



FIRMS Steering Committee Meeting
Second Session
Copenhagen, Denmark, 25-26 February 2005
FINAL REPORT
Author: FSC Secretariat

1. Opening of Session and the Welcome Address

The Second Session of the FIRMS Steering Committee (FSC2) was opened in the ICES building in Copenhagen, by M. David Griffith, Secretary of ICES at 9.30 hrs on Friday 25 February, 2005.

He welcomed FIRMS FSC representatives of the following Partner agencies: IATTC, ICES, ICCAT, SEAFDEC, and NAFO, as well as an observer of CCAMLR.

2. Adoption of the agenda

The chairperson, Dr. Robin Allen (IATTC) presented the agenda. Item “9b. Planning for inter-session activities” was added and the agenda was adopted (see [Annex 2](#)).

3. Progress on the development of FIRMS Partnership

The Meeting welcomed two new Partners who signed the arrangement during the inter-session: NAFO and SEAFDEC, thus bringing the current Partnership to 8 members.

CCAMLR being in the final stages of signing the FIRMS Partnership Arrangement, the meeting agreed to include CCAMLR in the discussions.

It was noticed that EUROSTAT is also in the process of signing the FIRMS Partnership Arrangement.

4. Review of new perspective Partners

The meeting noted that the Western and Central Pacific Fishery Commission (WCPFC) had been set-up and that this area of the world is the outstanding gap in FIRMS for covering global high seas tuna resources. The meeting was also informed of the contacts established between the International Whaling Commission (IWC) and FAO during the intersession. IWC is interested by FAO's global inventory of fisheries as a backbone to report on global whales' by-catch. The new status of GFCM, involved in FIRMS as FAO statutory body, has been notified. GFCM has now an autonomous budget and this opens a perspective of GFCM to become a full FIRMS partner.

Having as part of FIRMS, organizations whose mandate was only for management measures or those focussing on compiling information of socio-economic nature was deemed useful. The North Atlantic Salmon Conservation Organization (NASCO) and North East Atlantic Fisheries Commission (NEAFC), and the Fisheries Committee of OECD were cited as example. These institutions could provide complementary information like management resolutions or fisheries socio-economic indicators. The meeting stressed that if and when such organizations will join FIRMS, it will be important to ensure that reporting responsibilities be complementary to those of existing members in order to avoid overlapping or discrepancy of information between partners.

The meeting's attention has also been brought on the new Southeast Atlantic Fisheries Organization (SEAFO) having a high seas mandate except for Tuna fishery resources, and on the on-going initiative for the establishment of new fishery Commissions for the Southwest Indian Ocean (SWIOFP).

Decisions:

- the Chairman will write to WCPFC, NEAFC, NASCO and IWC inviting them to consider becoming members of FIRMS;
- out-going Chairman and Secretariat will prepare a document for presentation to RFBs meeting highlighting what FIRMS is about, progress being made to date, and explaining the open nature of FIRMS.

5. Review of Annex 2 for new partners

The meeting reviewed the contents of NAFO's, SEAFDEC's and CCAMLR's draft of Annex 2 of their FIRMS Partnership Arrangements.

- ***Northwest Atlantic Fisheries Organization (NAFO)***

The supply of information to FIRMS would be based on NAFO Scientific Council reports for stock status, assessment and management advice, on NAFO Conservation and Enforcement Measures maintained on the NAFO website for information on regulation and management of fisheries, on catch and fishing effort statistics, and on reports available on the NAFO web-site for biology, ecology, fisheries and other information.

The non scientific information will be contributed as technically feasible.

NAFO pointed out that the stocks listed in their Annex 2 are those that are managed by the NAFO Fisheries Commission. In addition NAFO is requested at times by national governments and others to provide assessment on additional stocks and the point was raised whether in such case NAFO's Annex 2 would have to be updated each time.

Decisions: the discussion which ensued highlighted some principles and mechanisms which the Partnership should follow on this issue:

- the principle of flexibility was stressed: it is accepted a certain level of decoupling between the content of Annex 2 and the actual implementation in the system;
- the need to maintain awareness by all Partners of a given Partners' claim for ownership over Marine resources or Fisheries, which could be achieved through emails or News dispatch;
- the possibility of exerting ownership "until further notice" which would apply for those units episodically assessed;
- the need for FSC to revisit updated content of Annex 2 when changes have occurred.

- ***Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)***

The supply of information to FIRMS would be based on the Annual Reports of the meetings of the Commission and Scientific Committee for the biology, description of fisheries, state of stocks, outlook and management advice of fishery stocks in the CCAMLR Convention Area.

It was agreed that the "FIGIS-FIRMS" wordings in CCAMLR's draft of Annex 2 would be replaced by "FIRMS".

- ***Southeast Asian Fisheries Development Center (SEAFDEC)***

The content of SEAFDEC's Annex 2 reflects the understanding that SEAFDEC will proceed in FIRMS following a progressive learning exercise. This preliminary stage covers information on shark fisheries in Southeast Asia including species composition, biology, catch, post-harvest use, processing, and local trade.

Due to the fact that sharks are here essentially associated or by-catch species, it was stated that work is still on-going with the FIRMS Secretariat to identify which are the fishery units concerned by SEAFDEC's contributions to FIRMS. It was also stressed that SEAFDEC is the first Partner having a reporting focus on Post harvest use in FIRMS, thus contributing to develop preliminary topic trees for this subject area.

6. FIRMS Information management policy (IMP)

- ***Review of the draft FIRMS IMP***

The draft FIRMS IMP redrafted according to the guidance provided by FSC1 was discussed and amended. Version 1 of this IMP was approved by FSC2 (See [Annex 3](#)). It was agreed that future versions of the IMP would include additional definitions endorsed by FSC in particular with regard information concepts handled by FSC. Review of the IMP document would be a regular agenda item to be included for FSC meetings.

Decisions:

- The first version of the IMP has been adopted by FSC2 as appended in [Annex 3](#);
- The revision of the IMP will be a regular agenda item of the FSC.

- ***Mechanisms for effective development and validation of metadata standards***

This item was introduced to FSC2 as a brainstorming exercise, since guidance was sought from FSC2 on most efficient ways for FIRMS to develop Metadata standard proposals. The rules that would ultimately be agreed under this topic would become part of an extension of the IMP.

Decisions:

- Depending on the stage (development/consolidation/validation) and level of difficulty of the subject being tackled, different mechanisms should be envisaged;
- For the development of new branches/subjects of topic trees, sub-groups expressing interest/having particular expertise in the subject could be formed to propose Metadata standards (e.g. Eurostat in socio-economy);
- For complex subjects reaching a consolidation stage, the working proposal of a topic tree should be tested through various case studies, and only after satisfactory implementation it may become a standard;
- For simple subjects such as Bibliographic citation of a fact sheet, the Secretariat could directly submit a proposal to the FSC for comments and adoption.

7. Review of the Progress of the FIRMS Database and Module Development

7a. Report from individual partners

The inter-sessional activities led by FIRMS Partners were presented by each Partner, then by the FIRMS Secretariat.

- ***International Council for the exploration of the Sea (ICES):***

ICES has been involved in two training sessions of FIRMS. During the first one held in Rome, ICES has been trained in the basic use of XML technology and document preparation. During the second one held in Copenhagen, ICES with the support of a FIGIS staff developed trials for a software able to automate the conversion process between ACFM original word documents and FIRMS xml format. The prototype developed during the session was able to address 90% of the transformation needs and FIGIS staff will assist for its finalisation.

ICES also actively consolidated and validated its inventory of stocks and defined the mapping between ICES ACFM topics and FIRMS topic tree.

- ***Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)***

CCAMLR proceeded with the early stages of developing an inventory of fisheries. Fishery plans (management and operational) are developed within CCAMLR which may be used to feed FIRMS status and trends reports.

- ***Northwest Atlantic Fisheries Organization (NAFO)***

NAFO has concentrated on signing the FIRMS Partnership Arrangement and has carefully reviewed and commented the high level requirements document. NAFO has set-up an Access database for its data management which, together with very standard Scientific Council Report templates, should facilitate submission of data to FIRMS. NAFO still needs to figure out how to submit Management advice for NAFO managed fisheries.

NAFO is potentially interested by the streamlined conversion procedure being tested with ICES.

- ***International Commission for the Conservation of Atlantic Tunas (ICCAT)***

ICCAT's technical editor who was trained in FIRMS has unfortunately left the organization, and ICCAT plans to hire a replacement in the summer of 2005. A lesson learned was that if training in the preparation of FIRMS inputs is left to only one staff person, then this expertise is lost if the person leaves the organization. For this reason, ICCAT would prefer having two of its staff trained in FIRMS tools in the coming months, but it is not clear that the budget will permit this. The FIRMS Secretariat will explore if there are any options for obtaining external funds to increase the number of trainees.

Considering that ICCAT's stock status reports correctly match FIRMS topic tree, no problem is foreseen with respect fulfilling FIRMS requirements.

- ***Inter-American Tropical Tuna Commission (IATTC)***

Recalling that a staff member was trained before FSC1, IATTC has worked on standardising its stocks status reports according to FIRMS topic tree. IATTC has carried out a trial of marking-up its stock status report for displaying in FIRMS.

- ***FAO Fisheries Department / FIRMS Secretariat***

Training: two complete training sessions were organized at FAO with ICES (Bodil Chemnitz) and CCSBT (Bob Kennedy), and one introductory session to FIRMS inventories was held at the SEAFDEC headquarters in Bangkok. These sessions allowed provision of feedback and refinement of user requirements, and follow-up activities were completed successfully in close collaboration with the FIGIS/FIRMS team: CCSBT developed a Southern Bluefin Tuna Stock status report now published in FIGIS; ICES consolidated its inventories, validated the mapping between its ACFM stock status report topics and FIRMS ones, and elaborated a prototype for automated production of FIRMS xml files from word source documents; SEAFDEC developed a test inventory of shark fisheries in Southeast Asian countries.

Inventories: the inventories of Stocks and/or Fisheries referred to in Annex 2 of FIRMS partnership arrangement (CCAMLR, IATTC, IOTC, CCSBT, ICCAT, ICES, NAFO, SEAFDEC, FAO/CECAF, /GFCM, /RECOFI, /WECAFC) were all consolidated and standardized according to the latest standards defined for FIRMS. These inventories are now being loaded into the FIGIS reference system together with a FIRMS hierarchical classification. Table 1 of document FSC2/2005/5 presents summary statistics of these inventories.

Web-based module requirements: the FIRMS Secretariat dispatched in July 2004 to the technical working group a document of high level requirements for the FIRMS web-based module, for comments and feedback. Together with this document, a road map with a sequence of milestones consisting of mock-ups or tangible prototype web products was proposed in order to encourage participation and maintain momentum. The document was generally accepted although qualified as not easy to digest, which explains why the promised visualization of mock-ups or prototypes was welcomed. The FIRMS Secretariat modified the requirements into a revised version (see FIRMS_FSC2/2005/4) responding notably to NAFO's valuable remarks.

Web-based module design: Meanwhile awaiting comments on requirements from Partners, the software design work proceeded, building both on the experience gained through the development of the prototype and the need for a reliable, robust and user friendly module responding to the

FIRMS requirements. Reuse of open source libraries is made as much as possible. Quality assurance specifications¹ which were formulated as part of FIGIS efforts towards qualified software components were also incorporated into the process. 14 software components were deemed necessary and a work plan has been set-up for their detailed design and development, amounting to about 200 days of development.

FIRMS home page: a draft FIRMS home page has been developed and is presented to the FSC2 for comments (see FIRMS_FSC2/2005/6). This home page will be progressively extended with a set of pages controlling the access to the FIRMS data base and the presentation of fact sheets and other summary views.

At the request of FSC2, the Secretariat clarified some of the elements of the status of the inventory (Table 1) stating in particular that progress on the inventory of fisheries was less advanced than that of inventory of resources because it was either out of the scope of Partners' Annex 2 or coming sequentially after the inventory of resources.

7b. FIRMS web-site

The FIRMS Secretariat finalised the draft FIRMS web-site just before the meeting hence could not submit it for review to the technical working group prior to FSC. The various pages of this web-site powered by FIGIS were presented and the following reactions were recorded. The proposed link to harmonised summary descriptions (fact sheets) of institutions should be maintained only if there are mechanisms assuring that information contained in these fact sheets reflect the up-to-date RFB situation. Some Partners said their fact sheets would contain short and stable information such as maps of competence areas and link to their web site.

A map of FIRMS Partners competence areas was deemed useful.

The public web-site should target a general public audience (the scientists involved in RFBs activities will refer to their RFBs web-site rather than FIRMS) therefore should better promote immediate and direct access to worldwide information on fishery resources which the general public is looking for. Caution has to be brought on the search options offered to the general public. The search should be designed in a way which in accordance with FIRMS IMP will avoid misinterpretation of search results. Very clear indication of the kind of results returned should be provided in the search page.

Another view of the web-site would be for FIRMS Partners usage.

Decisions:

- It was agreed that the above were preliminary comments and that the Secretariat will make this prototype web-site available to the partners for review and will coordinate/moderate discussions through Emails and Forum concerning the validation of the Web site before its publication;
- The FIRMS web-site will offer two views for two distinct audiences, the general public and the FIRMS Partners (under restricted access);
- the web-site offered to the general public will promote access to data rather than to the process;
- News about FIRMS and its developments will be contributed by Secretariat;
- The internet domain name <http://firms.fao.org> was agreed.

¹ can be consulted at <\\figis01\figis\development-site\build\site\code-quality.html>

7c. Review of report of technical group

The Secretariat introduced this item noting that the report presented was not produced by the technical working group. The items presented here to the FSC for decision making, guidance or just information were issues compiled from i) email discussions with the technical working group, and/or ii) technical activities led so far by the Secretariat in developing the tools presented at this stage. The Secretariat then proceeded presenting each item before opening the discussion.

- *information architecture for stocks and fisheries (Document FSC2/2005/6 II.a with additional reference to document 4b)*

In the discussion, Partners agreed that it was desirable to maintain certain level of structure and categorization, while at the same time maintaining the level of flexibility necessary to maintain the integrity of the individual partner contributions. Since categorization is associated with search, both categories and search options will need to be cautiously developed.

Decision:

- Considering that Model b represents a more flexible approach, the Secretariat will proceed with a test drive of Model b for the first range of case studies and hopefully validate this model with the Partners.

- *automatic production of XML reports (Document FSC2/2005/6 III.a)*

Considering the volume of stock reports, ICES requires an automatic procedure to assist in the contribution of information to FIRMS. The outlook for this procedure is good, considering the prototype developed. Furthermore the exercise, recommended, was found extremely useful and illustrates how FIRMS is a two way process.

The institutions involved in such process need to understand the underlying technology since maintenance and technical interventions within the procedures will certainly be required in the long term. All FIRMS Partners present stated that they are using MS word and that they are likely to adopt MSword 2003 in the foreseeable future.

Recommendation:

- Such streamlining through automated procedure is encouraged.

- *FIRMS naming conventions for aquatic resources and fisheries (Document FSC2/2005/6 IV.a)*

There was general agreement that these proposed standard naming conventions for marine resources and fisheries are useful. The meeting stressed that the common area names used in the marine resources or fisheries names should refer to standards, either from the ASFIS list of geographical terms or from CWP handbook. Consistency with the naming convention would also imply that, for contributions from partners other than FAO, the statistical area used by the partner would take precedence over the reference to FAO statistical areas.

Decisions:

- The proposed naming conventions were accepted;
- According to these standards, the references to FAO statistical areas would be subordinate to those of the RFBs.

- ***Standards enforced at reference data level (Document FSC2/2005/6 IV.b)***

The FIGIS Reference Table Management System (RTMS) is exerting part of the quality control for FIRMS. At the request of the meeting, it was clarified that although the proposed standards are managed as part of the FIGIS Reference Table Management System (RTMS) in a very generic way along with other fishery standards maintained by FIGIS, the marine resources and fisheries branches are being developed within the FIRMS context, therefore tailored to FIRMS attributes' requirements.

Decisions:

- The proposal was generally approved;
- The Secretariat exerts a “technical control” on the FIGIS reference tables for the Marine resources, Fisheries and Management system branches on behalf of the FSC.

- ***RSS Metadata standards for sharing news (Document FSC2/2005/6 IV.c)***

Considering discussions held on this subject under agenda item “review of the draft FIRMS web-site”, the presentation under this agenda item was for information.

- ***Dublin Core / AGMES for resource description (Document FSC2/2005/6 IV.d)***

The presentation under this agenda item was essentially for information.

Recommendation:

- If Metadata standards are to be used by the Partners in their web-site, they are encouraged to use Dublin Core / AGMES standards.

- ***IVe. Bibliographic standards***

The three types of bibliographic related topics -Bibliographic citations, Source, Bibliographic references- were deemed meaningful for considering the two main issues of style (for presentation) and structure (for interoperability).

Most of the debate concentrated on agreeing on a style for bibliographic citations of FIRMS web-pages. Considering a draft paper distributed during the meeting on this aspect, the following comments were made:

- instead of year, upload date (ie date of last upload – or last modification) should be considered for electronic documents;
- series should be “FIRMS reports”;
- place of publication has no meaning for internet publishing, and should be removed;
- publisher “FAO – FIGIS” should be included.

Decisions:

- The guidelines for bibliographic citations were accepted as debated above and as presented in [Annex 4](#);
- FIRMS would use Partners bibliographic reference style for sources and bibliographic references included in the fact sheets;

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- With respect to interoperability issues, the meeting noted use of the existing virtual library standards within FAO but most contributions in the foreseeable future will use a manual URL;

8. Strategy for FIRMS partnership in promoting the development of a global network for reporting on fisheries and stocks status and trends

There was no background document to discuss this item rather meant to be an open discussion. This item was introduced referring to the ultimate goal of FIRMS, and to the Ocean Biogeographic Information System (OBIS) network which looks performing quite efficiently on the development at global level of protocols for exchange of taxonomic, bio-geographic and ecologic information. The fact that national agencies are directly involved in this network seems to be an important asset for delegating work and responsibilities and have the network spreading quickly. The question was raised as to whether some of the approaches used by this network could be applied by FIRMS, and what other approaches should be promoted.

As made obvious from the OBIS experience, priority in FIRMS has to be given on developing a concrete and proofed product that could then be promoted to a broader audience. It should be ensured that FIRMS is kept on a manageable level prior to any incremental step in promoting it. The better the current inputs by a small group, the higher the recognition should be afterwards, and the easier it should be to convince others to join.

Decisions:

- The agreed road map for promoting the development of a global network is:
 - 1) Invite other RFBs to join;
 - 2) Develop a proofed product;
 - 3) Promote FIRMS as one implementing mechanism of the Strategy-STF;
 - 4) Once FIRMS is operational, national agencies should be invited to contribute.

9a. Planning for the third session of FSC

Decision:

- Considering the many developments expected, a 2 days meeting will be held in conjunction with CWP 2006 inter-sessional meeting.

9b. Planning for inter-sessional activities

Decisions:

- The technical group will review and discuss by email non resolved technical issues presented to FSC2;
- The technical working group will actively pursue the review of the successive mock-ups and draft web-pages proposed by the Secretariat;
- The guidelines enabling to carry on with the inventory of Fisheries will be dispatched to the Partners in order to complete the current gaps;
- Review of high level definitions will be reviewed and cleared by FSC members;

- Technical working group is asked to meet in Rome during first fortnight of December 2005 for one week. The FIRMS Secretariat will draft the meeting agenda and submit it for approval to the FSC members. The meeting will include an advanced training session and discussions about technical issues established. The meeting will produce the report of the technical working group for consideration by the next FSC meeting.

In addition, the FIRMS Secretariat will:

- conduct basic training sessions in the use of XML and FIGIS tools for the new or prospective Partners (SEAFDEC and CCAMLR) who have not yet benefited of such training, and further for ICCAT .
- finalise with ICES the implementation of the automated conversion procedure

10. Any other business

The meeting was briefed about two activities of concern to FIRMS.

FIGIS Autoevaluation: a component of the on-going autoevaluation of the FIGIS project has focused on the FIRMS Partnership through interviews of FIRMS Partners. It was agreed that the report will be dispatched to the FIRMS Partners once approved.

Project document for developing further the prototype Fisheries Ontology: this initiative seeking EU funding was taken by GILW (a unit responsible for information management at FAO corporate level), in collaboration with the Fisheries Department. One of the applications of this project could be of strong benefit to FIRMS.

11. Election of Chairperson and Vice-Chairperson

A new Chairman: Hans Lassen, and Vice chairman: Victor Restrepo were elected for the coming intersession.

12. Adoption of the report

The report has been reviewed by FSC representatives during the following CWP meeting and adopted.

Annex 1
List of participants

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Annex 2

Meeting agenda

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 - Mechanisms for effective development and validation of Metadata standards
6. Review of new perspective Partners
7. Review of the Progress of the FIRMS Database and Module Development
 - 7.a Report from individual Partners
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 - 7.c Consideration of the report of the technical working group
8. Strategy for FIRMS partnership in promoting the development of a global network for reporting on fisheries and stocks status and trends
- 9a. Planning for the third session of FSC (FSC3)
- 9b. Planning the inter-sessional activities
10. Any other business
11. Election of Chairperson and Vice-Chairperson
12. Adoption of the Report

Annex 3

FIRMS Information Management Policy**Final draft****26/02/05**

Preamble:

The FSC formulates and revises as necessary the Information Management Policy. Various parts of this Policy may be at various stages of elaboration, according to the needs and issues to be addressed.

FIRMS is powered by FIGIS, and will be guided by the same principles as FIGIS. The FIGIS is a FAO system for disseminating information provided by many different partners, each holding data in different databases (or otherwise). Data in the FIRMS system will be loaded and maintained by many different organisations. In this distributed system, information remains under the full responsibility and control of data owners, and in that respect, information available through FIRMS shall be disseminated ensuring source and citations of responsible Party together with information on the nature, origins and quality of the information.

As overall guiding principles, the Information Management Policy shall encourage participation and cooperation by partners and facilitate submission of information, as well as maintain objectivity and transparency of the information presented.

Definitions:

- **CWP:** the **Coordinating Working Party on Fishery Statistics** provides a mechanism to develop and promote common standards for fisheries statistics of regional fishery bodies and other inter-governmental organizations with a remit for fishery statistics.
- **FIGIS:** the **FAO Fisheries Global Information System** is a web-based information management tool that integrates fisheries information and interconnects groups of institutional partnerships to build up a network of subsystems. **FIGIS** is the tool powering the FIRMS web-site, taking care of the management and dissemination of information shared within the FIRMS partnership. Core modules handled by FIGIS for this FIRMS sub-system comprise resources and stocks, fisheries, fisheries management systems, and collections descriptions, whereas peripheral modules include species, fishing techniques, organizations descriptions.
- **FIRMS:** the **Fishery Resources Monitoring System** is a partnership drawing together international organizations, regional fishery bodies and national scientific institutes, collaborating within a formal agreement, who are willing to report and share information on status and trends of fishery resources.
- **FSC:** the **FIRMS Steering Committee** described in article 5 of the Partnership Arrangement.

Para.1: FIRMS Partners policies: Partners' policies regarding their publications and the dissemination of data and documents apply for the information that each Partner has submitted. Partners are responsible for informing the FIRMS secretariat of their information management policy. In practical terms, this means for FIRMS that:

- Partners' logo will be associated together with their information contributions;
- information submitted by a Partner may be withdrawn if the Partner withdraws from the Partnership;
- the Partner will be responsible for ensuring synchronisation with its own publication process;
- FIRMS will set-up mechanisms to prevent distortion of partners' published sources;
- Partner's publishing languages will be respected as far as possible.

Para.2: Language handling. Notwithstanding provisions made in paragraph 1, the use of one of the 5 FAO official languages is encouraged in FIRMS. Consistently with the promotion of standards, there may be minimum language requirements for the submission of key attributes in English, such as titles or other searchable qualifiers.

Para.3: Quality assurance. High quality information in FIRMS requires that information is objective, transparent, timely and consistent. Objectivity will be achieved through submission of the best scientific information, and encouraged through the development of criteria for the establishment of quality levels of partners contributions. Transparency implies that each piece of information is clearly documented and traceable. FIRMS will encourage its Partners to maintain timeliness of the information they submit consistent with their Agreements. Consistency is encouraged through standardization in data provided which in turn implies training and support to partners. Quality assurance (QA) procedures are a key part of maintaining high quality information, recognising the existence of two types of QA:

- 1) QA of information submitted by partners: Partners are responsible for the information submitted and the QA associated with that information. Where appropriate, information submitted by partners may include a general description of their QA protocols.
- 2) Minimum QA required for the sound operation of FIRMS (to be further developed by the FSC) should include, *inter alia*: identification of required information (eg mandatory fields), agreement on standards; use of a single harmonised layout; development of quality assurance indicators (both qualitative and quantitative, such as "risks indicators"); and indicators of reliability and timeliness in metadata.

Para.4: Handling of alternate views. The presentation of alternate views and interpretations of the information is envisaged in FIRMS. Although a guiding principle is that FIRMS is an information system and not a forum for debate on interpretation of data (such forums are established through bi- or multilateral arrangements or through the regional fisheries bodies), FIRMS provides for mechanisms to identify conflicting information and resolve subsequent issues that may arise among Partners. The Information Management Policy sets the following principles:

- one Partner, or joint Partners, are recognized as primary responsible(s) for information on any Marine Resource or Fishery, as per content of Partnership Arrangement's Annex 2;
- the role of the Secretariat is to enforce at system level this primary responsibility;

- Partners are entitled to submit alternate views on any Marine Resource or Fishery, final publishing being under the control of Partner(s) having primary responsibility over that Stock or Fishery;
- in cases where the primary responsibility is disputed between two or more partners, the FSC may decide on how to publish the alternative views.

Para.5: Functionality automating analyses of the content of the system. To avoid misleading analyses, search facilities shall ensure that information on status and trends or management advice is not separated from its associated interpretative context.

Para.6: Users restricted areas. FIRMS has a public domain as well as a domain to which access is restricted. FIRMS's restricted access area enables the information submission and validation process (including data integrity and consistency checking) for pre-publication reviews of that information by the FIRMS partners responsible. The Information Management Policy defines access rights by user types distinguishing editors, reviewers, approvers, system administrator, privileged users and general public. Identified inconsistencies in the contributions of partners remain under confidential private access until they are resolved.

Para.7: Maintenance of historical data. The Information Management Policy will consider maintenance of history, update cycles and recovery of historical data. It will identify the requirements for archiving information and how the system will provide access to historic information.

Para.8: Information Technology (IT) Standards and Information Standards. The FIRMS Information Management Policy respects a range of **IT Standards and Information Standards** but shall primarily respect the FIRMS Partnership Arrangement on this topic. The distributed nature of FIRMS implies that FSC will not be able to set standards in a vacuum: the realities of existing standards of partners (and their system sites) will always need to be recognized, and therefore the final standards will be a major topic for resolution by the FIRMS Steering Committee. The following is a list of standards currently used within FIRMS:

FIRMS uses FIGIS IT standards that include:

- ✓ XML is the core format for data and information input, output and exchange;
- ✓ avoidance of the use of proprietary software wherever possible;

FIRMS information standards include:

- ✓ establishment of metadata and controlled vocabulary (thesauri) standards which, as a guiding principle, use existing standards including CWP, FIGIS, or other standards; however it is understood that extensions may be unavoidable. All controlled vocabulary, including metadata, might be available in three languages (English, French, Spanish);
- ✓ Exchange protocols of spatial information: when presenting geo-referenced data, an individual data provider should use the appropriate geographical system. Local organisations should make sure that the detailed maps that they might develop for their own use conform to existing map systems.

Para.9: Mechanisms for the development, consolidation and validation of Metadata standards

- ✓ the FIRMS web-site present the elements of protocols to facilitate the exchange of information.

Annex 4

Bibliographic Citation standards concerning FIRMS fact sheets

Each FIGIS fact sheet needs to be univocally identified by a Bibliographic Citation.

This citation is composed by the following elements:

Author/Compiler/Editor as appropriate

Title, including subtitle

Series title

Publisher. Upload date.

URL

Author

The author can be a “personal author”, a “corporate author” or a “conference body”. The personal author(s) has always to be displayed first. The Corporate Author, if available, should also be cited in a new field. Personal authors should be cited as follows: “Surname in full, followed by a comma and the initials of both the first and middle names. If more than one author is given, they should all be cited, separating one from the other by a semicolon and a space.

If a document has an editor, compiler or a translator, the names should be followed by: (ed.), (comp.) (transl.).

e.g. Author: Adams, L.; Smith, F.J.; Taconet, M. (ed.); Arian, K. (transl.)

e.g. Corporate Author: Species Identification and Data Programme (SIDP), Rome (Italy)

Title

The title includes the main title, the subtitle and eventually additional information such as volume number, part number, etc. The language of the title corresponds to the language of the content of the document.

e.g.: Status of stocks of Northwest Atlantic. NAFO area

Series title

The series title according to the FAO house style should be cited italics.

e.g.: *FIRMS Reports*

Publisher

The name of the Publisher can be entered in full or as an acronym if it exists.

FAO – FIGIS is the default publisher for a FIRMS fact sheet.

e.g.: FAO – FIGIS.

Upload date

The date the document was uploaded or updated in the system should be cited in ISO format, i.e. year + month + day (when available)

e.g.: 20030919 or 2004

URL

The URL of all the language versions should be cited if available.

e.g.: URL (English version): <http://www.fao.org/figis/servlet/species?fid=2795> ; French version:..

Examples of Citation in FIGIS:

Species Identification and Data Programme (SIDP)

A world overview of species of interest to fisheries. *Alopias superciliosus*.

FIGIS Species Fact Sheets

FAO – FIGIS. 20040603.

URL (English version): <http://www.fao.org/figis/servlet/species?fid=2795>

Lloris, D.

Species Identification and Data Programme (SIDP)

A world overview of species of interest to fisheries. *Dicentrarchus labrax*.

FIGIS Species Fact Sheets

FAO – FIGIS. 2002.

URL (English version): <http://www.fao.org/figis/servlet/species?fid=2291>