

FIRMS Steering Committee Meeting
Eleventh Session
Rome, Italy 13-14 and 18 May 2019
FIRMS-IRD Collaborative Arrangement (Proposal)
Author: IRD and FIRMS Secretariat

Document Summary

At this stage, the collaborative arrangement for IRD has been prepared according to available information. It explains what products IRD is willing to share (datasets, data services and code) and what services IRD is willing to provide and maintain under the FIRMS umbrella. It also explain the conditions for these services to be considered viable.

The content of this document still has to be adjusted according to discussions and decisions which will be taken by FIRMS partners during FIRMS-SC and CWP meetings. These decisions could drastically modify the activities and time to be spent by IRD on the yearly update. These discussions include the scope of new datasets to be created by the FIRMS Tuna Atlas (various levels of processing are possible) and the standardization of tuna RFMOs datasets. To facilitate the yearly update, data formats and access protocols used for tuna RFMOs datasets are expected to be compliant with CWP standards. At this stage CWP standards are not available and IRD can not anticipate the impact on its workflow.

In particular, the first section of Annex 2 ("Prerequisite") emphasizes the main issues and blocking points for the yearly update of the Tuna Atlas. This text will be adjusted according to decision made during the FIRMS-SC. According to those decisions, parts of the text describing additional Levels of Processing might be removed or detailed.

Collaborative Arrangement

Between

The Food and Agriculture Organization of the United Nations (“FAO”)

and

Institut de Recherche pour le Développement (“IRD”)

Identified as collaborative institution by [FAO]

hereinafter individually also referred to as “Party” and jointly as “Parties”.

1. Statement of Purpose

- 1.1 In accordance with the decision of the Fisheries and Resources Monitoring System (“FIRMS”) Steering Committee, taken at its eleventh session in 2019, FAO, in its role of FIRMS secretariat, enters into this Arrangement with **IRD**, hereinafter referred to as “Collaborative Institution”, in order for the Collaborative Institution to contribute to the FIRMS databases.
- 1.2 Through conclusion of this Arrangement, **IRD** will be considered as a Collaborative Institution, as referred in Annex 2 of the “Partnership Arrangement providing for international cooperation in the development and maintenance of FIRMS” that has entered into force in December 2003 and since then, has been signed by Regional Fisheries Bodies, as Institutional Intergovernmental Partners.
- 1.3 The Collaborative Institution will comply with FIRMS Rules and Procedures as appended to this Arrangement as Annex 1. The Collaborative Institution will also comply with FIRMS Information Management Policy. The Collaborative Institution’s rights and responsibilities are specified in Annex 2 of this Arrangement.
- 1.4 The Collaborative Institution will provide the material (and/or a service to FAO as outlined in Annex 2 upon the conditions set out in this Arrangement. The FIRMS Steering Committee or FAO (as the FIRMS secretariat) may also agree with the Collaborative Institution on other types of collaboration in this context.

2. The Material and Services provided

- 2.1 FAO shall have the right to use the material and/or service made available by the Collaborative Institution to FAO at no cost under this Arrangement for the purposes of enhancing the FIRMS databases only, under the conditions stipulated in this Arrangement, unless separately negotiated and agreed.
- 2.2 The material provided by the Collaborative Institution will be included in FIRMS databases according to the specifications outlined in Annex 2. The material will be published with a clear statement that the information or data is the property of the Collaborative Institution, and will be referenced following FAO and FIRMS citation standards. Consistent with the Collaborative Institution’s ownership of material, the contents of the material shall remain the responsibility of the Collaborative Institution, in accordance with the terms of use of the Collaborative Institution, as clearly reflected on FIRMS website. Designations employed in the material concerning the legal status of any country, city or area or its authorities, or

concerning the delimitation of its frontiers or boundaries shall be consistent with UN and FAO policies.

2.3 The Parties agree that the material provided by the Collaborative Institution will be published and disseminated through the FIRMS databases and outlets.

2.4 Material provided by the Collaborative Institution will be processed and stored by FAO in accordance with FAO's rules, policies and procedures.

2.5 The Parties agree that the services provided by the Collaborative Institution, if any, will be used to improve and develop the FIRMS databases, the FIRMS Partnership and/or support any FIRMS Business models and information products and services.

3. Disclaimers of Liability

3.1 While the material contained in the FIRMS databases is periodically monitored and updated, FAO makes no representation or warranty that the material (or any part thereof) provided by the Collaborative Institution will be accurate, complete or error-free. The Collaborative Institution agrees that it is its responsibility to evaluate the accuracy, completeness or usefulness of its material.

3.2 Without prejudice to paragraph 2.3, FAO shall not be responsible for any failure of performance, computer virus or communication line failure, regardless of cause, related to the use of the FIRMS material and services.

3.3 Under no circumstances will FAO be liable to the Collaborative Institution or anyone else for any claims for loss or damage arising out of use, reference to, or reliance on the material and services provided by the Collaborative Institution and any expense relating to those claims, or for any results obtained by using any such material or services.

4. Privileges and Immunities

Nothing in this Arrangement or in any document or arrangement relating thereto shall be interpreted as constituting a waiver of the privileges, immunities and facilities enjoyed by FAO, nor as extending such privileges and immunities to the Collaborative Institution or to its personnel.

5. Applicable law

This Arrangement and any document or arrangement relating thereto, shall be governed by general principles of law, to the exclusion of any single national system of law. Such general principles of law shall include the UNIDROIT General Principles of International Commercial Contracts 2010.

6. Use of logos and names

The Parties agree not to use in any press release, memo, report or other published disclosure related to this Arrangement the other Party's name or logo or the visual identity of FIRMS without prior written consent of the Party concerned. Parties recognize that FAO logo and FAO owned content fall under the FAO Terms and Conditions <http://www.fao.org/contact-us/terms/en/>.

7. Settlement of Disputes

- 7.1 Any dispute between the Parties arising from or in connection with, this Arrangement shall be settled directly and amicably by them through mutual negotiations. In case of failure of such negotiations, the dispute shall be submitted at the request of either Party, to one conciliator. Should the Parties fail to reach agreement on the name of a sole conciliator, each Party shall appoint one conciliator. The conciliation shall be carried out in accordance with the Conciliation Rules of the United Nations Commission on International Trade Law, as at present in force.
- 7.2 Any dispute not resolved by conciliation shall, at the request of either Party, be settled by arbitration in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law, as at present in force. The arbitral tribunal shall have no authority to award punitive damages. FAO and the Collaborative Institution agree to be bound by any arbitration award rendered in accordance with this article, as the final adjudication of any such dispute.
- 7.3 The Parties may request conciliation during the execution of this Arrangement and in the period not to exceed twelve months after the completion, expiry or termination of this Arrangement. The Parties may request arbitration not later than ninety days after the termination of the conciliation proceedings. All dispute resolution proceedings shall be conducted in English.

8. Entry into force, Modification and Termination

- 8.1 This Arrangement shall enter into force on the date of the receipt of the last signature of the Parties.
- 8.2 FAO reserves the right to time to modify or discontinue, temporarily or permanently, the services provided through FIRMS, including any means of accessing or utilizing it, at its sole discretion with prior notice to the Collaborative Institution.
- 8.3 This Arrangement may be terminated by either Party upon three months' written notice given to the other Party. In that event, the Parties will agree on measures required for the orderly conclusion of ongoing activities. FAO will not cease to use the material, versions of the material, including any copies thereof, developed during the Arrangement.

For the Organization

**Institut de Recherche pour le
Développement (IRD)**

Date:

[Name]

[Title]

**For the Food and Agriculture Organization
of the United Nations (FAO)**

Date:

[Name]

[Title]

Annex 1: FIRMS Rules and Procedures

http://www.fao.org/fishery/docs/document/FIGIS_FIRMS/2004/FIRMS_FSC1_Final_Report.pdf (See Attachment 5)

Annex 2: Details on and conditions of IRD's contributions to FIRMS

Outline and detailed agreements on the nature of material and services and the conditions under which it is made available under this arrangement, including any additional entitlements that a collaborative institution may wish to include

Note: Fisheries material (including data and statistical information) will be provided by the FIRMS Collaborative Institutions mandated to develop and use it in ways that support their work programs, and which are reported to the public in ways that can also be achieved through the FIRMS Partnership.

Services (including information products) will be provided by the FIRMS Collaborative Institutions to enhance or develop the FIRMS databases, to strengthen their usefulness through e.g. analyses of and reports drawn from its content, and to develop the FIRMS partnership and/or support new possible FIRMS business models.

Prerequisite

(Note: this section is supposed to be removed after decision have been made during the FIRMS-SC)

This document explains how IRD is committed to update the FIRMS Tuna Atlas on a yearly basis. IRD collaboration only becomes possible once that:

- a preliminary workshop has been held with IRD and FAO representatives to assess the work required each year to update the FIRMS Tuna Atlas (including the review and validation of IRD Tuna Atlas legacy, and the modifications required to the current framework in order to comply with the CWP Reference harmonization standard),
- a scenario has been chosen to define what level of processing should be endorsed by FIRMS-SC for dissemination as FIRMS Tuna Atlas datasets
- CWP compliant datasets have been provided by tuna RFMOs FIRMS partners, have been validated by FIRMS (compliance with CWP Reference harmonization standards) and can be downloaded by IRD:
 - Nominal Catch
 - Gridded catch and effort
 - Codelists
 - Codelists mappings
 - Metadata associated to each data set.

Background

IRD activities related to the Tuna Atlas are dealing with statistical aspects and data management with a growing focus on FAIR data management principles, especially interoperability. The first IRD tuna Atlas was initiated in 1997 using Fortran code. This was followed from 2001 by the “Sardara” SQL database which is used since for persistent storage, hosted by a server and accessed by multiple Web sites and clients. This database is loaded from a workflow using R and SQL code to generate global datasets with different levels of processing. This work was continuously improved until 2018. More information is provided in the FIRMS Tuna Atlas meeting document.

IRD Tuna Atlas provides:

- metadata. The standardization of metadata (compliance with OGC standards) is the result of a collaborative work achieved with FAO.
- data with different levels of processing: eg Level 0 dataset which is generated from primary data provided by tRFMOs or Level 2 dataset (generated from IRD level 0 with additional corrections: raising factors..).
- code (R and SQL) to process the metadata and data (harmonized global datasets), load them into the SQL data warehouse and create metadata and data services.
- DOIs and attached metadata (Title, abstract, authors, bibliographic citation..) have been assigned to IRD metadata, data and code.

Objective of the collaboration

FAO and IRD enter into joint collaboration under the FIRMS Partnership with the objective to efficiently support the yearly update of the Global Atlas of Tuna and Tuna-like species (herewith referred to as 'FIRMS Tuna Atlas'), and to foster research and development for enhancing collation and dissemination services of tuna fishery statistics.

For this objective to be realistic, IRD expects that this collaboration with FAO and tuna RFMOs will facilitate data access and mainstreamed data workflow by relying on standardized data formats and access protocols (standards provided by CWP).

Data and statistical information

The section describes the types and scope of information to be contributed by IRD:

metadata: IRD will only comply with international standards widely used for metadata and data management (eg OGC standards, Datacite, Dublin Core..).

datasets: the IRD Tuna Atlas is made of datasets with three levels of processing that are defined hereafter, as they are mentioned throughout this annex:

- Level 0 dataset (harmonized; with no extrapolation) generated from primary data provided by tRFMOs stores catch and effort data as close as possible to primary data collated from countries and made publicly available by t-RFMOs. For level 0, the primary datasets of tuna RFMOs are merged with a set of harmonization rules:
 - original code lists of Tuna RFMOs have to be mapped with standard CWP / FAO code lists (for gears, species, flags) so as to be able to compare the datasets.
 - duplicated or splitted strata among the datasets are dealt specifically.
 - other minor corrections regarding overlapping zones between tRFMOs are made (IATTC and WCPFC, CCSBT and the other tRFMOs).
- Level 1 dataset: uses Level 0 as an input of the process. Harmonization of units of measures for catches which can be, according to RFMOs, weight or in number of fishes or both weights and numbers in the same stratum. The values of catches measured in numbers are converted into weight using simple conversion matrices.
- Level 2 dataset: uses Level 1 as an input of the process. Geo-referenced catches are raised to the total (nominal) catches since geo-referenced catch and associated effort data provided by RFMOs only represent a part of the total catches. Level 2 is also provided for catch at size data or CPUE.

-
- **mapping:** rules originally established between international and tuna-RFMOs classifications used to generate the Level 0 data layer, and these will be further developed and maintained jointly with FAO and t-RFMO under the FIRMS partnership.
 - **extrapolation factors:** set of corrections applied for each tuna fishery worldwide will be made available for review and possible use by t-RFMOs under the Partnership (these parameters are required only for scenario 3, if Levels 1 and 2 datasets are expected to be created within the FIRMS framework) .

Code for data processing

IRD will contribute its SQL code to create and fill the database (Sardara) used to store the collated data and to process new global datasets, as well as to store related metadata.

IRD will provide a workflow (R code) made of:

- **collation workflow:** the steps of the workflow which lead from uploaded data to harmonized global datasets stored in the database. This R code enables first the collation of statistical information from the t-RFMOs and then the generation of the Level 0 data layer.
- **interoperability workflow:** the R code for the steps of the workflow which generates metadata upon which the data services are based (using the software components of the Tuna Atlas Spatial Data Infrastructure (SDI) SQL database, metadata catalogue, spatial data server).

Metadata, data management and citation

New datasets generated by the yearly update of the workflow will be published according to rules defined by the FIRMS Steering Committee.

IRD implements FAIR data management principles by complying with widely used standards (eg OGC standards for spatial data and DOIs and Datacite metadata for data citation). These principles are expected to drive the management of FIRMS Tuna Atlas datasets and related services:

- **Citation** of underlying products (metadata, data, code, software) enabling the FIRMS Tuna Atlas should be driven by DOIs and attached metadata. DOIs will be displayed in the FIRMS maps viewer.
- FIRMS partners are expected to assign their own DOIs for pre-existing products.
- FIRMS partners are expected to assign new DOIs for common products created in the FIRMS framework.

Metadata attached to DOIs are sufficient to provide standardized bibliographic reference (eg [standard format attached to DOIs](#)). Disseminated products will be published under a “Creative Commons Attribution Non Commercial 4.0 International”.

FAO is the copyright holder of the FIRMS Tuna Atlas map viewer, cited as a FIRMS authored product, which constitute one of the main channels for dissemination of Level 0 data (with others like Zenodo, IRD dataverse...). This map viewer can be also re-distributed (e.g. as embedded

product in t-RFMOs websites upon request as well as through IRD Website, the iMarine e-infrastructure..).

Information products and services

The basic product of the Tuna Atlas will be the Level 0 dataset. The main service provided by IRD consists in generating this dataset and associated metadata each year according to the calendar and data submission protocol agreed upon by FIRMS SC. IRD can perform this service only if metadata, data, codelists and mappings provided by tuna RFMOs are compliant with and validated against CWP Reference Harmonization standard, and if source data are submitted according to the agreed calendar.

For the objectives of this collaboration, IRD will provide an in-kind contribution which will not exceed 0.5 month a year (deemed sufficient under the above described conditions).

Additional metadata and data products (and related services) are driven by the choice of the scenario. Beyond the basic Level 0 dataset product, IRD is willing to collaborate with FIRMS partners towards dissemination of Levels 1 and 2 through the FIRMS Tuna Atlas if and when so expressed by FIRMS SC.

IRD is committed to support research and development in joint effort with FAO and other FIRMS partners, including:

- further design and enhanced performance of the Tuna Atlas database (previous IRD Sardara database). IRD will lead this part of the work and is not committed to accept all requirements.
- Implementation of FAIR guiding principles for Fisheries data management, including:
 - OGC metadata and data services to foster data discovery and access by relying on standardized formats and access protocols.
 - DOIs assignment (with metadata elements indicating agreed licensing and enabling proper citation).
- further expansion of content, additional levels of processing or integration of new variables describing tuna and related fisheries activities (e.g. tagging, biological data, FADs, AIS/VMS...), or environmental variables describing physical and chemical parameters in related tuna habitats.

Additional entitlements

When further partnership efforts need to be extended this item may be revised by mutual consent.

As a Member of the FIRMS Tuna Atlas VRE, IRD can keep on administering the postgres database, geonetwork and geoserver instances hosted by the infrastructure (eg in a Virtual Research Environment, VRE).

IRD can use the Map Viewer software as dissemination instance clearly distinguished from the FIRMS Tuna Atlas.