



**FIRMS Technical Working Group Meeting**

**Second Session**

**Rome, Italy, 01-04 April, 2008**

**EXCEL TO XML CONVERSION TOOL**

**Author: FSC Secretariat**

*Purpose of this document: This document describes the process to convert Excel inventories for fisheries or resources to FIRMS compliant XMLs using a dedicated tool*

*Revision history: This document is the second version of a document initially presented to FIRMS TWG1 (FIRMS TWG1/2005/Inf.3). Main modifications concern an update of the document according to the last upgrade done in the FiMES schema. It refers also to the new converter tool for fishery inventories which was not available at the TWG1.*

---

## **Excel to XML conversion tool**

### Summary

1	Introduction .....	3
1.1	Purpose of this document .....	3
1.2	Target audience.....	3
1.3	Scope .....	3
1.4	Technical needs .....	3
2	Inventories.....	4
3	Excel-XML conversion tool.....	5
3.1	Technique and prerequisites .....	5
3.2	Detailed conversion process .....	6
3.2.1	Structured inventory.....	6
3.2.2	Output compliant XML .....	7
3.3	Data quality control.....	8

# **1 Introduction**

## **1.1 Purpose of this document**

This document describes the process to convert Excel inventories for fisheries or resources to FIRMS compliant XMLs using a dedicated tool

## **1.2 Target audience**

Professionals using the inventories

## **1.3 Scope**

How to use the services and methods provided by this application

## **1.4 Technical needs**

PC with Microsoft Excel.

## 2 Inventories

Information about fisheries, marine resources can be stored, in the context of FIRMS, into Excel files. Each excel file contains information associated to one specific partner. These files are based on the template designed by the FIRMS team (more in the [Fishcode-STF website](#)) and are divided into 3 different sheets.

The first sheet contains Fisheries information provided by partner stored in a specific format with one row corresponding to one fishery.

The fisheries sheets don't contain complete set of data for all partners.

The second sheet contains Marine resources provided by partner stored in a specific format with one row corresponding to one marine resource.

The marine resources sheets are completed for all partners.

The last sheet named "References" contains all the information for the sources and bibliography.

Guidelines for the different inventories are available there:

Resources: [ftp://ftp.fao.org/FI/DOCUMENT/FIGIS\\_FIRMS/Method\\_Guidelines/MarineResourcesInventoryGuidelines.pdf](ftp://ftp.fao.org/FI/DOCUMENT/FIGIS_FIRMS/Method_Guidelines/MarineResourcesInventoryGuidelines.pdf)

Fisheries: [ftp://ftp.fao.org/FI/DOCUMENT/FIGIS\\_FIRMS/Method\\_Guidelines/FisheriesInventoryGuidelines.pdf](ftp://ftp.fao.org/FI/DOCUMENT/FIGIS_FIRMS/Method_Guidelines/FisheriesInventoryGuidelines.pdf)

The inventories must be based on these guidelines, on FIRMS classifications and FIRMS controlled terms to describe fields of the inventories in order to be converted into valid XML files.

### 3 Excel-XML conversion tool

This tool is a VBA macro available into an Excel file. By opening this file, an interface invites the user to choose an Excel inventory with the Windows explorer. The inventory to be valid must contain the 3 sheets described above. If not, an error message will indicate to the user to check the content of the selected inventory.

In the framework of FIRMS, 2 distinct tools exist:

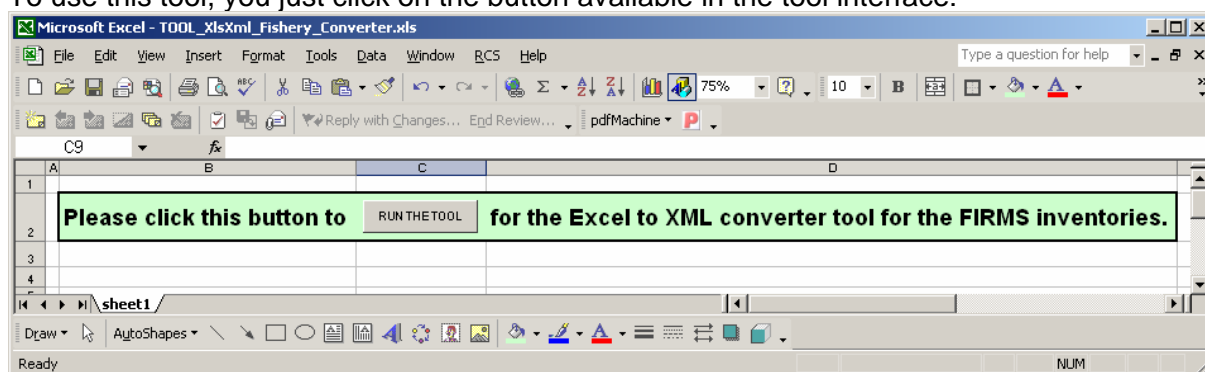
- The first tool has been developed for converting Resource inventories made by partners into resource XMLs compliant with the FiMES schema.
- The second tool has been developed for Fishery inventories to generate FIRMS compliant XMLs according to the last version of the FiMES schema for the fishery domain.

Some additional versions of the tool exist for other projects led by the fishery department (Port state measure project). They allow to generate valid XMLs from an Excel inventory based on a strict template. These XMLs are then loaded into the fishery website of FAO to be visualized as fact sheets.

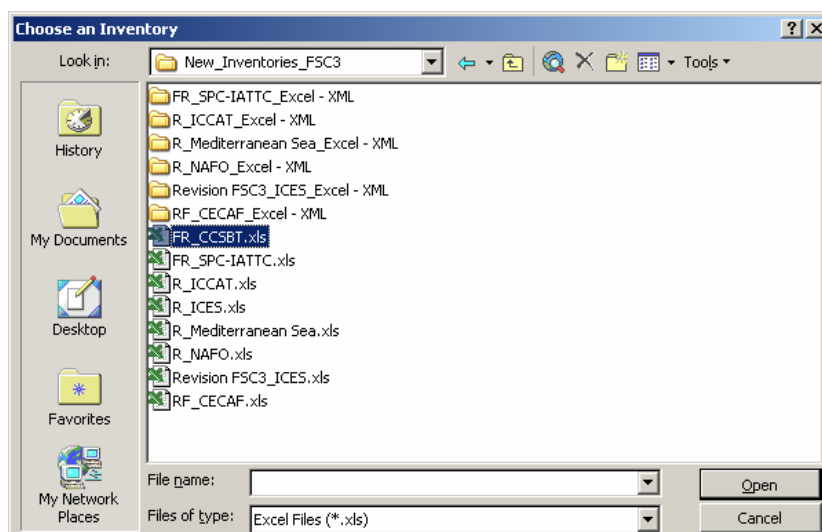
Moreover, the tool can be updated according to specific partner needs.

#### 3.1 Technique and prerequisites

To use this tool, you just click on the button available in the tool interface:



An open-file interface is running directly, you have to specify an Excel file containing inventory data structured according to the template defined above.



To validate the references terms, classifications listed in the inventory and verify that the georeferencing systems stored in the inventory is compliant with the water areas defined in the FiMES schema, the tool uses an other Excel file containing all valid and controlled terms.

The tool uses the References sheet to extract bibliography and source descriptions into the resulting XML.

The conversion tool creates a folder with the same name as the inventory file and puts in it all the valid XML files created from the inventory data.

## 3.2 Detailed conversion process

### 3.2.1 Structured inventory

Example of marine resource inventory:

MARINE RESOURCE REFERENCE		MARINE RESOURCE TITLE			Stock Structure	Management unit
Inventory identifier	Parent marine resource	FIRMS Marine Resource Title	Local title			
			Title	Language		
005:0001		Southern Bluefin tuna - Global			Yes	Yes

AREA OF DISTRIBUTION							
Primary Georeferencing System			Other Georeferencing System			Spatial scale	Jurisdictional distribution (for shared stocks)
Georeferencing System Name	Area Codes in this system	Area Name	System Name	Area Codes in this system	Area Name		
fao_area		81 Southern hemisphere					

SPECIES							EXPLOITING FISHERY
Order	Family	Genus and species	Environmental	Marine habitat			
				Depth zone	Bottom type	Climatic zone	
SCOMBROIDEI	Scombridae	Thunnus maccoyii	Pelagic fish	Neritic - Shelf,			

State of Marine Resources				REFERENCES			Ownership		
EXPLOITATION RATE	ABUNDANCE LEVEL	EXPLOITATION STATUS	STATUS - TRENDS DESCRIPTION	Bibliography	Source	Year of observation	Inventoried by	Collection identifier	Cover page identifier
High fishing morta	Low abundance	Overexploited	Status Stock	ESC8, SC6, ESC10		2003		1	1

### 3.2.2 Output compliant XML

The content of each field of the inventory is assigned to a specific element of the FiMES schema having an equivalent meaning.

For example, the content of the “Depth zone” field is stored under `fi:HorizontalDist` which is the corresponding element in the FiMES schema for this type of data.

Example of XML compliant with FiMES schema generated by the converter tool from this resource inventory:

```
<?xml version="1.0" encoding="UTF-8"?>
<fi:FIGISDoc xmlns:fi="http://www.fao.org/fi/figis/devcon/" xmlns:ags="http://www.purl.org/agmes/1.1/"
xsi:schemaLocation="http://www.fao.org/fi/figis/devcon/ http://www.fao.org/fi/figis/devcon/schema/3_6/aqres.xsd">
  <fi:DataEntry>
    <fi:Editor>FIRMS</fi:Editor>
  </fi:DataEntry>
  <fi:ObjectSource>
    <fi:Owner>
      <fi:CollectionRef>
        <fi:FigisID>1</fi:FigisID>
      </fi:CollectionRef>
    </fi:Owner>
    <fi:CorporateCoverPage>
      <fi:FigisID>1</fi:FigisID>
    </fi:CorporateCoverPage>
  </fi:ObjectSource>
  <fi:AqRes>
    <fi:AqResIdent>
      <dc:Title>Southern Bluefin tuna - Global</dc:Title>
      <fi:SpeciesList>
        <fi:SpeciesRef Taxonomy="Species">
          <fi:ForeignID CodeSystem="Scientific_name" Code="Thunnus maccoyii"/>
        </fi:SpeciesRef>
      </fi:SpeciesList>
      <fi:WaterAreaList>
        <dc:Title>Southern hemisphere</dc:Title>
        <fi:WaterAreaRef>
          <fi:ForeignID CodeSystem="fao_area" Code="81"/>
        </fi:WaterAreaRef>
      </fi:WaterAreaList>
      <fi:ReportingYear>2003</fi:ReportingYear>
      <fi:ForeignID CodeSystem="InvID" Code="005:0001"/>
    </fi:AqResIdent>
    <fi:HabitatBio>
      <fi:HorizontalDist Value="Neritic"/>
      <fi:HorizontalDist Value="Shelf"/>
      <fi:VerticalDist Value="Pelagic"/>
    </fi:HabitatBio>
    <fi:AqResStruct BiologicalStock="true"/>
    <fi:Management ManagementUnit="true"/>
    <fi:AqResStateTrend>
      <fi:ExploitRate Value="High fishing mortality"/>
      <fi:AbundanceLevel Value="Low abundance"/>
      <fi:ExploitState Value="Overexploited"/>
      <fi:Text><![CDATA[Status stock suggests ...]]></fi:Text>
    </fi:AqResStateTrend>
    <fi:Sources>
      <fi:BiblioEntry>
        <dc:Title>Report of the Twelfth Annual Meeting of the Commission for the
Conservation of Southern Bluefin Tuna. 2005-10-15</dc:Title>
        <ags:CreatorCorporate>Commission for the Conservation of Southern Bluefin Tuna
(CCSBT).</ags:CreatorCorporate>
        <dcterms:Created>2005-10-15</dcterms:Created>
        <dc:Publisher>CCSBT</dc:Publisher>
      </fi:BiblioEntry>
    </fi:Sources>
    <fi:Bibliography>
      .....
    </fi:Bibliography>
  </fi:AqRes>
</fi:FIGISDoc>
```

### 3.3 Data quality control

After the conversion of the inventory, an ErrorFile.txt in the result folder lists all the problems and points out what need to be updated in the inventory to obtain valid XML:

- Reference terms, classifications, water areas not compliant according to the standards
- Codes for Sources and Bibliography without correspondence in the References sheet in Excel
- Duplication of information in fields that should contain unique value
- Absence of data which are needed to have a valid XML

It allows to improve the content of the inventory and to generate compliant XMLs which will be loaded within the Content Management System.

Then, after being loaded into the FIRMS system, the XML obtained from an Excel inventory can be visualized as fact sheet:

Marine Resource Fact Sheet


Stock status report

Southern Bluefin tuna - Global , 2004

Owned by Commission for the Conservation of Southern Bluefin Tuna (CCSBT) [more>>](#)

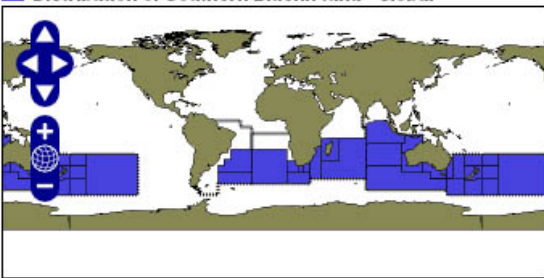
[Related observations](#)
[Locate in inventory](#)

**Species**  
*Thunnus maccoyii*



**Fao Names :** en - Southern bluefin tuna, fr - Thon rouge du Sud, es - Atún rojo del Sur

Distribution of Southern Bluefin tuna - Global



[Area Details](#)

**Main Descriptors**

Considered a single stock: Yes    Considered a management unit: Yes

**Table of Content**

[Habitat and Biology](#) - [Geographical Distribution](#) - [Exploitation](#) - [Assessment](#) - [Management](#) - [Biological State and Trend](#) - [Source of information](#)

**Habitat and Biology**

Depth zone: Unspecified    Horizontal distribution: Neritic ; Oceanic    Vertical distribution: Pelagic

**Biological State and Trend**

**Exploitation rate:** High fishing mortality                      **Exploitation state:** Overexploited

**Abundance level:** Low abundance

**Source of information**

- Commission for the Conservation of Southern Bluefin Tuna (CCSBT). "Report of the Tenth Meeting of the CCSBT Scientific Committee." 2005-09-09.

- Commission for the Conservation of Southern Bluefin Tuna (CCSBT). "Report of the Twelfth Annual Meeting of the