



Word to XML conversion Tool

Management Summary

| | |
|--------------|-----------------|
| Author | Sylvain Caillot |
| Version | 1 |
| Project | |
| Distribution | |
| Created | 25/11/2005 |
| Saved | 02/12/2005 |
| Printed | |

Revision History

| Date | Author | Summary |
|------|--------|---------|
| | | |
| | | |
| | | |

Summary

| | | |
|--|---|-----------|
| 1 | Technical note | 3 |
| 1.1 | Purpose of this document | 3 |
| 1.2 | Target audience | 3 |
| 1.3 | Scope | 3 |
| 1.4 | Assumptions..... | 3 |
| 1.5 | Technical needs | 3 |
| 1.6 | Definitions | 3 |
| 2 | Preamble | 4 |
| 2.1 | Reasons and origin of this tool | 4 |
| 2.2 | Conditions and prerequisites..... | 4 |
| 3 | Conversion process: detailed description | 5 |
| 3.1 | First conversion stage | 5 |
| 3.2 | Second conversion stage | 7 |
| 3.3 | Structure of the conversion tool..... | 7 |
| 4 | Overview | 10 |
| 4.1 | Conversion Process | 10 |
| 4.2 | Data quality controls..... | 10 |
| 4.3 | Evolution of the application | 11 |
| 4.3.1 | MS-Word 2003 | 11 |
| 4.3.2 | UPCAST | 11 |
| Annex 1 | | 12 |
| Annex 2: RtmsPartnername.xml | | 13 |
| Annex 3: StructurePartnername.xml | | 14 |
| Annex 4: Functional diagram | | 15 |
| Annex 5 :Glossary | | 16 |

1 Technical note

1.1 Purpose of this document

This document is a guideline to describe the tool to convert Word Document to FIRMS compliant XMLs, ready to be loaded into the FIRMS system.

1.2 Target audience

FIRMS partners

1.3 Scope

How to use the services and methods provided by this application

1.4 Assumptions

Knowledge of XML and understanding of what XSL is. Knowledge of the loader process of FIRMS

1.5 Technical needs

PC with XMLSpy5.3 and Saxon. No need is required if the all the files necessary to the use of the tool are available.

1.6 Definitions

A glossary is available in [annex 5](#) for technical terms.

2 Preamble

2.1 Reasons and origin of this tool

The purpose of FIRMS is to provide access to a wide range of high-quality information on the global monitoring and management of fishery marine resources. To exchange information between partners and FIRMS and to drive its display, XML is the format used to store data.

The information content to be contributed in FIRMS (Aquatic resources, fisheries, management observations) can be provided by various tools.

The FIRMS partner having the responsibility to format and publish this information can use: One-LineEditor (OLE) if they are not willing to deal with the XML format. Using Web-based forms, OLE allows to do modifications on observations loaded and to create new observations.

Loader process that allows to load directly XML file related to an observation. In that case, the full power of FIRMS is reached by the handling of the XML files.

To be loaded, these files need to be compliant with the current FIRMS schema (version 3.5).

The tool to convert Word document into XML files was developed in order to provide an automatic conversion if the partner's template or source format made it possible. It will be an efficient tool to generate upstream FIRMS XML files.

One of the FIRMS partner ICES (International Council for the exploration of the sea) handles as many as 150 stock status reports per year. To provide status and trends information to FIRMS in a timely basis for such a volume of information could only be envisaged if the task was semi to fully automated. At the beginning of 2005, a first mission in Denmark for ICES was realized to see how to implement a procedure to easily create a huge quantity of Stock summaries XML compliant with the FIRMS definitions from their original Word documents.

2.2 Conditions and prerequisites

To be able to run this tool on a production basis, **some conditions and prerequisites** are necessary:

- Editing of original Word documents done according to strict Word template rules
- Internal skills available to intervene on the XML
- Title of the source document (Stock summary title for ICES) must be a standard FIRMS local name listed in RTMS; example: Norwegian spring-spawning herring.
- Arrangements made to ensure maintenance of the transforming application (mainly XSL coding).

In the case of ICES, they mainly use Word documents for information production. Their documents pertinent to the FIRMS project are called Stock summaries.

The source for FIRMS documents provided by ICES will always be a Word document (1 Word document per Stock summary).

Their Word documents always have the same structure:

- Several paragraphs with one or two levels of headers with or without nested tables/figures.
- A list of tables/figures at the end of document.

The list of headers is very stable, and a correspondence between header and tag has been established. While the structure is stable in the Stock Summaries, some of the headings (and paragraphs) may be missing, but new ones will not appear.

Considering that the format of the sources provided by a partner respects these conditions, the tool can create FIRMS compliant XMLs. We will also have one FIRMS XML generated per stock summary Word document.

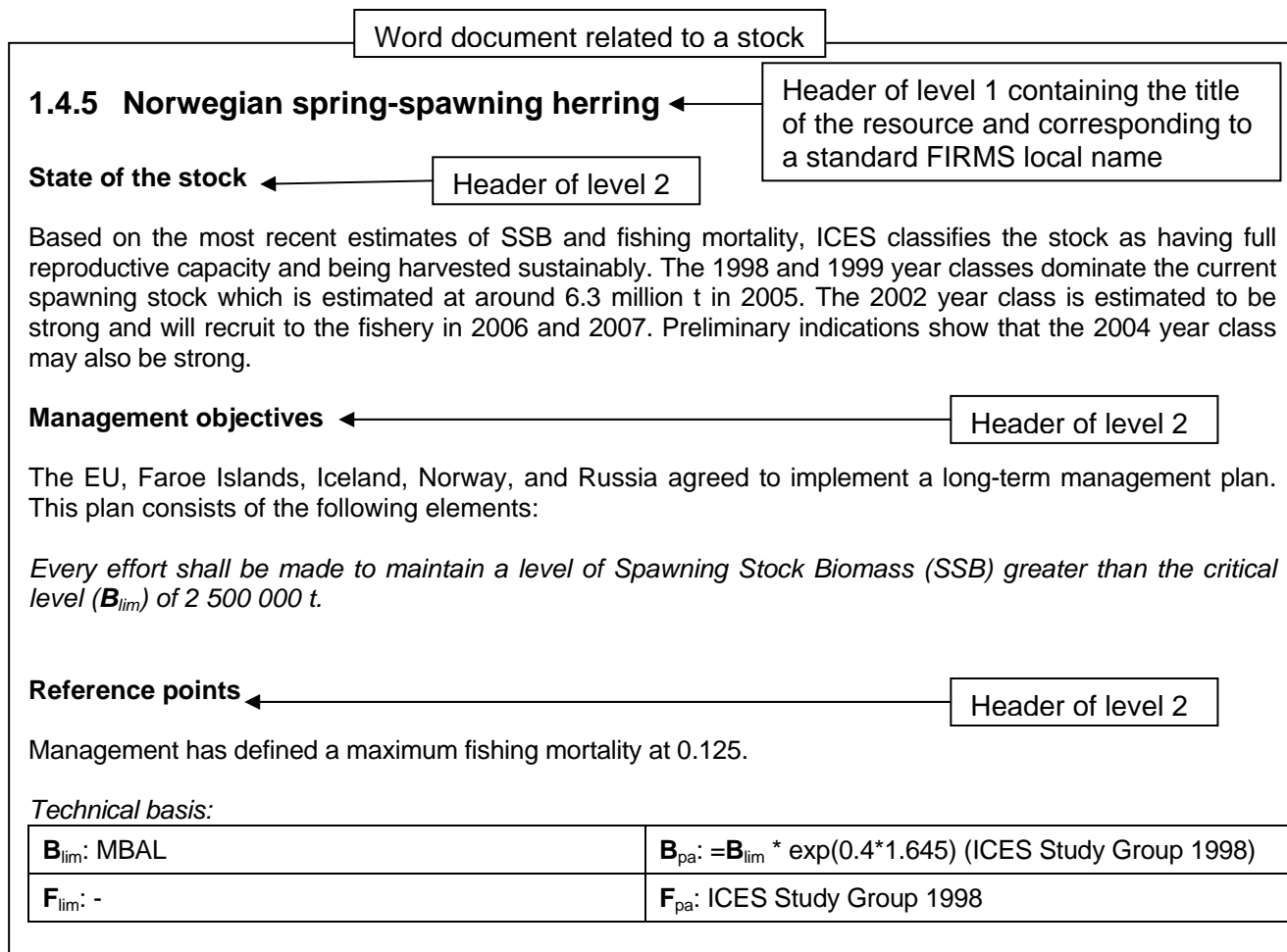
3 Conversion process: detailed description

3.1 First conversion stage

To generate FIRMS XML from one Word document, 2 steps are necessary, the first one is to get a first XML document from the structured Word document.

Example:

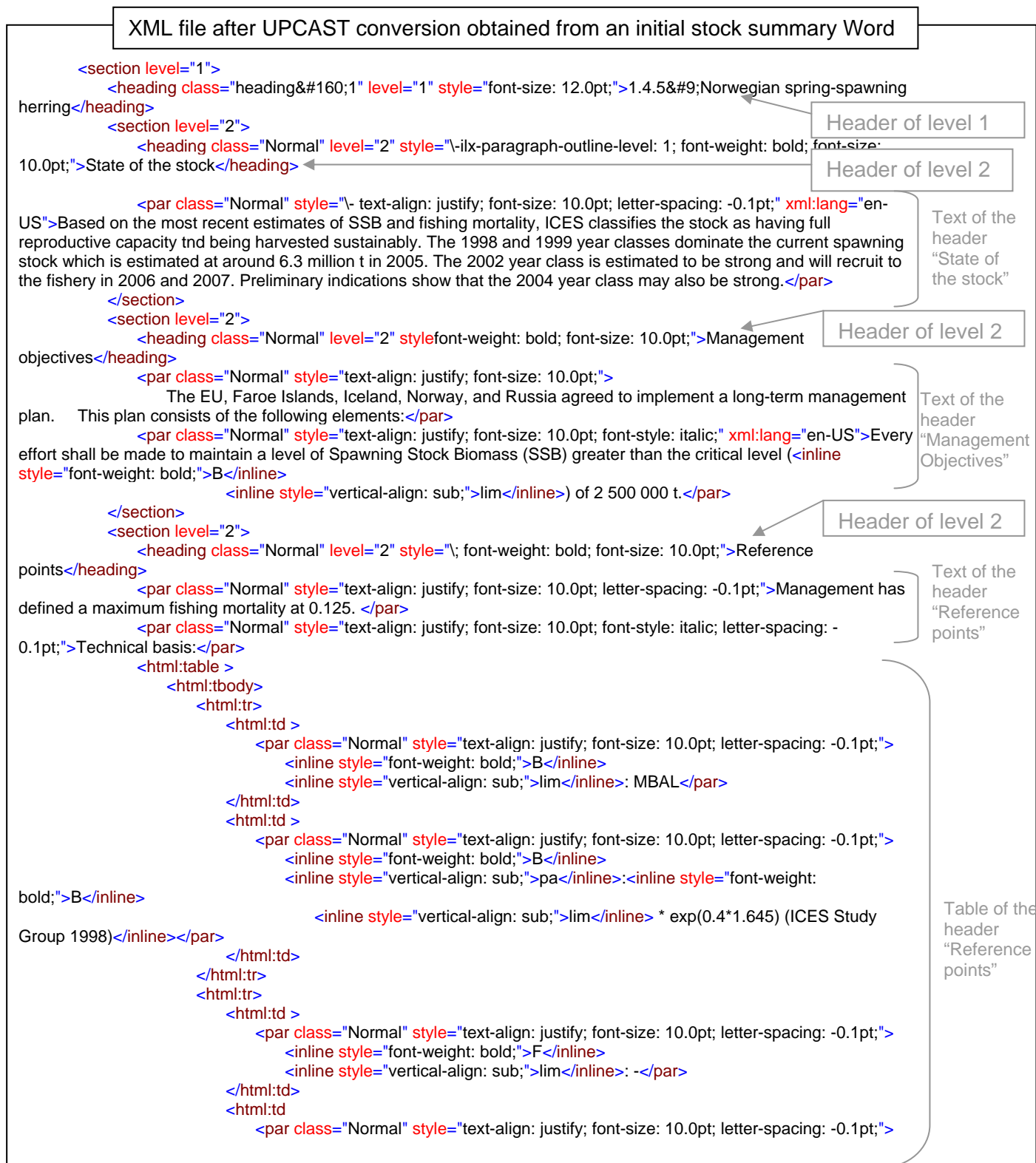
This is a structured Word document provided by ICES containing the stock summary for the Norwegian spring-spawning herring resource. This document is defined by a strict template with headers/titles common to all the stock summaries created by ICES. The title of this resource “Norwegian spring-spawning herring” must correspond to a FIRMS resource name.



When the document is structured with headers, the first conversion stage can be run. The purpose is to obtain an XML file with a structure that distinguishes the titles from the raw normal text, images and tables.

Several softwares exist to convert Word to XML. It has been decided to use UPCAST to generate XML files from Word, to then run the conversion tool. A more detailed description of these softwares is available in the “[Evolution](#)” section of this document.

This is the simplified XML result of the processing of the Word document realized by UPCAST. The titles of the Word document are stored into specific tags and their text, tables, images can be retrieved:



```

<inline style="font-weight: bold;">F</inline>
<inline style="vertical-align: sub;">pa</inline>: ICES Study Group 1998</par>
</html:td>
</html:tr>
</html:tbody>
</html:table>
</section>
</section>

```

3.2 Second conversion stage

Generating the FIRMS compliant XML file

After the conversion of the structured document into a first UPCASt XML file, we can run the tool to obtain the final FIRMS compliant XML file. The tool is based mainly on an XSL transformation that allows to convert the XML generated by UPCASt into a new one valid against the FIRMS schema (version3.5:

http://193.43.36.85/Dtd/Beta/3.5/firms_schema/editor/aqres_editor.xsd).

It is able to make the correspondence between the headers in the Word document and the tags of the FIRMS schema. The table of correspondence (Word headers/FIRMS XML tags) gives us the tag in which a block of text under a given header must go. (For ICES: [annex 1](#))

For example, if the header “State of the stock” is found in the document, the content of this header will be put under the Tag “fi:AqResStatusTrends” into the FIRMS compliant XML.

We can also make the correspondence for the others titles in the example above:

- Management objectives
→ fi:Management/ fi:Objectives/ fi:ObjectiveEntry
- Reference points
→ fi:BioAssessment/ fi:Results/ fi:RefPoint

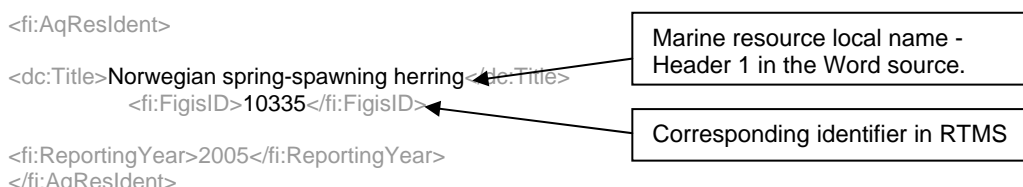
The goal is to fill the final XML following the skeleton designed by the FIRMS schema with the content of the Word document.

3.3 Structure of the conversion tool

The tool is composed by 4 different files:

- 1 XSL called **Upcast_XML_3.5_Converter.xsl** which is the heart of the application, it has been designed to become the common XSL for all partners. Basically, it does the correspondence Word Titles/FIRMS XML tags.
- 1 XSL called **DuplicateTagsPartnername.xsl** which finalizes the validation of the XML according to the structure of ICES Word files. It merges all the blocks together.
- 1 XML called **RtmsPartnername.xml** which contains for each partner the list of marine resources with their associated identifier in FIRMS.

In fact, this information is mandatory by the FIRMS schema. The tool by comparing the name of the marine resource that is stored in the only level 1 header in the source, is able to retrieve the unique identifier for this object. An example for ICES is available in [annex 2](#).



This XML file is extracted for each partner from the Reference Table Management System (RTMS) using a web-service query and formatted with an XSL transformation.

- 1 XML called **StructurePartnername.xml** which maps each header of the partner's source (Word document) to the corresponding FIRMS XML tag in the resulting XML. It also contains information specific to the partner (Collection reference, name of the creator...). An example for ICES is available in [annex 3](#).

This tool can be run only if an XML generated by UPCAST from a Word document with a strong structured design as described previously exists.

During the final conversion stage, **Upcast_XML_3.5_Converter.xsl** extracts information from the 2 others XML (**RtmsPartnername.xml** and **StructurePartnername.xml**) according to the information contained into the UPCAST XML. Finally, **DuplicateTagsPartnername.xsl** will put in order all the tags to obtain a XML valid against the schema.

As designed, the tool can be used offline and can be quite easily adapted to different partners by modifying the **DuplicateTagsPartnername.xsl**, **StructurePartnername.xml**, **RtmsPartnername.xml** for each of them, considering that their Word documents are structured with headers and a correspondence between these titles in Word can be done with the Tags of the 3.5 FIRMS schema. The XSL transformation can then be applied to the above UPCAST XML file to get compliant FIRMS XML that will look like:

FINAL FIRMS XML obtained from an initial stock summary Word

```
<?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/"
xmlns:agls="http://www.naa.gov.au/recordkeeping/gov_online/agls/1.1" xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:dcterms="http://purl.org/dc/terms/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.fao.org/fi/figis/devcon/ http://figis01/Dtd/Beta/3.5/firms_schema/editor/aqres_editor.xsd"
xml:lang="en">
  <fi:DataEntry>
    <fi:Editor>Bodil Chemnitz</fi:Editor>
    <dcterms:Created>2005-11-26</dcterms:Created>
  </fi:DataEntry>
  <fi:ObjectSource>
    <fi:Owner>
      <fi:CollectionRef>
        <fi:FigisID>7</fi:FigisID>
        <dc:Title>ICES Advisory Reports</dc:Title>
      </fi:CollectionRef>
    </fi:Owner>
    <fi:CorporateCoverPage>
      <fi:FigisID>7</fi:FigisID>
    </fi:CorporateCoverPage>
    <fi:CoverPage>
      <dcterms:Created>2005-01-01</dcterms:Created>
    </fi:CoverPage>
  </fi:ObjectSource>
  <fi:AqRes>
    <fi:AqResident>
      <dc:Title>Norwegian spring-spawning herring</dc:Title>
      <fi:FigisID>10335</fi:FigisID>
      <fi:ReportingYear>2005</fi:ReportingYear>
    </fi:AqResident>
  </fi:AqRes>
</fi:BioAssessment>
<fi:Results>
  <fi:RefPoint>
    <fi:Text><![CDATA[<br>Target reference points<br><br>Management has defined a maximum fishing
mortality at 0.125. <br><br>Technical basis:<br>]]></fi:Text>
    <fi:Table DisplayType="Popup" Title="XXXX" ID="d0e196"><![CDATA[<Table>
<tr>
<td><b>B</b><sub>lim</sub>: MBAL</td>
<td><b>B</b><sub>pa</sub>: =Blim * exp(0.4*1.645
</tr>
<tr>
<td><b>F</b><sub>lim</sub>: -</td>
<td><b>F</b><sub>pa</sub>: ICES Study Group 199
</tr>
</Table>]]></fi:Table>
  </fi:RefPoint>
</fi:Results>
</fi:BioAssessment>
<fi:AqResStatusTrends>
  <fi:Text><![CDATA[<br>Based on the most recent estimate:
as having full reproductive capacity tnd being harvested sustainably. The
spawning stock which is estimated at around 6.3 million t in 2005. The 20
to the fishery in 2006 and 2007. Preliminary indications show that the 200
</fi:AqResStatusTrends>
<fi:Management>
  <fi:Objectives>
    <fi:ObjectiveEntry>
      <dc:Title/>
      <fi:Text><![CDATA[The EU, Faroe Islands, Iceland
long-term management plan.This plan consiwts of the following elem
Biomass (SSB) greater than the critical level (<b>B</b><sub>lim</sub>
    </fi:ObjectiveEntry>
  </fi:Objectives>
</fi:Management>
</fi:FIGISDoc>
```

Stable part of the final XML with the same structure whatever the source stock summary document is. The content of each XML tags will be updated according to the partner (Collection and Coveragepage references) and the observation (Aqresident). The information is extracted from the **StructurePartnername.xml** for the <fi:DataEntry> and <fi:ObjectSource> tags and from the **RtmsPartnername.xml** to obtain the Figis identifier for this specific object.

Name of the stock summary corresponding to a FIRMS local name.allowing to extract the FIGIS identifier.

Part of the final XML that depends of the content of the source stock summary document. In our example, the Word document contains the following titles:

- State of the stock
- Management objectives
- Reference points

We retrieve the corresponding XML tags containing the content of these titles (text and tables) and it has been ordered to have an XML compliant with the FIRMS schema.

4 Overview

The resulting XML is 100% compliant with FIGIS schema (tested with the 3.5 version) for the few Word documents provided by ICES.

4.1 Conversion Process

The complete process is illustrated in [Annex 4](#).

The procedure to do the conversion is the following:

- Convert Word documents using UpCast
- Open the resulting XML with XMLSpy5.3
- Assign to the resulting XML, the *ICES_Upcast_XML_3.5 XSL* file
- Run the transformation with the Saxon parser.
- Verify the validity of the XML result against the FIRMS schema.

The software and the parser used can be modified according to partners but XMLSpy5.3 and Saxon are perfect for this kind of work and should be kept with the developed tool to have the best efficiency.

4.2 Data quality controls

A few modifications by hand using XMLSpy should be done by each partner: They should verify that the titles for each image is OK, add the year of the observation in the <fi:ReportingYear> tag and give a name for each table. This is a list of the operations needed for the ICES partner, it can differ according to the partner and the complexity of their Word document.

To obtain a compliant FIRMS XML at the end of the process, it is necessary that the first XML generated by UPGCAST must be valid. In fact sometimes, UPGCAST can get confused and generate a block of text in a wrong section tag. Some page break can be added, a section (for one header) can be split, and the case of some letters can be changed. It seems to be bugs but not blocking bugs and corrections can be applied for the moment with the few ICES Word documents tested.

It is necessary to know that for the final structure of the FIRMS XML, it can be a potential risk to present in it the paragraphs of the initial MS-word document in a different order. In fact, the structure in the FIRMS XML is built by the assignment of not "adjacent" paragraphs to the same FIRMS XML tag.

4.3 Evolution of the application

The need for an automatic procedure is raised.

The next step will be to create a complete application that could run in one click both first and second stages. It could be a web friendly interface available to all partners from which MS-Word files would be selected and the whole process would run in order to directly produce FIRMS XML files.

The key point is getting a first XML from a MS Word document.

To convert this source format into a first XML, that will be usable, several options are available. Once a valid XML file is generated, then the tool can transform this XML into a new compliant one.

4.3.1 MS-Word 2003

MS-Word 2003 has now a native method to save Word documents as XML.

Microsoft has developed its own schema wordML.

As often with this kind of proprietary tools, tests run using word2003 evaluation standard edition showed a quite complex XML file from a simple word document. It requires a complex XSL transformation to reach a FIRMS XML compliant file.

Therefore, it is easy to use but the XML schema of Word is as complex as the resulting XML file.

4.3.2 UPCAST

This tool generates a simpler XML from a word document.

The XSL transformation required to produce a FIRMS compliant XML is lighter. Maintenance is then facilitated.

A license has to be purchased. Free licenses for non-profitable organizations can be obtained. See www.infinity-loop.de for more details.

It is easy to use and the output XML is simple to manipulate.

UPCAST has been chosen to process the first stage of the conversion because the UPCAST XML files are less complex than in MS_Word 2003 which makes the development more efficient and easier to implement.

If it becomes too problematic related with UPCAST XML use for the automation of the tool, we could perhaps use the more complex XML files generated by MS-Word 2003 but for the moment Upcast fills our needs.

Annex 1

Correspondence between ICES headers and FIRMS XML tags.

| ICES doc. | Header | XML | | |
|--|--------|---------------------|-----------------|----------------------|
| Catch and TACs (table) | H2 | fi:Assesment | fi:Results | fi:Projection |
| Changes in fishing technology and fishing patterns | H3 | fi:Exploit | | |
| Comparison with previous assessment and advice | H3 | fi:BioAssesment | fi:Results | |
| Data and methods | H3 | fi:BioAssesment | fi:AssesMethods | fi:AssessMethodEntry |
| Ecosystem considerations | H3 | fi:BioAssesment | fi:SciAdvice | |
| Environment conditions | H3 | fi:BioAssesment | fi:AssesMethods | fi:AssessMethodEntry |
| Exploitation boundaries in relation to existing management plans | H3 | fi:BioAssesment | fi:SciAdvice | |
| Exploitation boundaries in relation to high long term yield, low risk of depletion of production potential and considering ecosystem effects | H3 | fi:BioAssesment | fi:Results | |
| Exploitation boundaries in relation to precautionary limits | H3 | fi:BioAssesment | fi:SciAdvice | |
| Factors affecting the fisheries and the stock | H2 | fi:Exploit | | |
| Fishing mortality (Standard graph) | H2 | fi:BioAssesment | fi:Results | |
| Information from the fishing industry | H3 | fi:BioAssesment | fi:AssesMethods | fi:AssessMethodEntry |
| Landing table | H2 | fi:BioAssesment | fi:Results | |
| Landings (Standard graph) | H2 | fi:BioAssesment | fi:Results | |
| Management considerations | H2 | fi:BioAssesment | fi:SciAdvice | |
| Management objectives | H2 | fi:Management | fi:Objectives | fi:ObjectiveEntry |
| Management plan evaluations | H3 | fi:BioAssesment | fi:SciAdvice | |
| Other factors | H3 | Exploit | | |
| Outlook for 2006 (table) | H3 | fi:BioAssesment | fi:Results | fi:Projection |
| Short term implications | H2 | fi:BioAssesment | fi:Results | fi:Projection |
| Precautionary Approach reference points (table) | H2 | fi:BioAssesment | fi:Results | fi:Refpoint |
| Recruitment (Standard graph) | H2 | fi:BioAssesment | fi:Results | |
| Reference Points | H2 | fi:BioAssesment | fi:Results | fi:Refpoint |
| Regulations and their effects | H3 | Exploit | | |
| Scientific basis | H2 | fi:BioAssesment | fi:AssesMethods | fi:AssessMethodEntry |
| Single-stock exploitation boundaries | H2 | fi:BioAssesment | fi:SciAdvice | |
| Single-stock reference points (table) | H2 | fi:BioAssesment | fi:Results | fi:Refpoint |
| Source of information | H2 | fi:Sources | fi:BiblioEntry | |
| Spawning Stock Biomass (Standard graph) | H2 | fi:BioAssesment | fi:Results | |
| State of the stock | H2 | fi:AqResStatusTrend | | |
| Stock Summary | H3 | fi:BioAssesment | fi:Results | |
| The Environment | H3 | fi:Exploit | | |
| Uncertainties in assessment and forecast | H3 | fi:BioAssesment | fi:AssesMethods | fi:AssessMethodEntry |
| Stock-Recruitment (graph) | H2 | fi:BioAssesment | fi:Results | |
| Precautionary approach plot | H2 | fi:BioAssesment | fi:Results | |
| Yield and Spawning Stock Biomass per Recruit (graph) | H2 | fi:BioAssesment | fi:Results | fi:Projection |

Annex 2: RtmsPartnername.xml

Example with RtmsICES.xml

By using this file, the tool is able to retrieve for each observation the corresponding FIGIS identifier according to his name.

```
<?xml version="1.0" encoding="UTF-8"?>
<Rtms>
  <RtmsObj>
    <RtmsId>10325</RtmsId>
    <RtmsName>All Stocks - Northeast Arctic</RtmsName>
    <RtmsLocalName/>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10326</RtmsId>
    <RtmsName>Cod - Northeast Arctic</RtmsName>
    <RtmsLocalName/>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10327</RtmsId>
    <RtmsName>Cod - Barents Sea, Norwegian Sea, Spitzbergen and Bear Island</RtmsName>
    <RtmsLocalName>Northeast Arctic cod</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10328</RtmsId>
    <RtmsName>Cod - Barents and Norwegian Seas</RtmsName>
    <RtmsLocalName>Norwegian Coastal cod</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10329</RtmsId>
    <RtmsName>Haddock - Barents Sea, Norwegian Sea, Spitzbergen and Bear Island</RtmsName>
    <RtmsLocalName>North-East Arctic haddock (Sub-areas I and II)</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10330</RtmsId>
    <RtmsName>Saithe - Barents Sea, Norwegian Sea, Spitzbergen and Bear Island</RtmsName>
    <RtmsLocalName>North-East Arctic saithe (Sub-areas I and II)</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10331</RtmsId>
    <RtmsName>Redfish - Barents and Norwegian Seas</RtmsName>
    <RtmsLocalName/>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10332</RtmsId>
    <RtmsName>Pelagic Redfish - Barents and Norwegian Seas</RtmsName>
    <RtmsLocalName>Sebastes mentella in Sub-areas I and II</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10333</RtmsId>
    <RtmsName>Redfish - Barents and Norwegian Seas</RtmsName>
    <RtmsLocalName>Sebastes marinus in Sub-areas I and II</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10334</RtmsId>
    <RtmsName>Greenland halibut - Barents and Norwegian Seas</RtmsName>
    <RtmsLocalName>Greenland halibut in Sub-areas I and II</RtmsLocalName>
  </RtmsObj>
  <RtmsObj>
    <RtmsId>10335</RtmsId>
    <RtmsName>Spring Spawning herring - Norwegian Sea</RtmsName>
    <RtmsLocalName>Norwegian spring-spawning herring</RtmsLocalName>
  </RtmsObj>
  ...
</Rtms>
```

Annex 3: StructurePartnername.xml

Example with StructureICES.xml

By using this file, the tool can make the correspondence between the titles (StructureTitleTag in this XML) and the FIRMS XML tags used in the 3.5 version schema. It also provides mandatory information specific to a partner (collection and Coverage references...) in the final XML.

```

<?xml version="1.0" encoding="UTF-8"?>
<StructureList>
<!--general ICES info-->
  <DataEntry>
    <DataEntryEditor>Bodil Chemnitz</DataEntryEditor>
  </DataEntry>
  <Collection>
    <CollectionId>7</CollectionId>
    <CollectionTitle>ICES Advisory Reports</CollectionTitle>
  </Collection>
  <CorporateCoverPage>
    <CorporateCoverPageId>7</CorporateCoverPageId>
    <CorporateCoverPageTitle>Stock status report</CorporateCoverPageTitle>
    <CorporateCoverPageAuthor>International Council for the Exploration of the Sea
ICES)</CorporateCoverPageAuthor>
  </CorporateCoverPage>

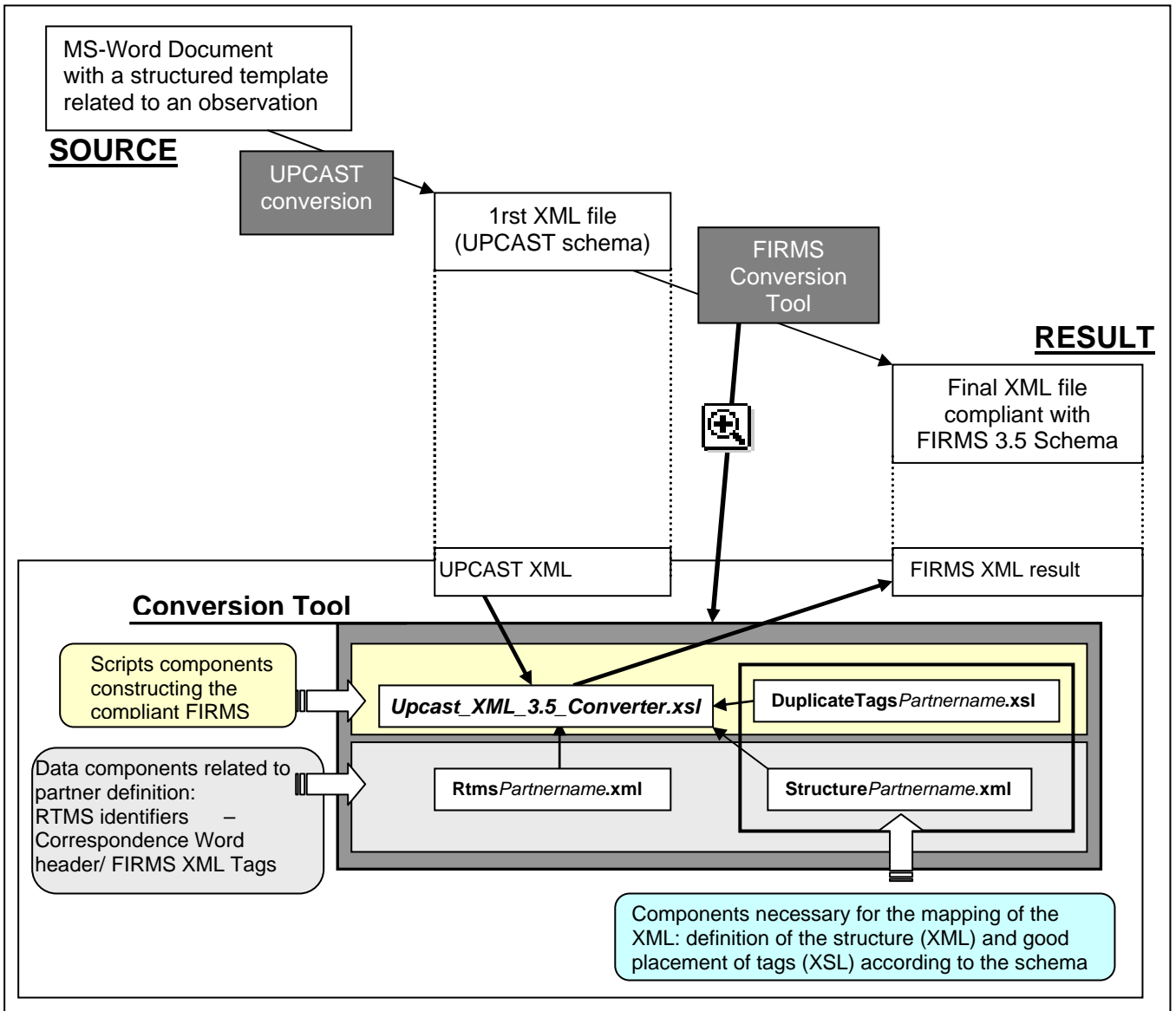
<!--state of the stock-->
  <StructureObj>
    <StructureTitle>State of the stock</StructureTitle>
    <StructureVisible>no</StructureVisible>
    <StructureTags>
      <StructureTag>fi:AqResStatusTrends</StructureTag>
    </StructureTags>
  </StructureObj>
<!--reference points-->
  <StructureObj>
    <StructureTitle>Reference points</StructureTitle>
    <StructureVisible>no</StructureVisible>
    <StructureTags>
      <StructureTag>fi:BioAssessment</StructureTag>
      <StructureTag>fi:Results</StructureTag>
      <StructureTag>fi:RefPoint</StructureTag>
    </StructureTags>
  </StructureObj>
<!--single stock exploitation boundaries-->
  <StructureObj>
    <StructureTitle>Single stock exploitation boundaries</StructureTitle>
    <StructureVisible>yes</StructureVisible>
    <StructureTags>
      <StructureTag>fi:BioAssessment</StructureTag>
      <StructureTag>fi:SciAdvice</StructureTag>
    </StructureTags>
  </StructureObj>
  <StructureObj>
    <StructureTitle>Exploitation boundaries in relation to existing management plans</StructureTitle>
    <StructureVisible>yes</StructureVisible>
    <StructureTags>
      <StructureTag>fi:BioAssessment</StructureTag>
      <StructureTag>fi:SciAdvice</StructureTag>
    </StructureTags>
  </StructureObj>
....
</StructureList>

```

General Information specific to ICES with the name of the creator, several reference values...

Correspondence between titles in Word and XML Tags compliant with FIRMS schema. The <StructureVisible> tag specifies if the title must appear in the final XML.

Annex 4: Functional diagram



Annex 5 :Glossary

XML:

XML stands for **EX**tensible **M**arkup **L**anguage.

XML is a **markup language** much like HTML.

XML was designed to **describe data**.

XML tags are not predefined. You must **define your own tags**.

XML was designed to describe data and to focus on what data is while HTML was designed to display data and to focus on how data looks.

XSL:

XML stands for **EX**tensible **S**tylesheet **L**anguage.

XSL is a Style Sheet Language that can be used for displaying and formatting XML documents. Using XSL is two-step process, the first step being a transformation of the XML document using XSLT, and the second step being the rendering of the result of the transformation in different formats (new structured XML, HTML...)

RTMS:

Within the FIGIS database are a number reference tables which contain reference objects.

These are managed by an existing system called the **Reference Table Management System** (RTMS). Each FIRMS object (eg a resource or a fishery) would have a reference object which represents it

The RTMS has a dedicated user interface and login/permissions structure which allows privileged users to modify the FIRMS (amongst other) reference objects. It also includes a tool to edit reference object attributes and hierarchical relationships between reference objects.