) would see countries defining their own stocks and reporting on them. For the ones shared, the agencies mandated to manage would have responsibility to aggregate. Mr Ye indicated that currently SDG 14.4.1 being a global indicator, does not currently relying on country definitions. If GRSF can assign a code on all stocks, then it will be easier to combine stocks. Mr Taconet noted that FIRMS standard include stock definition from a biological viewpoint, recently while working on the GRSF, the notion of assessment unit was considered and its adoption as part of the standard is in progress within the FIRMS TWG members.
27. Mr Spear noted that to be scientifically valid the unit should be biological unit, however this is not always the case since for many assessments it is a management unit. Even if a reporting unit definition is chosen, there are many exceptions in the reporting reality. Mr Ye noted the preference for management unit because full biological units are often difficult to identify, this does not prevent to search for better operational methods on how to conduct assessments on biological units.
28. Mr Taconet further reminded that a list of stocks to monitor was developed in the past. Possibly, it would be practical and efficient to continue to monitor the list consistently over years. Mr Ye confirmed that this was considered as the reference list.
29. Ms Ribeiro noted the necessity to record the sources of the indicator.

### ***SDG monitoring and reporting framework***

30. Ms Ribeiro gave a summary on the FAO corporate SDG monitoring and reporting framework.
31. A significant factor in the success of the SDGs is the new and effective ways of collecting data, monitoring targets and measuring progress. This is of particular relevance for fisheries related indicators, as Indicator 14.4.1 – “Proportion of fish stocks within biologically sustainable levels”, which mostly rely on data sources managed outside of the National Statistical System (NSS) and which due to its nature do not easily adhere to the same aggregation and terrestrial organization as the data produced by indicators under other SDG goals. Furthermore, in March 2017, the UN Statistical Commission has endorsed key decisions regarding the SDG global monitoring and reporting process and the role of the Custodian Agencies of SDG indicator, which imports discuss.



32. Ms Ribeiro introduced the Global SDG indicators' process, the FAO key areas of work on SDG indicators and described the work developed for Indicator 14.4.1 from the reporting process viewpoint. FAO as Custodian Agency of indicator 14.4.1, is requested to lead in four major areas of intervention: 1) development of methodologies and documentation of the indicators; 2) support statistical capacity of countries to generate and disseminate national data, 3) collect data from national sources and ensure their comparability and consistency, and disseminate them at global level, and, lastly 4) contribute to monitor progress at the global, regional and national levels. Complementarity to what had been presented by the Focal Point for SDG Indicator 14.4.1, Mr Ye, which focused on the development of methodologies and documentation to guide countries on the production of data to feed the Indicator 14.4.1 and on the initiatives towards the technical and capacity support to countries; this presentation focused on the data reporting and on the monitoring process. What FAO is reporting currently to the United Nations Statistical Commission (UNSC) and what should be reported in the future when countries' data begin to be consistently collated from the national authorities by FAO, and therefore the data reporting can be further disaggregated with more details in comparison to the current global reporting that contains only the overall figures.
33. Several points were brought to the attention of the workshop, which services provided by FIRMS/GRSF partnership are believed to be of relevance, and which are important to be discussed within the current setting. These are points related with the distinction between national and non-national fishing stocks, fundamental question to ensure the consistency of what to be reported by countries and the process of national reporting of indicator's data.
34. Mr Ryder (FAO) delivered a summary on the FAO framework on traceability 'Supporting needs for traceability' (GRSF/2018/3).
35. From the perspective of potential "users" of standardized information about a fishery in terms of data for traceability, the idea of having a unique identifier for a fishery stored in a centrally held and managed database certainly has its attraction. Both catch documentation schemes and ecolabelling schemes look to track critical information from the source to the end user. Food safety traceability also needs source data, but is less worried about the status of the fishery, but can certainly have food safety issues associated with a fishery. And, using the example of the EU labelling laws for the information for consumers, the information available in the GRSF identifier would certainly contribute. The challenge will be in combining information into the existing traceability systems, and even between traceability systems. It is worth noting that having source information would also bring further credibility to the source material (the fish entering the chain) in the eyes of many consumers. It is noted from the discussions that there were many issues that need to be resolved still in order to achieve the ambitious goal of the GRSF but the goal is worth chasing.

### **GRSF Partners**

#### ***University of Washington (UWA)***

36. In reference to the "value proposition" topic, Mr Melnychuk (UWA) delivered a presentation on the use of the GRSF (with reference to scientific research on stock status

and fisheries management) with respect to the Ransom A. Myers Legacy Stock Assessment Database (RAM) that UWA maintains.

37. GRSF will facilitate ongoing fisheries research programs around the world, and will open the door to new research possibilities. A centralized repository with comprehensive global coverage, consistent data outputs, and quality control which harmonizes component databases and avoids data duplication errors will remove the burden for individual researchers to each go through these data mapping and filtering steps themselves. Establishing linkages to external datasets, or making it easy for those datasets to link into the GRSF, will expand the scope of possible data types for users to consider in analyses. Between the extremes of bulk data downloads for all stocks or fisheries and accessing information for individual stocks or fisheries, there is a continuum of possible data subsets, and flexible filtering capacities on the GRSF website will provide users the ability to subset the full dataset along several possible component variables, and possibly to display aggregated summary data for the specific subset selected by the user. The ability to link GRSF stocks with GRSF fisheries and subset the stock dataset with respect to components of the fishery identifiers, will allow for many possible research questions of fishery attribute influences on stock status. Possible linkages with other spatially-explicit databases such as MPA databases, climate databases, or LME datasets will allow researchers to focus questions around overlap of these external variables with stocks or fisheries. Researchers often struggle individually with trying to join together time series data of stocks that have either split or merged at some point in the monitoring history, or else they omit these stocks entirely due to the difficulty of making these joins reliably; the possibility of establishing these records of stock splits or merges within the GRSF, linking to past or future UUIDs of the resulting parent or child stocks, will provide researchers a standard for accounting for these stock splits and merges over time. Finally, the GRSF provides a standard platform to which stock-level or fishery-level data could be linked, beyond the variables initially contained in the GRSF, such as life-history data, survey data, price data, vessel data, or links to a variety of spatial data.

### **Discussion**

38. Mr Gutierrez inquired whether 1) GRSF is a platform for stocks that are assessed, or for stocks not having been assessed and 2) and if there is a way to use this for defining protocols for what is a credible assessment. Ms Gorelli noted that the owner of the information being submitted to GRSF validates the assessment. Ms Cummings (WECAFC) commented that from the WECAFC perspective, the database would serve both the data rich and data poor communities. Additionally, that the owner of the information would be the most likely candidate for validating their assessments.

### ***Foundation for Research & Technology (FORTH)***

39. Mr Minadakis (FORTH) commented on the ‘value proposition’ for the FIRMS-GRSF partnership from the perspective of Information Technology (IT) partners.
40. Mr Minadakis stated that FORTH endorses the value proposition. Further they can ensure sustainability of maintenance and can support announcement of new services

(previously noted by the Secretariat in the Introduction). In particular: i) FORTH endorses the Value Proposition that was presented and is willing to continue to participate in the GRSF activities, ii) FORTH will support the maintenance of the source code that is required in order to have a viable GRSF (harvesting, transforming, matching, importing querying), iii) FORTH will support the maintenance of the GRSF Knowledge Base, iv) FORTH will provide support on improving the mappings between the sources data, iv) FORTH is able and willing to provide support on refreshing of data (re-harvesting, transform, merge and import), v) FORTH is able and willing to support the periodical reconstruction of the GRSF Knowledge base, vi) FORTH is able and willing to assist on the addition of new sources, concepts, standards to the GRSF Knowledge Base and to the coverage of new requirements, vii) FORTH is able and willing to assist on the technological improvement of the GRSF Knowledge Base, viii) FORTH is able and willing to assist on the implementation of querying APIs, and ix) FORTH is able and willing to assist on the production of GRSF as a concrete product and on the deployment of it to external entities.

### **Discussion**

41. Mr Gutierrez asked whether the validation of the GRSF has been already done. Mr Gentile (FAO) clarified that such validation is part of the project deliverable and would be more discussed in the governance section.
42. Ms Gorelli questioned Mr Gutierrez about the collated information for the SOFIA reports, what type QA/QC is done. It was answered that they look at the validation information provided by the submitter.
43. Mr Taconet commented on the good work that was being done by the CNR, FAO, and FORTH teams, which have a powerful capacity to add and extend the services for the GRSF. Further, it was good to learn that the will is there to continue the support.

### **FIRMS Partners**

44. FIRMS Partners commented on the value proposition in the contexts of the FIRMS-GRSF partnership and SDG 14.4.1.
45. **For WECAFC**, Ms Cummings indicated that WECAFC is supportive of GRSF that should be of large interest for the community. She added that survey information are important in that context.
46. **For NAFO**, Mr Blasdale reported that the expanded partnership is supportive to the GRSF, but most likely NAFO will be more of a data provider than a user. NAFO will be interested in learning how the data can be input into the system and identity areas where could use the services.
47. **For SEAFDEC**, Mr Pattarapongpan (SEAFDEC) indicated that data collections and analyses of tunas and sharks (bigeye, skipjack, yellowfin) using ASPIC models are ongoing. Noting two main fishing areas exist. Regarding allocation, the landing data are used to apportion the quotas. Another project is the catch documentation scheme for which a pilot study is ongoing. SEAFDEC can envision the use of GRSF to better apportion quotas. Mr Chanrachkij (SEAFDEC) indicated that data collection is not a

priority for all member countries in spite of being one of the most important activities for stock assessment. In some cases (anchovy and swimming crab), it is not even clear if data collected for stock assessment are the one submitted to SEAFDEC. SEAFDEC provides data collection trainings and standardization to all countries and accuracy is often not discussed, thus using a system as GRSF would add efficiency and improvement in statistics and standards. Policy is also particularly important. Assessment data from research survey are also used to ground truth/confirm abundance. Some countries use only survey data and not catch data. SEAFDEC encourages countries to use multiple data types including acoustic data when available. There is the need to encourage and to support the countries technically, also with training on stock assessments. SEAFDEC supports the GRSF, but countries need to be convinced it can help the SDG reporting. Mr Bailly asked if the Catch Documentation Scheme in the SEAFDEC area makes use of TrawlBase developed by WorldFish for the ASEAN countries. Mr Pattarapongpan answered negatively.

48. **For CECAF**, Mr Sedzro indicated that stock assessment is also conducted in two ways in the CECAF region, using acoustic surveys conducted using national vessels, and using catch data (catch and effort). Two subregions are delimited: North Region (Morocco to Senegal), South Region (Senegal to Congos). In the North Region, the work is supported by two working groups (pelagic and demersal). In the South Region, countries bring data to the meetings for analyses, but apparently, they are usually not complete enough to run assessment models correctly. Fisheries are mostly artisanal and the method is for the entire stock: some countries report only the industrial fleet, not the artisanal ones which are usually preponderant. A better communication and collaboration with national scientists is needed to improve the collection of data.
49. **For SEAFO**, Ms Voges reported that SEAFO will continue to provide data as previously. She commented that catch statistics are not very useful as currently reported, SEAFO is looking to expand into South West Atlantic region, currently only covering Area 41, and it would be good if it can become a data source. The contracting parties have their own local databases with issues on confidentiality, all data are available online but restricted. In SEAFO area, surveys were conducted by Spain and Norway, but the data were not made available publicly. Also, it would be good if fisheries could collect data on seabirds. Finally, it would be a useful service if GRSF could offer a search mechanism for fisheries data worldwide.
50. **For IATTC**, Ms Minte-Vera, being new in the FIRMS-GRSF activities, is not in a position to give a final opinion. IATTC already provides data at stock level to FIRMS and will continue. Incidentally, countries request support on species other than tuna, which led to some recent stock assessments using information from FAO which was useful. Countries also perform PSA analyses, thus having this type information would be useful for them.
51. Mr Gutierrez noted there is the work being done for SDG 14.4.1 and for the SOFIA stock indicator, which may generate large duplication of work for RFB. He also wondered how the platform can be used to further expand the documentation on impacts on resources where the status is not assessed.

52. Mr Chanrachkij noted that sharing data is important. SEAFDEC worked to improve this by hosting/supporting workshops on data sharing and stock assessment.
53. Mr Taconet noted that the FIRMS Secretariat is well aware about the difficulty in developing countries to prioritize activities, nonetheless it is important to have goals. On the topic of collaborative platforms, sharing data from other platforms to improve information content is a key factor (e.g., WECAFC, other RDBs, GRSF). He asked how GRSF could contribute to the process, citing two examples: 1) the case of straddling stocks, and 2) how SEAFDEC can begin to list their stocks in the context of SDG 14.4.1.
54. Mr Chanrachkij suggested that data from different countries can be compared. In case of the south area, catch data and assessment model program from FAO can be shared and compared at working groups.
55. Mr Pattarapongpan indicated that SEAFDEC is working also on shark stocks. Over the ten countries, only four of them are performing proper assessments, two of them are keen to manage shark stocks, and appear to be as champions for other countries. Top producers could provide technical advice and work with others sharing experiences and methods.

### **Final discussion**

56. After the presentations by partners on the ‘value proposition’, the participants were asked to offer further input during the three days meeting on the potential value, concerns and/or challenges of the proposed FIRMS-GRSF partnership.
57. Mr Lefebure indicated that MSC fully supports GRSF as a primary data user and certainly recognized the potential on long term. If GRSF can disseminate a comprehensive picture and then receives a global acceptance, the certification agencies could bring more robust information supporting the certification data. He noted that both SFP and MSC are similar in function and if GRSF goes further than the basic information required to the validation process, then it would add greater value. Mr Gutierrez suggested that MSC could also be a data provider to GRSF.
58. Mr Ramm concluded that much good discussion ensued on the value proposition and in general there seems to be a strong consensus on supporting the partnership.

### **THE GRSF DEVELOPMENT STATUS (AGENDA ITEM 4)**

59. Mr Gentile presented the current GRSF development status and the main methodology steps were detailed: data collation from the three database sources (FIRMS, RAM, FishSource), GRSF standards and data harmonization, unique identifiers.
60. Data collation: given GRSF business cases (support SDG 14.4.1, traceability), only selected data from FishSource/FIRMS/RAM were processed to produce the GRSF Knowledge Base. In particular: i) time independent information for the identity of stocks and fisheries (species, area gear, etc.), and ii) time dependent information

including time series of stocks status descriptors, catch or landings, scientific advices. Collating these sources results in an increased global data coverage.

61. The GRSF standards were summarized, the GRSF TWG2 meeting (February 2017) consolidated the standards for the fields of the GRSF records, a few improvements were made since then. The database structure was also presented as well as the working definitions applied within GRSF.
62. The GRSF harmonizes different existing standards (international, regional and national) from different data sources with the aim to build unique identifiers for stocks and fisheries. The standardization of the codes at source level is still the desirable solution. When possible, mapping to standards is the way to handle source data when not compliant with the GRSF standards. Issues were recognized for standards on areas and management authorities (related to management units), more work is needed on that including the support from other projects.
63. The GRSF identifiers are of two types: i) Universally Unique Identifier (UUID) – a machine readable code to respond to whatever global IT standard, and ii) Semantic Identifier – a human readable code for records identification and validation, product labelling, etc.
64. The GRSF was created a key collaborative instrument to collectively support the global monitoring of fish stocks and fisheries status, it can be tailored for use by countries / regional organizations / fishery-related institutions etc. to enable/facilitate the dissemination and monitoring of their information. The information is managed in a web-based collaborative environment, a dedicated Virtual Research Environment (GRSF VRE) allowing multiple contributions in a data validation workflow. Updates and incremental contributions are also facilitated. Transparency is valued through source and ownership metadata, proper citations and credits.
65. In terms of data coverage, the quality control and information cleaning work is in progress (e.g. identifying/connecting duplicates), and about 2 000 records for unique stocks and 6 000 for fisheries are expected at the end of that process.
66. The GRSF requirements, definitions, meeting minutes, and technical documentation are stored in the BlueBRIDGE Wiki at <https://support.d4science.org/projects/stocksandfisherieskb/wiki/GRSF> (login required).

## **Discussion**

67. Mr Melnychuk inquired whether the code system is displayed along the area code (otherwise there could be misinterpretations), and if the links are kept between a stock and its fishery. It was clarified that each code is always accompanied by its classification system. In the semantic identifier, the classification system is referenced as acronym in the namespace (prefix), if it is not part of the GRSF standard then any non-standard code is treated as a text string and qualified as “unknown”. Regarding links between stocks and fisheries, the system allows to establish unique connections and to flag records suitable for SDG 14.4.1 indicator or for traceability purpose.

68. The TWG discussed on the utility of UUIDs for traceability of fish products when a fishery cannot be linked to one single stock/assessment unit. In particular, there can be overlapping UUIDs for marine resources (with broader distribution areas) and encompassing assessment units. The TWG asked the GRSF team to further investigate whether there is the need at this point to have UUIDs associated to marine resources (possibly a minor portion of the database affected). The GRSF team was also asked to formulate a proposal on how to capture in the GRSF the unassessed resources and the need to track them through traceability systems.

### **THE GRSF OBJECTIVES, AND LIVE DEMONSTRATION OF THE GRSF APPLICATION (AGENDA ITEM 3)**

69. Mr Gentile gave a practical demonstration of the GRSF catalogue and its browsing functionality. He showed GRSF records generated by combinations of multiple sources and the attached data series in csv files (e.g., stock status descriptors, catch, landings).

#### **Discussion**

70. Ms Segurado and Mr Spear noted that an assessment unit should not be flagged for traceability. Traceability flag can be applied exclusively for eligible fisheries.
71. Mr Gutierrez asked what is the added value developing the GRSF instead of going to the data sources, beyond the UUIDs? Ms Gorelli replied it is having all the data collated together. Mr Gutierrez stressed the point that the real added value, at least from a FAO point of view, would come from the collation of data that is not publicly available elsewhere, especially in data-limited contexts.
72. Ms Ribeiro pointed out that an added value could be also in the standardization of stock status on top of the values provided by the data sources.
73. Emphasis was given once again on the importance of validation
74. Mr Minadakis pointed out that an added value is also the generation of knowledge on what are the overlapping stocks among the different databases.
75. Ms Minte-Vera pointed out the UUID to be used by all parties working on and about stocks.

### **REALIZING THE VALUE PROPOSITION – REVIEW OF POSSIBLE INFORMATION PRODUCTS/SERVICES (AGENDA ITEM 5)**

76. Ms Gorelli delivered a presentation on possible products and services (P/S) which could be produced upon the GRSF knowledge base.
77. P/S unique to GRSF: Assignment and publication of validated UUIDs for stocks and fisheries; P/S facilitated or strengthened by GRSF: i) publication of information and data for individual stocks and fisheries, ii) services to summarize stock status at different geographic levels, iii) services to download available data applying customizable filters, iv) services to download SDG 14.4.1 indicator by country and

related information (possibly a tool to validate whether the indicator was calculated according to guidelines), and v) inclusion of data that is currently not publicly available. GRSF can store information on stocks that are monitored at different jurisdictional levels (e.g. national, regional) and can be used to ensure consistency among the different reporting levels. Regarding country contribution, the GRSF can provide a tool to evaluate compliance of SDG indicator 14.4.1 reported by countries with FAO guidelines. In addition, GRSF can serve the collation and dissemination of data not currently publicly available.

## **Discussion**

78. Mr Gutierrez noted that the coverage statistics are with the assumptions that those stocks have been validated and recognized as overlapping. Mr Taconet clarified that 256 fisheries sourced in FIRMS produce a high number of GRSF fisheries each of them identified with a combination of a single species, a single gear and a single flag state. Some of them might be unrealistic but this is the potentiality of the GRSF handling huge combinations of fisheries.
79. Mr Melnychuk noted that in the dissection process the original catch time series cannot be dissected into the GRSF records. Ms Gorelli confirmed that such data need to be grouped under “umbrella” records, today available in the GRSF only as source records (“legacy” type). Regarding downloadable files compiling multiple time series for a specific stock it was noted that the different database sources complement each other in different indicators; in other cases, the information overlaps.
80. Mr Lefebure appreciated the information grouping of information from different sources based on specific standards and harmonization rules.
81. Mr Taconet referred to examples to stock assessment conducted for similar assessment units at national and regional level and the guidelines on SDG should indicate how such records should be treated in the GRSF. Soon data from countries will be provided and pilot exercises should be carried out. Mr Gutierrez highlighted the added value of the unique identifiers and expressed the need to better identify the value in accessing data through GRSF and possibly redundancies with original sources or the SDG database. Mr Bailly made the example of taxonomic databases which hardly are aligned and the efforts made to build distributed database were not successfully in the past. A discussion was held on how to identify stocks and the difficulty to conciliate similar assessment units, while addressing the validity of different stock assessments is beyond of the GRSF scope. The FAO SDG database should be the place where computed information from the GRSF can feed.
82. Mr Melnychuk clarified a comment made in the survey regarding associating information on dissected fisheries, where it would be needed to associate time series to multiple species. Mr Spear highlighted the need to have catch time series by fishing unit for sustainability considerations and scoring system. Ms Segurado complemented how the unique identifier is giving the information on the existence of a stock/fishery, the “supra ID” (not yet implemented in the GRSF) would be aggregating the information for that family of fisheries.



83. It was clarified that the level of granularity for single species/gear/flag state was specifically designed for the traceability business case of the project. However other types of fisheries are handled in the GRSF and can further qualified and used for different purposes.

## BUSINESS MODEL FOR A FIRMS-GRSF-SDG 14.4.1 PARTNERSHIP INITIATIVE (AGENDA ITEM 6)

### FIRMS-GRSF expanded Partnership as the Business model

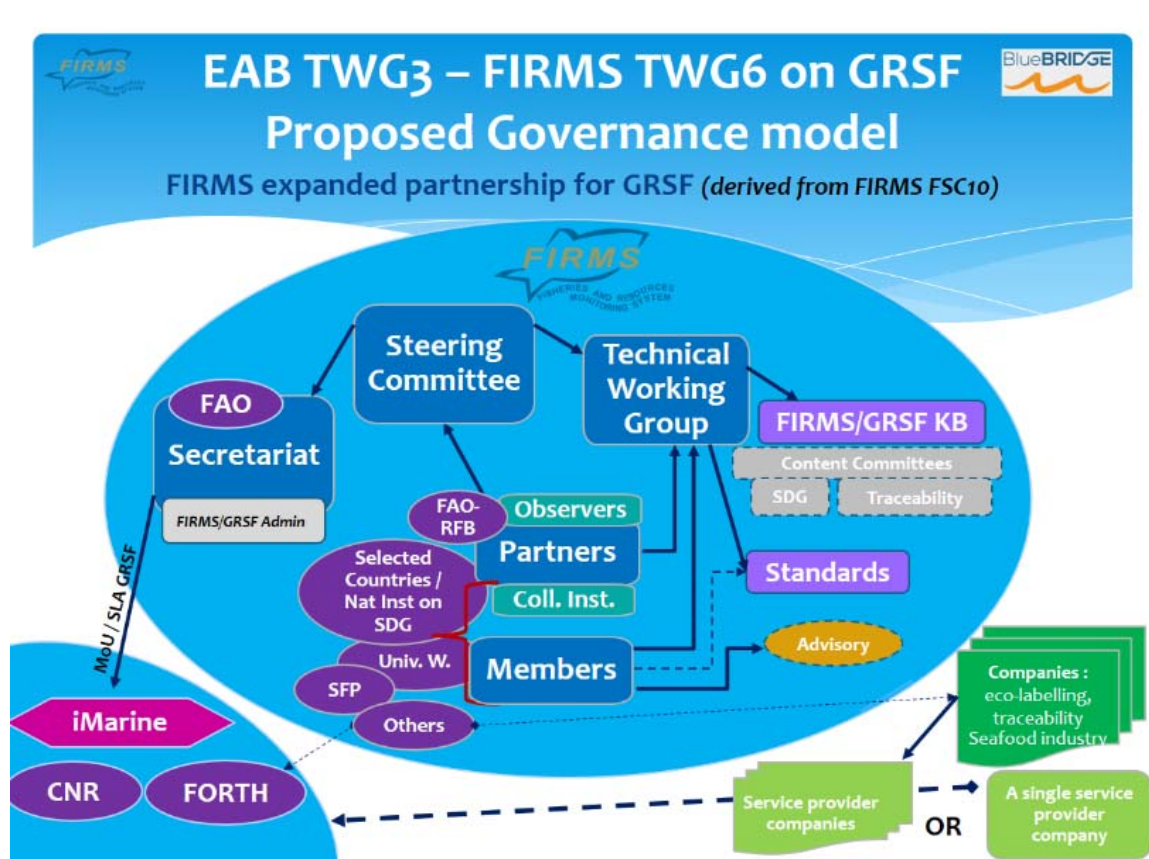


Figure 1. Business / Governance model under the FIRMS expanded Partnership adapted with the conclusions of the TWG.

84. Mr Taconet presented the background information on the FIRMS partnership and Information Management Policy, and Mr Bailly introduced the GRSF options discussed at the EAB TWG2 on GRSF and FSC10.
85. The TWG reviewed options for the business model and the advice from FSC10 for a FIRMS-GRSF expanded Partnership. Under this FSC10 preferred model, the GRSF would sit within the FIRMS policy framework and accommodated in an amended governance structure.
86. The TWG recognized that changes to this framework may be required in order to accommodate the scope of the GRSF, such as the inclusion of countries in the context of SDG which will require further consideration. For example, countries submitting records to GRSF may be represented in FIRMS by a regional representative country and this membership may be on a rotational basis.
87. The TWG noted that future revisions of the FIRMS policy framework would need to be referred to FSC for consideration and approval. The structure of the FIRMS-GRSF expanded Partnership may include inter alia partners, collaborating institutions, data custodians, FAO regional organizations and members which may have different roles and rights within the consortium. Possible arrangements were further discussed.
88. The TWG also noted that in cases where FIRMS partners also submit data to the RAM database, the inclusion of GRSF in FIRMS may provide improved efficiencies by avoiding duplication in data submission. However, the increased requirements of FIRMS-GRSF may also introduce additional workload for some partners. The TWG agreed that the development of common templates may assist in this respect, and partners were encouraged to explore such options.
89. The TWG noted that the GRSF is driving new standards and the use of UUIDs will allow integration in reporting and the aggregation of knowledge in stocks and fisheries. Further, the associated development of guidelines for countries reporting under SDG 14.4 and an e-learning module are expected to assist countries in the reporting, dissemination and monitoring of stocks and fisheries. The GRSF will provide a platform for submitting these data, monitoring tools and transparency.
90. The TWG also noted that the FAO guidelines for SDG are being developed to assist countries in submitting the required information. However, countries are not bound to these guidelines and may decide to use alternative approaches. In some cases, the SDG requirements will pose challenges for those countries not having adequate data series and/or the capacity to conduct stock assessments. The FAO involvements in this process, as the custodian of SDG 14.4, will assist in developing capacity and establish monitoring and reporting.
91. The TWG noted that GRSF data providers could be collaborative institutions and not only a source content provider. The FAO Legal Office will check the implications for the FIRMS Partnership Agreement, the Rules of Procedures and any possible adaptation. Collaborative institutions or new partners will have to comply with the FIRMS mandate. Data providers share with FIRMS and the GRSF public data, they can be the data originators or re-distributors. Such data can be exposed also through web

services, in example with methodologies for scoring quality assurance and quality indicators reviewed by FSC.

### **Discussions about including GRSF data submission within FIRMS data submission.**

92. A question was raised about the duplication of work for RFBs, if they serve both FIRMS and GRSF, and others. Mr Gentile confirmed that data for the GRSF are already collected from FIRMS in a specific automated workflow, hence there is no additional effort to contribute GRSF from a data submission viewpoint. Mr Taconet complemented by saying that if RFBs submit their whole data to FIRMS, RAM and FishSource, these 3 databases could work on the data areas with gaps. Ms Minte-Vera noted that FIRMS submission is part of RFBs' duties, and ideally, the submission to FIRMS should ensure the update of the data every year for RAM and others, thus avoiding duplicated and time-costly work. Mr Melnychuk suggested merging the import templates of the 3 databases in a single one for a unique data submission in FIRMS including the specific needs for RAM and FishSource.

### **Involving countries in GRSF**

93. Mr Taconet asked if the countries should be involved in GRSF in the context of the SDG 14.4.1. Mr Gutierrez reminded the importance to avoid duplication of data if they would come 1) directly from national data, and 2) indirectly from RFBs to which countries report.
94. Mr Spear said that it would be good if countries are reporting directly to GRSF but questioned how they can be attracted. Mr Lefebure said he really likes the idea with some questions: how will it work for standardization? How much report will it be asked to countries? Mr Taconet indicated that according to the FAO guidelines on monitoring and reporting on SDG indicators, the countries will have to report on the status of stocks and fished areas. GRSF can be extended for receiving the list of stocks by country, standardizing and publishing them, this will also help to enhance the knowledge base. There would be a leader country from each region. Reporting will remain under the responsibility of the countries, GRSF will disseminate and offer services.
95. Ms Ribeiro stated that GRSF data collated and reported by country is an added value, but it requests very strict guidelines and strong harmonization. Mr Gutierrez added this harmonization and quality control should be taken really seriously into account. Ms Segurado remarked that the countries will report on their stock status as they want anyway. Ms Ribeiro reminded that FAO is the custodian and has a role to ensure the data are properly submitted. Ms Gorelli indicated that FAO will support the countries to submit their data. GRSF has the role of taking care that the indicator was reported well following the guidelines. Mr Gutierrez objected that is not the tool to report on the indicator, only the tool to ensure that the indicator was well reported. Mr Lefebure remarked that countries will submit and FAO, as custodian in its role, will take care of the quality of the submission. Mr Gutierrez indicated that an e-learning module is being developed for estimation of the indicator. SEAFDEC explained that as RFB they have to harmonize the data submitted by the countries, FAO may be interested to see what is

in use in their region. Mr Barange indicated that guidelines will be presented to the countries that will be able to use them or to keep their own systems, FAO will not impose its way and to put data as FAO want them to be. There is not enough detail in the indicator to see how they have to report it, it only says they have to do it. Mr Gentile suggested that GRSF can be presented to the countries as the system to use for reporting if they are following the guidelines: FIAS gives the guidelines, FIAF presents the methodology to use, and OCS offers the system to report it, GRSF executes the storage, dissemination, and monitoring.

96. Mr Sedzro asked how many stocks will be submitted by countries that are not already contemplated in the RFBs. Mr Taconet replies that's the big question, in example it seems that Turkey indicated to have only shared stocks. Mr Sedzro further confirmed that CECAF Member Countries have additional information to submit out of the shared stocks.
97. Mr Bailly asked what would be the benefits for a country to join the GRSF partnership and submit their data, particularly for those countries that do not provide data yet through RFBs. Ms Minte-Vera suggested supporting them on capacity building. Mr Gutierrez indicated that some of these countries do not submit for political reasons. Mr Taconet suggested that the UUIDs can be an incentive for countries. Ms Minte-Vera remarked that the RFBs' databases are used by countries to get their compiled data back, GRSF could play the same role.

### **Service Level Agreement**

98. Mr Pagano presented information about the VRE Service Level Agreement (SLA) and options for future services that includes provision for services, rights and obligations. Rules that regulate the access to the service by users, who are of two different types in the case of GRSF: managers (GRSF Admin: manage the records) and users (GRSF: open access services). Privacy policy is the legal document about how to manage users' personal information.
99. The TWG acknowledged that GRSF is currently supported by a MoU between FAO and CNR. SLA is under such MoU, still in a draft form but cleared by all FAO departments. Any updates will take place after the outcome of BB project with the understanding that CNR has already an agreement with FORTH through an SLA until 2020. Mr Pagano said that also the SLA concerning the use of the MatWare software between FORTH and CNR will have to be renewed. FAO/FIRMS will contemplate the SLA on GRSF matters which eventually would be signed by FAO/FIRMS, CNR and FORTH.
100. The TWG noted that a future renewal of the SLA would be negotiated by the FIRMS Secretariat and reported to the FSC with the Terms and Conditions and will be within the goals under FIRMS. In the future, if there are specific needs for specific clients (e.g. SFP), then those clients may wish to contact CNR and develop a separate SLA for specific services. Mr Spear expressed that the agreement scenario under FIRMS, as now proposed, makes sense.

### Data access and sharing policies

101. Ms Katifori presented the meeting document “Data access and sharing policies for the Global Record of Stocks and Fisheries”, options on data access and sharing policies were introduced, particularly for GRSF records citation and disclaimer. These options were derived from existing arrangements in use by FIRMS and D4Science (iMarine).
102. The Global Record of Stocks and Fisheries (GRSF) as a service needs to find its place within a growing volume of transborder data flows for which global data protection policies are not yet fully defined. The development and promotion of legal interoperability is therefore of high importance for GRSF and serve as a best practice example for stock and fishery data in general. The meeting document defines the legal interoperability as the compatibility of legal rights, terms, and conditions of databases from two or more sources so that the data may be combined to be offered for different uses in a clear legal framework and without compromising the legal rights of any of the data sources used. The meeting document also contains: i) a proposal for the terms of use, based on the iMarine ones, by detailing the disclaimer, copyright and citation policies, ii) the general issues involved in data citation as an important aspect of legal interoperability along with the GRSF specific characteristics, and iii) the perspective of the three data providers involved in GRSF.

### Citations

#### Citation template for GRSF records

© [Copyright holder]. [Title] ([Year]). In: Global Record of Stocks and Fisheries (GRSF). [Publisher]. Version: [Version]. Updated [Update date]. [Date accessed and/or downloaded [Access date]]. [GRSF Record URL]. Database sources: [Database sources]. Sources citations: [Citations to the database sources]

#### Citation template for FIRMS source records

[© FAO] [Date created]. [Title of content]. [Series title]. [Contributors]. In: Fisheries and Resources Monitoring System (FIRMS) [online]. Updated [Update date]. Accessed [Date accessed and/or downloaded]. [URL]

#### Citation template for RAM database

RAM Legacy Stock Assessment Database. ([Date created]). Version: 4.25. Updated [Update date]. Accessed [Date accessed and/or downloaded]. Retrieved from <http://ramlegacy.org/>

## Citation template for FishSource source records

© SFP. [Date created]. [Title of content]. [Series title]. [Contributors]. In: FishSource [online]. Updated [Update date]. Accessed [Date accessed and/or downloaded]. [URL]

103. The FAO Partnership Division (DPSP) presented the “partnership strategies” guidelines which FAO developed jointly with relevant stakeholders to facilitate partnerships establishment within FAO and private sector and/or civil society organizations. The TWG noted that a draft “partnership strategy” should be provided by DPSP with options for a FIRMS-GRSF expanded Partnership, including guidance on data collection modelled on the UN Statistical Unit, data publication as foreseen in FIRMS Annex 2, the rules of procedure, and decision making.
104. The TWG noted that under such an expanded consortium, FSC may wish to consider introducing the concept of member and/or collaborative institution for including inter alia countries, resources providers, NGOs and/or private companies in FIRMS.
105. The TWG recalled that FAO is a knowledge sharing institution and is mandated to release all information freely in the public domain.
106. Mr Gentile suggested to treat the proposals as a living document to be used for the immediate project deliverables and then reviewed for the long-term sustainability of the product.
107. The TWG acknowledged that currently the FAO copyright is used for FIRMS web pages and fact sheets.

**FAO views on the FIRMS partnership expansion**

108. Mr Claros Oviedo (FAO) and Mr Mahla (FAO) introduced the FAO Guidelines for Partnerships that have provisions on the agreements with Non-State actors (MoUs).
109. FAO also contemplates multi-stakeholders agreements. FIRMS-GSRF partnership brings to the table many issues. The FIRMS Partnership Agreement should be checked by the FAO Legal Office on a possible modification (FAO role, data policies, etc.). The FAO Partnerships Division (DPSP) can support FIRMS how to include private sector aspects, look for rules that can offer some flexibility to add new partners. A partnership open approach brings risks that must be assessed. FIRMS can have members of the partnership but not necessarily partners. There are policies about public information for which FAO is sensitive. FAO knowledge must be public, it is understood that some information could be handled for funding opportunities (hence not publicly available) but FAO cannot ask money for its data and information which are expected to be public. Private companies could offer financial support but this has to be consulted with the FAO Legal Office.

## **Discussion**

110. Mr Melnychuk asked if the information from RAM that is not officially published (mainly emails from stakeholders) can be used in the citation system. Mr Gutierrez suggested that data could be converted in a PDF and referenced. Mr Gentile replied that such documentation can be attached as source reference of the assessments.
111. Mr Bailly remarked that GRSF wants to sell products developed with the data, not the data themselves. The FAO Partnership consultants still answered negatively. Mr Taconet cited the ASFA example, it was replied that FAO does not build this type of partnership anymore. Voluntary contributions can be asked for GRSF public information and no partnership agreement would be needed for that. However, accreditation agencies could impose enterprises to use their products based on GRSF to be able to enter the market.
112. Mr Gentile asked if FAO has proper definitions to distinguish voting partners from members. It was replied that voting partners are legally bound in a bi- or multi-lateral cooperations, whereas Members are part of the partnership in a more informal way. The TWG asked for investigating how FIRMS could create members or collaborative institutions.
113. Mr Taconet asked about including countries as voting partners. The partnership consultant replied affirmatively but warned about the implications. In terms of decision making it would be better to keep the consensus with the original partners or within a limited number anyway.

## **GOVERNANCE (AGENDA ITEM 7)**

### **Key elements**

114. Mr Bailly presented the key elements that are to be discussed during the session:
- Data content management (with not yet consolidated roles)
    - o Standards setting and maintenance
    - o Data provision
    - o Data custodianship
    - o Data handling
    - o Data policies
    - o Data and UUIDs publishing
  - Governing structure, partners types and status
  - System maintenance – the maintenance of the VRE
  - Databases maintenance – the operational activity in databasing
  - Resource mobilization/allocation – what are the key areas where we need some resources
115. Mr Taconet discussed the key elements highlighting the need to identify the roles for each point, particularly for the governance.

116. Mr Bailly reminded the TWG that, regardless of the governance model which will be eventually adopted, the current version of GRSF will be published as a deliverable of BlueBRIDGE.

### **The FIRMS-GRSF expanded Partnership governance (FSC10)**

117. Mr Taconet presented the guidelines elaborated during the 10<sup>th</sup> FSC Session (Ref. information document GRSF/2018/Inf.3 “FIRMS FSC10 Report”).
118. Mr Taconet presented a priority setting of work for a FIRMS-GRSF expanded Partnership, which was agreed by the TWG:
- Publishing UUIDs
  - Workflow for uploading reference list of stocks by country (SDG)
  - Publication of information and data for individual stocks and fisheries
    - o Services to download available data applying customizable filters
    - o Services to download SDG 14.4.1 indicator by country and related information (possibly a tool to validate whether the indicator was calculated according to guidelines)
  - Inclusion of data that is currently not publicly available
  - Services to summarize stock status at different geographic levels

### **Stocks and Fisheries unique identifiers - UUIDs**

#### **Stocks**

119. Mr Gentile presented the UUIDs development status. The system assigns UUIDs to GRSF records produced by the combination of one or multiple sources. The GRSF records are by default in “pending” status, they will be “approved” or rejected through the “GRSF Admin” VRE by experts who detect duplications, overlapping, etc. The “GRSF” VRE is designed to give access to the public, and will be eventually populated with records validated in the “GRSF Admin”. Mr Taconet suggested that records from authoritative sources and compliant with GRSF standards can be approved automatically. Mr Gentile indicated that different rules can be identified for stocks and fisheries with different options. Mr Minadakis confirmed the need to identify criteria for this first round of approvals with thousands of records which would require a huge amount of manual work if no automated procedures will be put in place.
120. Mr Minadakis presented the back-end logic and specifically the workflow that consists of the data harvesting, transformation, harmonization and merging steps of the three sources records to GRSF knowledge base. The merging take place when the GRSF application detects equivalent data in the source records according to a set of predefined rules. Mappings to GRSF standards are also used during the process. All actions are tracked, and rollback is available due to the usage of provenance mechanisms.
121. The TWG noted the value of UUIDs and historical tracking in the context of frequent change stocks identification.



## **Discussion**

122. Ms Segurado asked if currently, all records have to be validated before for publishing. Mr Minadakis confirmed the need and recalling that about 37 000 similarities were detected; however by strengthening the rules, the list will be shorter.
123. Mr Bailly asked if the automatic merges are only done when the records are really similar. Mr Minadakis answered positively, as the merge options are so restrictive that mistakes would be rare. Mr Gentile highlighted the importance of mapping to ease the work when no standards can be enforced.

## **Fisheries and testing pilot**

124. Mr Gentile indicated that UUIDs for stocks are more mature than for the fisheries, which still require some refinements. He reminded however the difference between the formal UUID and the semantic identifier, the latter only requiring final decisions. Therefore, UUIDs for fisheries can be also approved with the caveat that the semantic identifier may further change.
125. Mr Taconet noted that in many cases fisheries information is the only information we have on stocks, which can be connected to the stocks information for the SDG. FAO-FIAM (Products, Trade and Marketing Branch) could provide more information on such fisheries. The GRSF records with their assigned UUIDs need to be meticulously approved because they also give the ultimate authoritative role to the associated sources of information.
126. Mr Spear invited to finalize the work on fisheries identifiers as soon as possible. He proposed a testing pilot dealing with such semantic problems, and to give the opportunity to national authorities to give their feedback. Mr Taconet suggested that UUIDs for fisheries can be further tested also by verifying how they match with FIRMS records, and finally refine the standard of the semantic identifier with all the experience gained during the pilot phase. Mr Gentile clarified that at the end of the pilot phase, the whole base might need to be erased (already done three times during the project). However such practice of deletion won't take place once the GRSF knowledge base will be in the production environment.

## **Validation of UUIDs**

127. The validation and publishing of stocks UUIDs options was largely discussed.
128. Mr Bailly made a synthesis of the validation process: 1) a record not similar to other records and compliant with GRSF standards/mapping is directly accepted (no manual validation), 2) record matching other records and compliant with GRSF standards/mappings is merged with the records, but needs to be approved with final validation, 3) a record similar but not identical (e.g. same species but different areas, partially overlapping, adjacent), with other records should go through validation by experts and data providers (e.g. RFBs). See Annex 3 for detailed steps (this annex was not reviewed by the TWG).
129. Mr Bailly suggested a small group to validate UUIDs with representatives from the data providers and the GRSF team.

## **Discussion**

130. Mr Taconet suggested that the primary data providers could review their specific problems. Mr Gentile gave an example on RAM stocks with unknown codes, for which it would be necessary to check the source records to detect any possible overlapping with other GRSF records.
131. Mr Lefebure requested a diagram on every step of the decision chain (from source to UUID). [See Annex 3 for a textual proposal which eventually can become a diagram upon further discussion]. He also considered that some RFBs have few stocks and with them it would be possible to test the validation process to create trust.
132. Mr Bailly indicated that the two first cases (described above) could be published directly after quality control, being only technical matching. For the third case (inconsistencies), FIRMS Secretariat/GRSF Team will contact the source providers, usually RFBs that will contact the primary source providers, usually countries or specialized institutions. Hence, as Mr Taconet implied, there is no need to ask external experts or committees for validation. Mr Spear and Mr Gentile concurred that the data providers should be able to resolve the issues, and review the data as disseminated by GRSF before final publication.
133. Mr Gutierrez figured out that if GRSF assigns a UUID for a stock that a country does not recognize, or report that the identifier is not appropriate for a stock, the UUID would identify a non-existent stock. Mr Bailly and Mr Gentile replied that it is possible to change the semantic identifier (metadata of the record, species, area, etc.) to solve the issues with countries. Mr Taconet complemented by noting that countries can refuse and in the end the UUID will not be published. The information about the merge is in the knowledge base but it is not presented to the public. Ms Gorelli and Ms Ribeiro suggested that with the time, countries will feel encouraged to report on stocks and fisheries transparently so as to keep market options opened.
134. The TWG agreed with the solution above acknowledging that RFBs and countries keep the entire control of the publication of their data in GRSF.
135. Answering to a question by Mr Spear, Mr Bailly estimated that only one part-time person would be necessary in the FIRMS secretariat to handle the communications for monitoring the difficult cases.
136. Mr Chanrachkij reported that SEAFDEC has a regional network where is possible to discuss together this kind of problems. Mr Gentile suggested that the network can review the GRSF records for their area. SEAFDEC being the moderator of the network would be able to validate stocks and fisheries statuses, to put in place the FAO guidelines, etc.
137. Mr Sedzro reported that CECAF has problems when they present the results of their assessment. Sometimes the countries do not agree, even if what they present comes from the countries themselves.

### **Stocks and Assessment units**

138. Ms Segurado noticed that all the discussions are about “assessment units” more than “stocks” identified by RFBs or other institutions, by geographic areas and species. Ms Minte-Vera proposed to give priority to Management units.
139. Mr Chanrachkij stated there is need for a clear methodology to know what to report. Mr Taconet replied that this type of issues will be addressed in the FAO guidelines and outreach on SDG. It was also remarked that countries couldn’t be forced to enter data, but recognized that proper guidelines could bring best practices and facilitate such data submission.
140. Mr Spear suggested that simple forms could be provided by GRSF to let countries upload their information.

### **Minimum dataset and additional data**

141. Mr Taconet explained that the GRSF guidelines state that once the assessment unit is identified, a minimum set of attributes is needed: 1) Stock status; and 2) Catch levels, and 3) metadata of these attributes (e.g., catch type, year, etc.).
142. FishSource (Mr Spear) started two years ago to record catch information, but most of the data do not have it. RAM (Mr Melnychuk), getting most of the data from other databases, will not have the catch information. FIRMS (Mr Gentile) has catch information in several cases.
143. Mr Minadakis indicated that some of the data can be silenced for the users if certain type data are not to be published (e.g. if incomplete, irrelevant, sensitive, not validated).
144. Mr Taconet clarified that although needed, it is allowed to publish a stock record, and time series of landings or catch series can be always added in subsequent iterations.
145. Mr Gutierrez got confirmation that GRSF keeps the whole historical of the records in the knowledge base. As RAM is collecting it.
146. Mr Bailly reminded that, besides the metadata used for the UUIDs and which are subject to quality control and validation, additional data may be inconsistent for the same stock after merging two sources. Mr Spear said that it is in the user sense, they may decide by themselves if both value are presented. RAM data is more updated for instance, now there will be a lot of overlapping, in the future it would be better to just divide the work (areas, species). Obvious mistakes could be corrected (and reported to the source providers, but the rest can be solved with time like the UUIDs issues. The TWG agreed on the proposed approach.
147. The TWG remarked that all databases on stock statuses have their own data policies, which should be taken into account. In example, RAM has status information but not characterization of stock status assessment methods. Do GRSF will favour a MSY stock assessment? Mr Gutierrez answered affirmatively, and added either the decision will be to include stocks with no status, or not.

148. The TWG suggested to add, where possible, SDGs status values and SOFIA stock status values.
149. Mr Taconet concluded the discussion inviting the GRSF team to complete the logic for the fishery identifier, and to refine the governance for handling the UUIDs. Once UUIDs will be published together with the accompanying information, there could be cases with inconsistent time series. However it would be difficult to have this systematic screening before publishing; if mistakes are found, they can be always corrected and be re-published. In addition, users are always free to selectively utilize subsets of the GRSF available information.

### **Standard settings and maintenance**

150. The TWG was informed about the current FIRMS arrangement regarding setting on standards. FIRMS Technical Working Group (TWG) makes recommendations which can be eventually approved by the FIRMS Steering Committee (SC). FIRMS TWG debates on standards upon SC request or upon comments/concerns from a single partner or group of them. The discussions are made by group of interest within the FIRMS TWG and there should not be the need for a new formal body. However, the FIRMS SC or TWG can identify ad hoc task group to tackle specific discussions.

### **Partners' view**

151. **For SFP**, Mr Spear indicated SFP would like to participate in official meetings discussing GRFS, whatever the status SFP would have. Through in-kind resources SFP envisage its role as assisting on standard/content management; business planning/implementation for traceability; outreach/communications to seafood industry, NGOs, etc. SFP encourages to have more data providers in the board. Ms Segurado highlighted the importance of SFP being involved in the evolution of the GRSF and to have the opportunity to discuss their needs.
152. **For SEAFDEC**, Mr Chanrachkij indicated that SEAFDEC can only be involved on the standards/content management and outreach/communication, not so much in the business planning. SEAFDEC receive some data but not regularly, and they are not able to run stock assessments routinely but only on project basis. SEAFDEC works mainly on capacity building, and can catalyze supporting countries. SEAFDEC, as a facilitator, can start a little technical group to explain to their countries what GRSF is. In example, during the next tuna stock assessment training, they will introduce the GRSF work to the participants.
153. **For NAFO**, Mr Blasdale indicated that NAFO is contributing through FIRMS and will not be part of the GRSF structure discussion.
154. **For FORTH**, Mr Minadakis indicated that FORTH is willing to continue as one of the two technology providers. He affirmed that currently FORTH is the only institute in the world able to accomplish the GRSF requirements (10 points stated in the slide presentation). FORTH should also be part of the standards working group, and they should be part of the technological discussions and rendered advices.

155. **For MSC**, Mr Lefebure indicated the value added for MSC (same views as FAO records). MSC wants this initiative to be a success, whatever technical advices MSC could provide through in-kind support, without not necessarily having decision-taking rights. MSC has to be aligned with FAO/GRSF. The role could change if the UUIDs moves to the traceability landscape; MSC can become a data provider, as it is already involved in the domain. It would be good in order to complement the work of both organizations. MSC is committed to keep the dialogue open.
156. **For UWA**, Mr Melnychuk indicated UWA is a user as much as the RAM data provider for which data validation and quality control are conducted, which will be continued with in-kind resources. The advisory role and participating in the decision making are not determinant for UWA that just want to keep providing data and participating in the initiative. As a data user, RAM looks forward to using GRSF for stock status analysis, also for data that are not incorporated. He emphasized that the linkage of stock with fishery is unique. The UUIDs will be good source for people all around the world, data attached to the UUIDs will have much value. RAM users will be able to download UUIDs. The RAM website will participate to the outreach and communication efforts.
157. **For CECAF**, Mr Sedzro indicated that the CECAF Subsidiary Committee can support FIRMS-GRSF and GRSF capacity building at country level. CECAF WG can promote the SDG14 e-learning trainings.
158. **For WECAFC**, Ms Cummings indicated that WECAFC supports the initiative, interested on having inputs on the services development.
159. **For FAO**, Mr Gutierrez indicated that FAO will be involved as a provider and user, and expects some linkages from GRSF to SOFIA/SDG14.4 indicators if GRSF is accessing not yet available relevant data. FAO will be using and providing information in support to the creation of the UUIDs. All of these are potential expectations which depend upon the evolvement of the platform.
160. **For FIRMS Secretariat**, Mr Taconet Marc indicated that the Secretariat expects additional workload implying a growth of the team. The Secretariat will have to play with FAO current capacities dedicated to FIRMS. FAO high level management strongly supports the SDG14, therefore mobilization of resources and partnerships development are envisaged. Also, the FAO Office of Chief Statistician is interested in this matter. The Secretariat will thus provide as much as possible in-kind resources and efforts on resource mobilization.
161. **For CNR**, Mr Pagano indicated that CNR supports the initiative and they will be able to continue the support after the end of the project. However it is too early to know whether there will be other project opportunities for further development.
162. **For SEAFO**, Ms Voges stated that SEAFO cannot commit actions in the current status of GRSF.

## **Discussion**

163. Mr Taconet commented further the diagram of the Business model / Governance model slightly adapted from FSC10. Options will have to be discussed further with FAO Partnerships Department (DPSP). Under the overall FAO-CNR MoU, FSC, through the Secretariat, will develop contracts for the general maintenance of the iMarine/D4Science platform by renewing or elaborating new SLAs with CNR and FORTH as technical suppliers of the GRSF. Institutions contributing to the GRSF could also join the FIRMS partnership as collaborative institutions or equivalent as per the current Partnership Arrangement. The FIRMS Secretariat in collaboration with FAO Legal office, is drafting a “Collaborative Arrangement” for being considered by SC. Two FIRMS TWG Technical Committees will be organized to discuss on SDG and traceability and certification issues. Advisory can be found among the members. Commercial companies in the seafood domain (e.g., eco-labelling traceability) could sponsor the GRSF work. The Banana Forum was mentioned as an example of a similar platform.
164. The TWG discussed about the Illegal, Unreported and Unregulated (IUU) fisheries. Mr Taconet asked if there is a record of how many stocks have been studied on IUU fishing. Ms Segurado suggested a potential link with the stock to be able to attach the related IUU fisheries. Mr Taconet reminded about efforts to prevent subsidies harmful for fisheries and promoters of IUU, trying to connect stock status with the IUU fisheries. He suggested to use this information to work on the subsidies.
165. Ms Minte-Vera asked details on the Technical Committees. Mr Bailly answered, as suggested by Mr Gentile above, that FIRMS TWG Technical Committees may be created informally only. Ms Gorelli stated that the flexibility would be a good opportunity to divide the workflow between all the partners (data providers).
166. Mr Gutierrez suggested that eventually, the FIRMS database and the GRSF knowledge base could constitute one unique platform FIRMS-GRSF, which is also consistent from a data workflow view point being the same contribution RFBs provide to FIRMS, GRSF, RAM and FishSource. Mr Bailly agreed despite the technological differences between the two repositories, but indeed, the two could be much more integrated in a first step (before merging eventually) in one unique gateway, and help could be provided to users to navigate between the two. Ms Cumming noted that merging FIRMS and GRSF databases would be a big move as for now. Mr Gentile recalled that the GRSF knowledge base is providing a very specific set of data from the three data sources to elaborate additional services, and as such (e.g. to provides UUIDs) it could be accessed from FIRMS website directly. Mr Taconet suggested that the database committee should be named FIRMS/GRSF KB in the governance diagram, even if for now, separate groups will continue to discuss specific aspects separately as suggested by Mr Bailly. As GRSF will be under FIRMS, this will facilitate progressive integration.
167. The TWG concurred that a FIRMS Steering Committee with an excessive number of partners is not suitable. The rights and duties of additional Members with no binding role will be defined by specific arrangements and the FIRMS Rules of Procedures. The consensus approach maybe not followed in FSC but could be applied in the technical

committees between Partners, Collaborative Institutions and other participating actors. However, Mr Taconet reminded that countries not or not well covered by RFBs should be involved, if not all at the same time, at least through a group represented by one to few rotating countries, or leader countries by region.

168. Mr Taconet indicated that FSC will decide when to fully release the UUIDs through a communication event launching officially the VRE.
169. As for the current situation, Mr Taconet suggested that for the moment the GRSF is to be published under a protected access, upon users' registration the access will be granted by the GRSF administrators until FSC11 endorses GRSF definitively. Only the UUIDs and metadata of stocks and fisheries that do not present an issue will be published; the records with issues/inconsistencies will remain in the restricted area accessible only by the administrators of GRSF until problems are addressed by the primary providers.

#### **Data provisions: Which organizations can contribute to the FIRMS-GRSF initiative?**

170. RFBs already providing data to FIRMS are implicitly already providing data to GRSF. A clear statement will have to be included during the FSC11.
171. Mr Spear indicated that SFP will continue to provide their data with two benefits: 1) for UUIDs and standards, and 2) for data-sharing reducing duplication of data collection. With a continued provision of data to the GRSF, any institution - organization could get the data from GRSF for their needs (e.g. stock assessment analysis) thus economizing the work and avoiding multiple requests to the sources.
172. Mr Lefebure briefly presented how MSC currently uses FAO data, reporting progress keeping performance indicators related to FAO data, with data updated every 24h (with MSC data, not FAO data). MSC has 699 certified fisheries, 334 certified stocks, they all will meet SDG14.4. MSC certifications need to be expanded at stock level. MSC could be a data provider, currently it is indirectly through SFP.

#### **Data access and sharing policy**

173. Mr Taconet suggested that, from a governance viewpoint, specific policies for GRSF can be integrated within the FIRMS policies as those are the primary rules to comply with.
174. Mr Lefebure emphasized the open data principles. Mr Taconet recalled the need to involve the FAO Office for Corporate Communication (OCC) and the FAO Information Technology Division (CIO) for advice on open access and open data policies.
175. Mr Gentile informed that a GRSF Disclaimer will be distributed for finalization and endorsement.

#### **Content governance for stocks and fisheries unique identifiers**

176. Mr Taconet listed the Minimum data requirements to support SDG dissemination and monitoring (recommended fields beyond those considered for unique identifiers):

- Stock status
- Reporting year
- Catch considered in the assessment and corresponding years (= time series)
- Source for assessment if different than the source of data necessary to establish the UUIDs.

### **Discussion**

177. Mr Taconet indicated that the TWG will develop guidelines on:
- Series revisions in an update of the assessment;
  - Conflictual situations after inconsistency spotting;
  - Necessary distinction between assessment units and marine resources.
178. Mr Gutierrez noted that solving the conflictual situations would be an added value of GRSF. If the conflict is not solved by the primary source, better if GRSF takes the decision not to publish them, but anyway GRSF will have then a list of conflicts to be worked out. Ms Gorelli suggested that if the data coming from the primary source, and the same data coming from a secondary source are inconsistent, the reason for inconsistency should be looked for, and meanwhile both remain unpublished.
179. Mr Melnychuk indicated that issues may arise about taxonomy and geography when data are recomposed. To treat these cases, it is important to handle detailed metadata. Mr Taconet indicated that the FIRMS TWG will produce guidance to aggregate different time series across metrics. Mr Gutierrez suggested the use of qualifiers to distinguish cases and alert users about possible issues.
180. Mr Melnychuk suggested that in the future, GRSF may want to recommend one stock assessment when two different assessment exist, but Mr Gutierrez objected that it might be too complicated.

### **Additional data**

181. Mr Taconet indicated that the FIRMS TWG will develop guidelines on Assessment methods and indicators, and SDG monitoring.
182. All additional information stored in the GRSF should be made publicly available.
183. Mr Gentile recapitulated the reference list of terms for stock status including, RFBs' owned values, FIRMS standard descriptors, SOFIA values, SDG values for stock status, and unknown status.
184. Mr Ellenbroek suggested to review and edit the text related to the validation during the pilot phase with a proper vocabulary.
185. Mr Gutierrez reminded that there are expectations that partners will publish status for SDG, but it is not mandatory. Ms Gorelli added that this status would be published by GRSF without linked evidence data.



186. Ms Gorelli remarked that in some cases assessment units (i.e. units that are defined for the purpose of assessment and/or management) have not undergone the process of stock assessment. Even so, they should be treated as assessment units within the GRSF, and not as Marine Resources. The current rule to automatically distinguish assessment units from marine resources relies on the existence of at least one stock assessment. This works in most cases, but not in cases where assessment units have not undergone stock assessment or assessment results are not available. Ms Gorelli remarked that these exceptions should be treated manually. Mr Gentile indicated that it will be the role of the Technical Committees to improve automatic rules.

## **BUSINESS PLAN (AGENDA ITEM 8)**

### **Outline**

187. Mr Bailly presented the outline of the business plan (see Annex 4) with details on some of the points which are expected to be discussed under the next section.
188. The business plan will also contain results from the present joint meeting and will be presented to FSC11.

### **Prioritizing and Phasing**

189. Some of these actions are detailed in the next section.

#### **Short term until July 2018 (COFI, RSN)**

- Developing GRSF SLA and finalizing FAO MoU on iMarine (June)
- Contribute to FAO Guidelines regarding Monitoring SDGs (June)
- Outreach during COFI as side events and/or RSN meeting, with call for new partners (July)

#### **Mid-term until February 2019 (FSC11)**

- Outreach experiment for traceability using UUIDs
- Assess the potential contribution of the GRSF towards the SDG 14.4.1
- Outreach and dissemination; capacity building to be tested with volunteering RFBs
- FSC11 finalizes and possibly endorses the FIRMS expanded agreement and the business plan

#### **Start of the FIRMS expanded partnership starting March 2019**

- FIRMS will launch GRSF officially
- Secure the committed in-kind contributions
- Opening to other partners
- SFP to run a dedicated project (April 2018 – Dec. 2019) to develop a registry of national management units using shape files (including species, areas, management authorities). Mr Gentile suggested to involve GRSF team in the key discussions of such project considering the possible integration in the semantic identifier with refined fisheries identification under specific area classification systems and specific management authorities at national/sub-national level.

## **CONSOLIDATING WORKING GROUP CONCLUSIONS (AGENDA ITEM 9)**

190. Mr Taconet presented the proposed governance model (derived from FIRMS FSC10) with integration of the GRSF components.
- The general principles of the FIRMS partnership are maintained unaltered.
  - The FSC steers the partnership between partner RFBs, international organizations, countries, national institutions related to SDG work.
  - Voting partners can bring Collaborative Institutions: RFBs, National institutions, NGOS, etc.
  - GRSF project partners will be invited as FIRMS Collaborative Institutions.
  - FIRMS Secretariat will ensure the administration of GRSF. It will negotiate the MoUs (required by FAO) and SLA under the iMarine initiative with the two technology providers, CNR and FORTH who agreed to maintain the system with in-kind resources for almost two years after the end of BlueBRIDGE.
  - The DPSP colleagues explained that the partnership framework is flexible, enough to adapt UWA and SFP. Commercial companies which can pay a member fee to support a trust fund, can be integrated in a different type of partnership/sponsorship, not within the FIRMS partnership.
  - Voting partners and members can be part at different degrees to the FIRMS TWG mainly focusing on standards and content management. Technical Committees can be created for SDG and traceability.
  - The core team can be extended.
  - External companies and organizations can ask for services to the technical providers after advice of the FIRMS TWG under the supervision of the FSC. , but generation of income must be handled outside the FIRMS scope. However, FIRMS will have to be consulted in case the actors are also in the FIRMS TWG Technical Committees (e.g. SFP) to avoid conflicts of interest.

### **Discussion**

191. Mr Ellenbroek asked why FIRMS embeds almost all components. Mr Taconet replied that because it was the preferred choice by FSC10. Mr Gutierrez added it reduces the complexity in terms of committees.
192. Mr Ellenbroek asked if the GRSF standards will be submitted to the CWP. Mr Taconet replied affirmatively, but only after the endorsement of the model by the FSC11.
193. Mr Ye questioned the presence of NGOs in FIRMS in FSC. Mr Taconet replied that they can be important resource partner, limited in number, but with no voting right. The rules of Procedures might be invoked to create specific role with no voting rights, without changing the FIRMS Partnership.
194. Mr Ye required precisions about the relationships between the FIRMS Steering Committee and its TWG. Mr Taconet said that it was not discussed at length, however Mr Gutierrez recalled the relationship described in the FIRMS Partnership Agreement and the FSC would review in the context of the FIRMS-GRSF expanded partnership. It is unlikely that the Partnership has to be amended, but the roles of FSC could be further detailed for the GRSF context. Mr Bailly asked who selects the members of the FIRMS TWG. Mr Gentile clarified that each partner nominates one or more TWG focal

points who are invited by default in all TWG sessions. For the GRSF, an additional expert person could be nominated. The matter should be fully examined by FSC11.

195. Mr Taconet suggested that FIRMS TWG meetings should include an agenda item for the GRSF and its content management, and actions to be taken over the year should be listed.

### **Action plan**

196. Mr Taconet presented an action plan derived from the Business plan.

### **Finalization of BB GRSF output**

197. Users registered to access the BlueBRIDGE/iMarine infrastructure can also request free access to the GRSF VRE. However, selected users will be granted to access the GRSF VRE during the pilot release considering the pending approval for the GRSF public release. Mr Pagano confirmed the feasibility for the BB project deliverable, as long as this choice is motivated. He noted that by the end of the project the pilot content should be at least with a subset of records (KPI=2000).
198. Mr Taconet confirmed that testing will be conducted in the transition phase between the end of the BlueBRIDGE project and FSC11.

### **Finalizing standard for UUIDs /Fisheries stocks**

199. Semantic identifiers are almost ready for stocks but require some decisions for fisheries. Mr Gentile, Mr Melnychuk, Ms Gorelli, and Ms Segurado presented the results of their discussion.
200. The GRSF specifications will be updated accordingly and a finalized document should be submitted in a next session of the FIRMS TWG.

### **Discussion**

201. Mr Gentile proposed: i) to rename fishing activity as fishing unit, and ii) to limit the indication in the semantic identifier of national management authorities at country level and no longer with details that can change over time. Nonetheless, it was stressed the importance of good mapping of management authorities to detect issues (e.g. superseding areas with different codes).
202. Ms Segurado and Mr Gutierrez concurred that codes may be more useful and unique for certain uses (traceability, certification) than for other purposes (SDG), and tradeoffs between usefulness and complexity must be further explored. Mr Gentile recalled that all fishery records not compliant with “fishery unit” GRSF standard definition will fall under the other category “other fishery” (formerly labeled as fishing description).
203. Ms Segurado warned for cases when assessment units overlap with marine resources, and fishery units with other fisheries (fishing description), and asking whether marine resources and fishing description should not be assigned UUIDs. Although possible, Mr Melnychuk stressed the importance not to lose data. Mr Taconet suggested that these records might be disseminated with different behaviors than assessment units and fishing units.

204. Ms Voges asked if the fishing area field is also referring to a management area, it was answered that can be the case (management unit) but not necessarily. Mr Taconet mentioned the Global Location Number (GLN) technology as possible future way to uniquely identify water areas.
205. Mr Melnychuk indicated that components of the semantic identifier dedicated to area could be merged for simplification and that the jurisdiction area can be dropped.
206. Ms Minte-Vera suggested for communication purpose to adopt an easier term than UUID, Mr Gentile proposed ID.

#### **Precising standards for Catch types and stock status values**

207. Mr Melnychuk asked which type of removal has to be selected if several are available, and if any sum or average should be made for total catches or total landings. Ms Segurado suggested to use some codes for differentiating such time series with indication on preferred one. Ms Gorelli suggested to keep them all with a qualifier, and then select one.
208. Mr Melnychuk noted that the most common indicators are B/BMSY and F/FMSY, but there many others.
209. Ms Segurado indicated that in FishSource has all data series, whatever the catch.
210. Mr Gutierrez suggested that GRSF should allow users to select any of the options available. Mr Gentile indicated that so far catches time series are more abundant than landings.
211. Mr Taconet suggested that the catch type used for the assessment should be preferred. Ms Gorelli asked if catch rather than assessment should be extracted. Mr Melnychuk and Mr Spear answered affirmatively.
212. Mr Gutierrez suggested that tradeoffs of choosing one type only vs. have them all should be explored further.
213. Ms Cummings asked what to do with old assessments with revised TAC? Mr Melnychuk suggested to make the later the most visible, but to keep the older ones with some constraints.

#### **Developing registry of national management units**

214. To be considered in the future along the progress of the registry.

#### **Services prioritization**

215. FIRMS-GRSF is planning to update/refresh data around two-three times per year; direct submission from country should be technically supported with one day lapse for publishing it in the system (GRSF Admin pending approval).

### **Developing GRSF SLA and finalizing FAO-CNR MoU on iMarine**

216. Mr Minadakis requested a future MoU with FAO as they provide other services to GRSF that are not only part of the interface, e.g. the assistance with mappings and ontologies. This has to be further discussed during the negotiations together with CNR and the FIRMS secretariat.

### **Contribute to guidelines for monitoring SDGs**

217. Guidelines should be enriched with monitoring and dissemination aspects. Ms Ribeiro suggested that the guidelines have to show GRSF as a way to submit the SDG 14.4.1 information.

### **Outreach/advocacy during next COFI / RSN meetings**

218. This report and business plan to be finalized before.

### **Outreach/advocacy for traceability UUIDs (GS1, GSSI)**

219. The TWG mentioned two additional opportunities: the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) meeting of the CBD (Montreal, July 2018), and the Global Dialogue on Seafood Traceability. Mr Spear indicated that SFP will inform the actors of the domain about GRSF and will keep them updated.

### **Modifying FIRMS partnership arrangement**

#### **➤ Calling for new FIRMS Resource Members**

220. Mr Taconet suggested that during the transition phase, resource members can be presented as Collaborative Institutions to FSC, and their final status to be decided during FSC11.

#### **➤ Calling for Country partners - Contribute to capacity building for SDG 14.4.1**

221. The TWG suggested more interactions for improving the e-curriculum during the year, including RFBs contributions and promotion (e.g. WECAFC, IATTC, and SEAFDEC). The training of Trainers should cover also monitoring aspects through online capacities (e.g. GRSF).
222. Mr Ye asked what is meant by “Contribute to capacity building for SDG 14 .4.1”. Mr Taconet suggests that GRSF can contribute to the action led by FAO for SDG 14.4.1. Mr Gutierrez added that, at this stage, the SDG 14.1.1 methodology is not entirely defined hence it cannot be determined in advance what GRSF potential activities can be contributing. As per action plan, the GRSF supporting potential activities need to be further assessed. Potential contributions of the GRSF towards SDG 14.4.1 could be: i) dissemination, ii) monitoring and iii) capacity building (but no advocacy). Mr Bailly further suggested to participate to the trainings organized by RFBs (e.g. the one proposed by SEAFDEC), and that the presentation of GRSF could be a good incentive for countries to use GRSF to better report their SDG 14.1.1. Mr Gutierrez indicated that only UUIDs are helpful at this stage.

➤ **FIRMS RFB work to increase stock coverage**

223. Mr Gutierrez, Mr Melnychuk, Ms Ribeiro presented a template for additional data on GRSF. Mr Taconet clarified the goal for such additional data beyond the UUID needs, i.e. to facilitate a standardization of outputs from source data providers, and also to give more details on how the assessments were conducted.
224. Mr Gutierrez indicated that the level of uptake would be important to be measured.

**Answers to FSC10 concerns**

225. Mr Bailly reminded that some concerns were expressed during the FSC10 and reviewed those to ascertain they were addressed by the TWG.

Paragraph 79. “While a few members said that GRSF provided an exciting development in the context of SDG 14.4.1 indicator, concerns were raised about the proposal including sustainability of technology choices, control over the process, sustainability and resources to face an increasing interaction with more actors, and possible compromises / lack of neutral position.”

Paragraph 81. “It was agreed that three dimensions needed to be dealt with distinctly:

- i. Infrastructure technology,
- ii. Content and data sharing issue,
- iii. Governance including standards.”

226. The TWG’s summarized the answers as below in bold.

Paragraph 84. [...]

*i) Who are the partners in the Board?*

**The Board of GRSF will be the FSC under the current FIRMS Partnership Agreement. It is not expected that the latter has to be amended to implement the GRSF ownership. Rather, the Rules of Procedures may be invoked to rule some aspects of the organization to include the data provision/dissemination and technical discussions involving GRSF. GRSF interested participants will attend the Technical Committees (to be defined) of the FIRMS TWG.**

*ii) Who makes final decisions?*

**According to the FIRMS Partnership Agreement, FSC will take decisions on the FIRMS TWG’s advices.**

*iii) Is this completely contained within FIRMS?*

**The data standards and content management are totally under the control of FIRMS guided by its TWG. GRSF partners can join the FIRMS TWG through specific collaborative arrangements and be invited to the relevant Technical Committees as data providers or domain experts.**

**The FIRMS Secretariat will be in charge to negotiate Memorandums of Understanding and Service Level Agreements with the technology providers (currently CNR and FORTH) to ensure the proper collaboration between FIRMS and them, and that further developments will be actually guided by the FIRMS TWG.**

**Any provision of additional products and services to external users by the GRSF partners are conducted outside the FIRMS Partnership.**

*iv) Who is determining the content which is shared and what are the criteria to be used in defining indicators (a subgroup of the governance board could be identified addressing content sharing and indicators)?*

**The present joint FIRMS-GRSF TWG addressed the issue of record validation and publication, giving the responsibility of data publishing back to the primary provider. In case of issues, data are stored in a restricted part of the GRSF VRE and in the GRSF Admin VRE, only accessible by the administrators (FIRMS Secretariat), until the issue is properly addressed by consensus.**

**For the use or development of new indicators, the FSC will take the decision on its TWG's advices.**

*v) Would the FIRMS Secretariat be the repository of data?*  
**Yes, in the GRSF VRE and GRSF Admin VRE that will be under the operational control of FIRMS Secretariat.**

227. Mr Ramm and Mr Taconet thanked all attendants for their active participation and closed the joint meeting at 17.30 hours.





## ANNEXES

### ANNEX 1: MEETING AGENDA

Meeting place: FAO HQ, India Room (A327), Rome

All day: 09:00 to 17:30

Coffee breaks: 10:30-11; 15:30-15:45

Lunch break: 12:30-13:45

#### **Day 1: Wednesday morning (09:00 – 12:30)**

##### **1) Welcome address, objectives of the meeting and adoption of agenda**

*The objectives of the meeting will be described. These stem from both the BlueBRIDGE project objectives to operate sustainably the GRSF VRE and the FIRMS FSC10 (Copenhagen, June 2017), which decided that FIRMS should work towards taking ownership of GRSF in order to make use of this enhanced tooling and expertise-assets capacity to offer services to the dissemination and monitoring of national stocks monitored by countries under SDG 14.4.1 'Proportion of fish stocks within biologically sustainable levels'.*

##### **2) Value Proposition for a FIRMS-GRSF-SDG 14.4.1 partnership initiative**

- a) Introduction to the Value Proposition
  - Improving global dissemination and monitoring of stock status
  - Supporting needs for traceability
- b) Partners views in respect of the value proposition
  - FAO (with reference to SOFIA stock status indicator, FAO custodianship role for SDG 14.4.1 and related guidelines, and FAO corporate SDG monitoring and reporting framework, FAO framework on traceability)
  - GRSF Partners - University of Washington (with reference to scientific research on stock status and fisheries management), Sustainable Fisheries Partnership (traceability needs), IT partners: CNR, FORTH
  - FIRMS partners
  - Other interested parties

##### **3) GRSF Objectives, and live demonstration of the GRSF application**

*The demonstration will provide a good sense of what the GRSF application is designed to do, as developed in the Value Proposition. Its advantages, articulated on the concept of unique identifiers for stocks and fisheries, will be introduced.*

#### **Wednesday afternoon (13:45 – 17:30)**

##### **4) The GRSF development status**

*With reference to:*

- Workflow: Collation, harmonization, collaborative publishing of unique identifiers for stock / fishery
- Content: presentation of relevant statistics on data coverage
- Standards:
  - o Key concepts (definition of stock, fisheries, assessment units, etc.)
  - o Universally Unique Identifiers (UUIDs) and Semantic identifiers logic
- Pending issues on standardization and workflow

*A summary of the activities of the GRSF community, minutes of the conference calls and the GRSF documentation are accessible in the [GRSF wiki](#)\**.

### **5) Realizing the value proposition – review of possible Information Products/Services**

*This item provides a perspective of what this initiative could be delivering in fulfilling the Value Proposition. Products/Services (P/S) include those suggested in the BlueBRIDGE project by GRSF Partners, and those additionally proposed by participants in the survey ahead of the workshop. This item will ensure good understanding of such Products/services before embarking into Business model and Action plan/prioritization discussions.*

*The following preliminary list cover the services suggested during BlueBRIDGE project.*

- P/S unique to GRSF:
  - o Assignment and publication of validated UUIDs for stocks and fisheries
- P/S facilitated or strengthened by GRSF
  - o Publication of information and data for individual stocks and fisheries
  - o Services to summarize stock status at different geographic levels
  - o Services to download available data applying customizable filters
  - o Services to download SDG 14.4.1 indicator by country and related information (possibly a tool to validate whether the indicator was calculated according to guidelines)
- Inclusion of data that is currently not publicly available

Other P/S gathered through the survey will be presented by participants

### **Day 2 Thursday morning (09:00 – 12:30)**

### **6) Business model for a FIRMS-GRSF-SDG 14.4.1 Partnership initiative**

*Introduction of the two business model options (public and public-private) which are envisaged for the FIRMS-GRSF Partnership, with reference to the following background information on governance:*

- FIRMS partnership
- FIRMS Information Management Policy
- GRSF - Options laid out by the BB EAB TWG2, and the FIRMS FSC10 selected option
- VRE Service Level Agreement
- Data access and sharing policies
- FAO Partnership and views

### **7) Governance option**

*Basing on the governance option selected by the FIRMS FSC10, the following items are suggested to be further elaborated*

- a) Introduction
- b) Content governance along the GRSF objectives
- c) Governance – Partners views
  - o Expected roles, benefits, constraints, assets
  - o Envisaged in-kind contributions
  - o Work areas that would require additional resources
  - o Status in the considered Partnership, role in the governance process
- d) Discussion: Governance, firming out the viable option

**Thursday afternoon (13:45 – 17:30)****Governance** (Cont. from morning)**Day 3: Friday morning (09:00 – 12:30)****8) Business plans**

*This section addresses the practical aspects required to implement the value proposition under the envisaged governance. The business plans provide the action plans in the short- and mid-terms. It also identifies the end users, the services and how they are rolled-out, the firming out of institutional and legal aspects, and the best ways to promote the business plans. Key points for discussion are:*

- Costs and resources
- Prioritizing and Phasing
- Envisaged partners and roles
- Outreach / communication

**Friday afternoon (13:45 – 17:30)****9) Consolidating working group conclusions**

*This half day will be dedicated to consolidate all recommendations made by the participants addressing the various topics of the meeting. The output of the meeting will guide the further development of the GRSF and will contribute to the formulation of the exploitation plan.*

**10) Any other business**

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### **ANNEX 3: VALIDATION OF THE STOCK AND FISHERY RECORDS CONTROLLED BY COUNTRIES**

(This annex has not been reviewed by the TWG)

It is given as tentative, to be further discussed by the FIRMS TWG and endorsed by FSC.

It is the role of GRSF to depict potential duplications, inconsistencies, and errors to deliver quality data in an authoritative way, which requires sometime a validation decision taking, ultimately the key point of the data governance.

The validation process respects the principles of FAO: the ultimate decisions are taken by countries, by consensus in case of inconsistencies between two countries or more. The GRSF Secretariat will facilitate as much as possible the discussions by preparing the technical documents, to be held under the supervision of FIRMS, its Secretariat for easy cases, its Steering Committee in case of disputed inconsistencies.

The process itself is described as a decision tree.

- One duplicate, inconsistency or error is detected
- If the issue is an obvious error like misspelling, typos, layout, etc., all technical errors that do not entail the data content and its semantics
  - The GRSF data manager makes the correction and reports to the direct provider, and validate the record
  - If the direct provider is a secondary provider, and that the issue is not at its level, or the issue cannot be solved at its level, the secondary provider reports to the primary provider and alerts the GRSF data manager. When the issue is solved the primary producer reports to the secondary provider and the GRSF data manager
- If the error entails the data content or its semantics
  - The GRSF data manager puts the record on hold in a restricted area of the GRSF VRE
  - The GRSF data manager reports to the direct provider who will try to address the issue at his level
    - If the issue is solved, the direct provider (secondary or primary) reports to the data manager who corrects the record in GRSF and publishes the record
    - If the issue is not solved
      - If the direct provider is primary, the case is presented to FSC by the FIRMS Secretariat

- If the direct provider is secondary, the issue is reported to the primary producer
  - If only one primary producer is involved same treatment as above
  - If two or more primary producers are involved, the secondary producer tries to solve the issue by consensus with the primary producers
    - If the issue cannot be solved (no consensus, primary producers linked to different secondary providers) the case is presented to FSC by the FIRMS Secretariat that will try to solve the issue by consensus with the secondary provider(s) and the primary providers
    - Otherwise, the case is presented to FSC by the FIRMS Secretariat

This procedure allows to the countries to keep entirely control on their data.



## **ANNEX 4: OUTLINE OF THE BUSINESS PLAN**

- Important notice
- Vision statement
- Mission statement
- Data on stocks and fisheries: domain overview and history
- Market and competition analysis
- Offer: Value proposition
- SWOT analysis
- Legal entity, Ownership, and data use and sharing agreement
- Business model and governance
- Partners' domains, roles and commitments
- Management and Operations
- Cost and resources
- Growth and developments
- Marketing / Outreach / Training
- First steps: Priority and phasing
- Annexes

### **Vision statement**

Increasing the publicly available information about the status of exploitation of fish stocks and the status of management of fisheries by providing technical aid to countries and RFBs to disseminate information on national monitored stocks and fisheries as well as shared stocks thus promoting their efforts to render their fisheries sustainable. This vision is developed in the context of the UN Sustainable Development Goals (SDG) framework which monitors efforts by countries towards a sustainable development.

### **Mission statement**

Providing tools and protocols for dissemination of information on stocks and fisheries status and their monitoring in transparent, traceable, consistent, and comparable ways, by implementing and managing a system of universal/global unique identifiers to all stocks and fisheries allowing the interoperability of dedicated databases / information systems, and the delivery of data products and services to countries, RFBs, FAO and various public and private partners/users. In the context of UN SDGs, contribute to the SDG14.4 about fisheries and its indicator, SDG 14.4.1 by helping countries and RFBs to store and report the status of stocks and fisheries under their jurisdiction.

### ANNEX 5: GROUP PHOTOGRAPH



