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What is needed to report on a marine resource?

We describe in logical sequence the main steps and requirements for the preparation of a marine resource report, also called **observation**.

A FIGIS reference to the marine resource

Marine resources inventoried by FIRMS partners are referenced in FIGIS as **marine resource objects**. This task is performed by the system administrator through a specific interface called Reference Table Management System (RTMS). The attributes of a marine resource reference object are:

<u>Attribute Name</u>	<u>Attribute description</u>
ID	FIGIS internal identifier
Name(en)	Name of the marine resource in English, following FIRMS naming conventions
Name(fr)	Name of the marine resource in French, following FIRMS naming conventions
Name(es)	Name of the marine resource in Spanish, following FIRMS naming conventions
Stock	Flag indication if the Marine Resource is considered as a biological stock
Spatial Scale	Typology of spatial scale corresponding to the distribution of the marine resource
Share Type	Typology of shared stocks
Inventory Identifier	External identifier used to identify the source inventory
Local Name	Name of the marine resource as provided by the source

The RTMS enables the construction of hierarchies between marine resources objects and group of marine resources. The FIRMS web-base application makes use of these hierarchies to browse and search marine resources objects (figure 1).



Figure 1 - Marine resources referenced in FIGIS – Tree browser with searching tool

A data collection owned by a data owner and edition rights

A **Data collection** is a set of homogeneous data handled over time by a data owner according to agreed and consistent processes and dissemination formats; as such it may cover data types from different domains (e.g. marine resources, fisheries).

FIRMS partners data collection are referenced in FIGIS as **collection objects**. This task is performed by the system administrator through the Reference Tables Management System (RTMS).

A Data Collection is subject to the publication of a **Data collection fact sheet** providing amongst others quality assurance and data ownership related documentation. In FIRMS, it is called the “Data quality assurance fact sheet”.

A data collection is linked to its owner(s). The **data owner** is the responsible party mandated to report on marine resource or fishery objects. The data owner holds the copyright of the information reported within the data collection. A data owner is modelled in FIGIS as an Institution, a Program or a Project. These 3 entities provide enough flexibility in order to cope with the diversity of FIRMS partners’ organizational structures (e.g. FAO Fisheries

Department is considered as a program of the FAO Institution). The ownership of a collection by an organization includes the type of responsibility on the information contributed to FIRMS within the data collection. An organization “owns”, “produces” or “maintains” the information.

The same organization might have different roles; the same roles might also be shared between organizations (e.g. two institutions sharing the reporting on some fish stocks through a joint program). The only constraint is that a collection must be “owned” by a least one organization.

A Data collection is also the primary level of definition of **user rights**. *Edition rights* on a data collection are requested to report on a marine resource under this collection. Other user rights (*Reviewer, Approver*) are be described in the section “Approve and publish a marine resource observation”.

The FIRMS administrator is in charge of the creation of the data collection objects, as well as the setting of their ownership, the registration of users and the management of user rights.

Users with edition rights on a data collection are entitled to edit the data collection fact sheet and to prepare reports (observations) on marine resources and fisheries objects.

A reference observation

The first report made against a marine resource object defines its data ownership, identified as the owner(s) of the data collection under which the report has been prepared and approved. This report is set as “**Reference Observation**”. This first observation can only be created by the FIRMS administrator and must include key attributes (e.g. species and area of distribution for a marine resource).

A cover page

The cover page is composed by a set of public bibliographic-like information. It is modelled to adapt the traditional paper publishing logic (made of a cover page wrapping a thick intellectual content) to the internet publishing logic (fact sheets can be considered short electronic pages part of a broader virtual book). It provides most of the elements used to cite an observation (see section “The main components of a marine resource observation”).

A cover page is attached to each observation made on a domain object (e.g. marine resource, fishery, etc...). In general, a set of observations issued by the same data owner under the same data collection will have the same cover page, more precisely at least part of their cover page attributes will be the same. This group of shared attributes is called “**Corporate Cover Page**”.

Corporate Cover Pages might be referenced in the FIGIS system and managed by the Reference Tables Management System (RTMS). Each observation made on a domain object (e.g. on a marine resource) has a corporate cover page, but this cover page might not be a FIGIS referenced corporate cover page.

The FIGIS system manages a relationship between referenced corporate cover pages and data Collection. Once the editor has selected the data collection under which we want to report on a domain object, he may select one of the corporate cover pages referenced for the data collection or define a custom cover page.

A reporting year

Year, eventually followed by an index (e.g. 1999a), attached to the observation reporting status and trends on a Marine resource or Fishery. Generally year of the latest data available, or for which the latest indicators can be supplied. It is used in the construction of the Title of the observation. Reporting Year should not be confused with the Year of Publication.

The main components of a marine resource observation

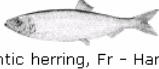

Cover page Title	Marine Resource Fact Sheet	SEARCH SAVE PRINT	
Fact Sheet Title	Stocks status reports Herring - North Sea, Eastern Channel and Skagerrak, 2003		
Marine resource Local name	<i>Herring in Subarea IV, Division VIIId and Division IIIa (autumn spawners)</i>	Citation	Citation
Ownership	Owned by International Council for the Exploration of the Sea (ICES)		
Species	Species  Clupea harengus FAO Names: En - Atlantic herring, Fr - Hareng de l'Atlantique, Sp - Arenque del Atlántico. Given Name: Herring	Area  Area details	Area
Standard Classifiers	Main Descriptors Considered as a Stock: yes Management unit:	Spatial scale: Regional Jurisdictional distribution: Shared - Transboundary Environmental group: Pelagic	
Reporting Topics	Table of Contents <ul style="list-style-type: none"> Exploitation Assessment Management Biological State and Trend 	<ul style="list-style-type: none"> Source of Information Tables 	
	Exploitation <fi:Exploit>		
	Factors affecting the fisheries and the stock		
Source of Information	the 1998 year class and the 2000 year class appear to be very strong in all the surveys, but the 2001, 2002 and the incoming 2003 year classes are estimated to be among of the weakest in the time-series.	Source of Information <fi:Sources>	
	Report of the Herring Assessment Working Group for the Area South of 62°N, March 2004 (ICES CM 2004/ACFM:xx).	Disclaimer: "This is an extract of the ICES fisheries advice presenting the fish stock information. The full ICES advice is available on http://www.ices.dk and accounts for fisheries constraints in addition to the stock considerations."	

Figure 2 – Marine resource Fact Sheet observation

Marine resource name and local name, observation title

The marine resource name is established according FIRMS naming conventions for marine resources. Usually, this name is the same as the name of the marine resource object to which the observation refers. In some cases, when the observation concerns a marine resource slightly different from the domain object it refers to (e.g. sub-group of species or sub-area), the two names may differ.

The local name is the name of the marine resource established according to the data owner conventions.

The title of a marine resource observation is the name of the marine resource, followed by the reporting year of the observation.

Observation ownership

Information about the ownership of the collection under which the observation has been produced is displayed on the fact sheet, with full details in the Ownership pop-up window (Figure 3).

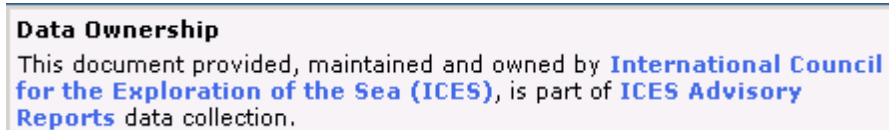


Figure 3: Marine resource Fact Sheet: Ownership Information

Marine resource Identity

Marine resource identity is composed by a biological component (species or group of species).

1. Species or group of species

Species and group of species may refer to FIGIS references (species, genus, family, order or other standard groups like ISSCAAP). In that case, key species attributes are displayed, including image when available (figure 4). In addition, when a FAO species fact sheet exists for this reference, a hyper-link is also included.



Figure 4 – A marine resource biological key with a FIGIS reference

When the species or group of species doesn't point on a FIGIS reference, only the name provided by the editor is displayed.

User-defined aggregations of species or groups of species may be defined. The title of the aggregation is used as header of the list. For example, the biological identity component of the marine resource “Smooth-hounds, Sharks - Mauritania, Senegal and Gambia” might be described as follow:

Smooth-hounds, Sharks:

Mustelus spp

Carcharhinus spp

2. Area of distribution

Distribution area of a marine resource may be defined by a simple title, but in most cases refer to areas geo-referenced in FIGIS. A geo-referenced area belongs to a geographical system, known by a name and a code, which is a partition of a delimited zone, with no overlapping of the areas created by this partition.

FIGIS geographical systems are organized by type (environmental, statistical, jurisdictional, management and reporting) and are referenced in the Reference Tables Management System (RTMS). The RTMS also reference system groups, which are used by FIRMS application to simplify areas referencing, search and display. For example, all ICCAT management systems (one by marine resource) all belong to a system group “ICCAT management systems”. For more information, see document “Geo-referencing proposed standards” presented at the FIRMS 1st technical working group (ref. TWG1/2005/4d).

When the distribution area of a marine resource is defined by FIGIS geo-references, a world map is displayed, highlighting the areas in dark blue. Intersection FAO major fishery statistical areas are also displayed in light blue (see Figure 5). The list of referenced areas is displayed under the map, with the name of the geographical system (or system group) as header. A zooming tool is also available.

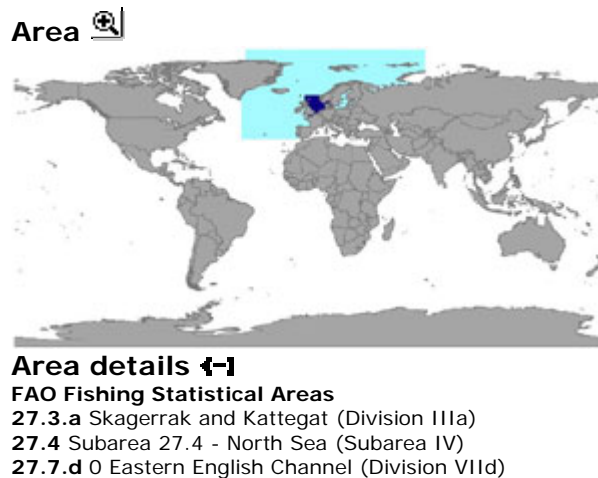


Figure 5 - Marine distribution area: world view

Thematic Topics

Main reporting topics for a marine resource are:

- History
- Habitat and Biology
- Geographical Distribution
- Water Area Overview
- Resource Structure
- Exploitation
- Statistics
- Assessment
- Management
- Biological State and Trend

In each of these topics, the editor may provide information using **different formats: text, tables or images**, recognized as such with specific properties. For example, a table has a title and the editor may set the option in order to group all the tables in a specific section displayed as the last one of the fact sheet.

Some of these topics include **sub-topics**. For more details, see the Marine Resource Fact Sheet Template in Annex.

Within some topics, there is also a possibility to establish **links to other FIGIS domain objects**. For example, in the topic Exploitation, hyperlinks to Fishery objects can be inserted.

Referenced terms

In order to facilitate search and classification operations, some standardized terminologies are used by reporting topics:

- Climatic Zone
- Bottom Type
- Depth Zone
- Environmental group
- Spatial scale
- Jurisdictional distribution
- Status of exploitation
- Assessment method
- Assessment indicator

In addition, Boolean flag (yes/no) indicates if a marine resource:

- is (or not) a management unit,
- is (or not) a biological stock.

A complete list of references used for marine resources is available in the FIRMS 1st Working group document “FIRMS TWG1/2005/4e Reference Data Proposed Standards”.

Source of information

This section describes the material that has been used to produce the report. It may include bibliographic references, and even hyper-links to source documents. This section is also used to display the data owner disclaimer, issued from the data collection fact sheet (also called quality assurance fact sheet).

Citation

Most of the information used to build the citation of a domain object observation comes from the cover page attributes. The figure 6a presents the format and source of information used for the Marine Resource Fact Sheet citation. Figure 6b is an example.

Bibliographic citation
<Corporate author of the Corporate Cover Page>. C <dcterms:modified of the Cover Page>- . <Personal author of the Cover Page>. <Title Corporate of the Cover Page >: <FIRMS name of the Marine Resource>, <Reporting Year of the observation>. < Series of the Corporate Cover Page>. <Publisher>. Updated <dcterms:modified of the Cover Page>. Available from <URL of the observation> [Accessed <System Date>].

Figure 6a – FIRMS marine resource fact sheet citation - Template


Bibliographic citation  <input type="button" value="Export"/>
International Council for the Exploration of the Sea (ICES). c2004- . Stocks status reports: Herring - North Sea, Eastern Channel and Skagerrak, 2003. <i>FIRMS Reports.</i> FAO - FIGIS. Updated 26 April 2005. Available from http://www.xyz/abc.xml [Accessed Friday, December 02 2005].

Figure 6b – FIRMS marine resource fact sheet citation - Example

Publication of a marine resource observation

Review and approval

Once an editor creates a marine resource observation, this observation is saved in a “**Draft**” data base, with the status “In Editing”. The status “In Review” corresponds to an observation submitted by the editor for its approval. It can be visualized by users having *Reviewer* rights are on the data collection under which the observation has been prepared and validated by users with *Approver* rights on that same collection.

The validation of the observation by the *Approver* transfers it from the “Draft” to the “**Live**” data base. An **approved observation** is visible in the restricted area web site accessible only by FIRMS users. The figure 7 summarized the different status of an observation between its creation and its validation in the restricted area of the FIRMS web site.

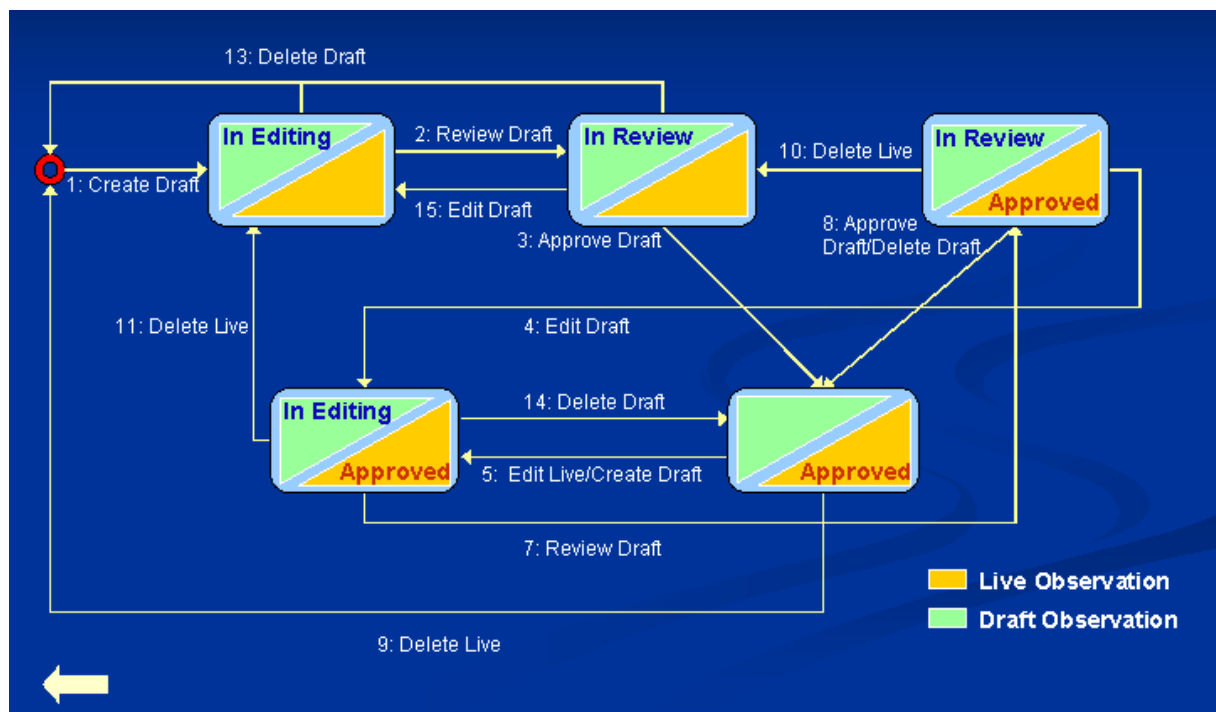


Figure 7 – Observation status diagram

Publication

The data owner of a marine resource object is the data owner of the collection under which the referenced observation has been approved (see section “A reference observation” of this document). Any observation referring to this marine resource object can only be published on the public FIRMS web site by a user with Approver rights on the collection of the reference observation (action “2:Publish” in figure 8).

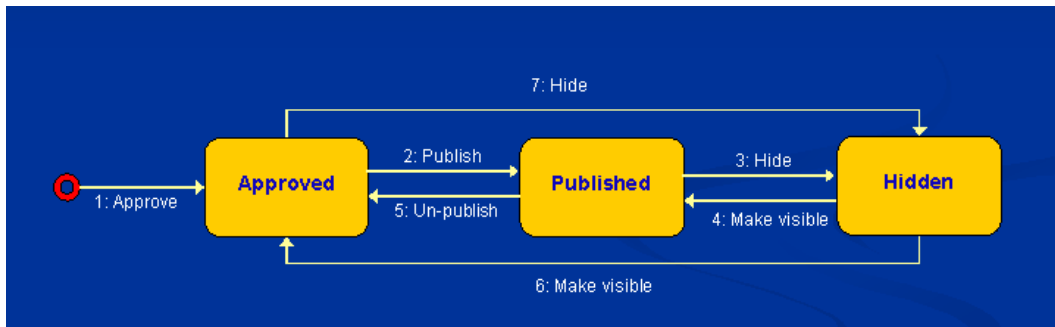


Figure 8 – The status of an approved marine resource observation

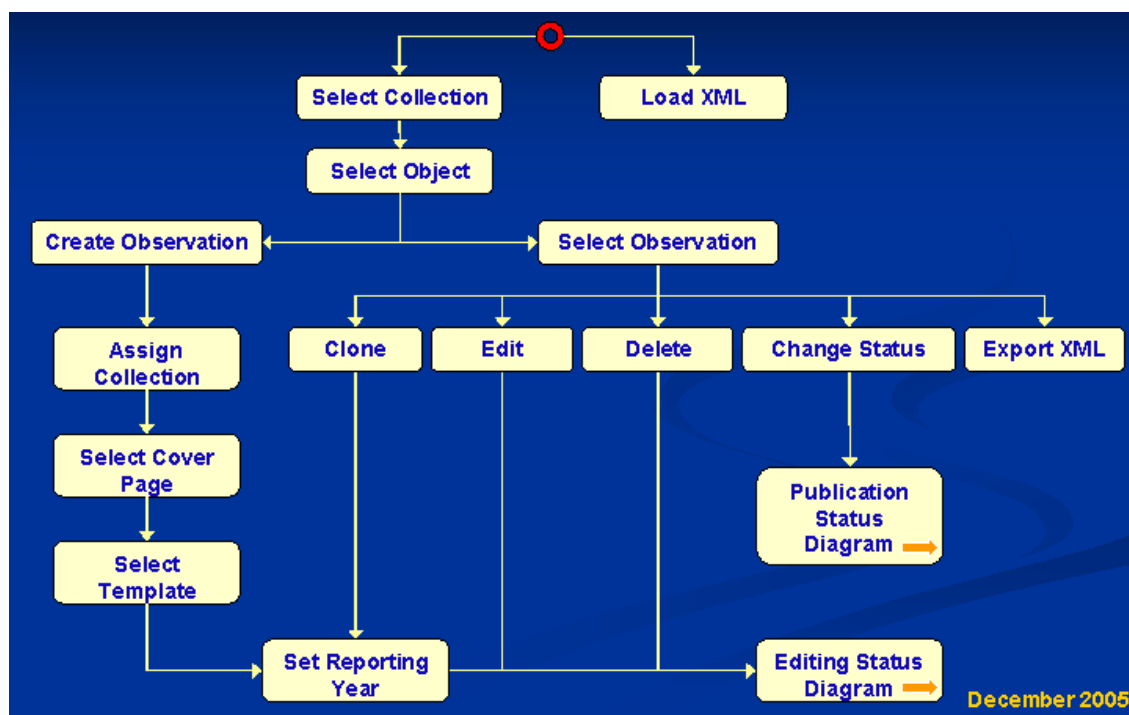
Once an observation has been published, a user with approver rights on the observation has the control on its visibility (hidden/visible status). He is also entitled to un-publish it.

The primary observation or Fact Sheet

One of the approved or published observations made on a marine resource object might be selected as **fact sheet** or “primary observation” by the data owner of the object (user with approver rights on the collection of the reference observation). The fact sheet is the observation with is shown first. In principle, it represents the most up-to-date information.

Observation management workflow

Based on the concepts presented in this document, a specific module of the FIRMS web based software has been developed. This module handle all the tasks related to the preparation and publication of reports on marine resources and fisheries. Editors might import observation from an XML structured file or use on-line editing facilities to create an observation using a template or cloning an existing observation. The figure 9 summarizes the 2 workflows available to report on a marine resource referenced in the system.



Annex 1 - Marine Resource Fact Sheet Template

SEARCH

SAVE

PRINT

Cover Page Title

Marine Resource FIRMS Name , reporting year

Marine Resource Local Name

Citation

Owned by **Owner name (Owner acronym)** 

Data Ownership

This document provided, maintained and owned by **Data Owner name (Data Owner acronym)** , is part of **Collection title** data collection.

Other Observation Sheets: [Owner1 acronym, Year](#) - [Owner2 acronym, Year](#)

Species

Scientific Name 1



Scientific Name 2



Scientific Name 3



Area 



Area details 

Main Descriptors

Considered as a Stock: yes

Management unit: yes

Spatial scale: regional

Jurisdictional distribution: transboundary Environmental group: demersal

Table of Contents

- [History](#)
- [Habitat and Biology](#)
- [Geographical Distribution](#)
- [Water Area Overview](#)
- [Resource Structure](#)
- [Exploitation](#)
- [Statistics](#)
- [Assessment](#)
- [Management](#)
- [Biological State and Trend](#)
- [Source of Information](#)
- [Bibliography](#)
- [Related Information](#)
- [Tables](#)

History <fi:History>

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Habitat and Biology <fi:HabitatBio>

Climatic zone: polar **Depth zone:** oceanic - upper continental slope (200 m - 500 m) **Bottom type:** soft bottom, muddy or muddy - sand

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Habitat and Biology is a container for information on the biology and ecology of a species in the area of the aquatic resource.

Geographical Distribution <fi:GeoDist>

Jurisdictional distribution: transboundary

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Information about the geographical distribution of an entity such as species, aquatic resource, ...

Water Area Overview [<fi:WaterAreaOverview>](#)

Spatial scale: regional

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Geo References [<fi:WaterArearef>](#)

FAO Fishing Statistical Areas: 27.3.d.25; 27.3.d.26; 27.3.d.27; 27.3.d.28; 27.3.d.29; 27.3.d.30; 27.3.d.31; 27.3.d.32.

ICES statistical area: III.d.25; III.d.26; III.d.27; III.d.28; III.d.29; III.d.30; III.d.31; III.d.32.

Description of the water area in which the aquatic resource is located. Water Area Overview might contain a reference list of areas in which a species or aquatic resource is found or employed.

Resource Structure [<fi:AqResStruct>](#) [fi:AqResRef](#)

Considered as a Stock: yes

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Information about structure of the aquatic resource. This element includes an attribute describing whether Yes or Not the aquatic resource is considered a biological Stock. It might as well introduce one or more subunit(s) of the aquatic resource under consideration (use fi:AqStockRef to positively refer a lower level of aggregation of an aquatic resource). Where possible, a short explanation should be provided to justify the existence of the sub-unit(s). Cod in the Baltic Sea

Exploitation [<fi:Exploit>](#)

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Information about the exploitation of the aquatic resource, including typically the description of the various fisheries exploiting the stock, and exploitation indicators such as catches, effort parameters, size of fish caught. Use fi:FisheryRef to positively reference the fisheries exploiting this aquatic resource. Groundfishes fishery - Baltic Sea ICES, 2003

Cod fishery - Baltic Sea ICES, 2003

Statistics <fi:Statistics>

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Contains statistics and associated information related to the exploitation of the aquatic resource.

Catch Forecast	2005	2006	2007	2008
zone A	2098	77	33	22
Zone B	7896	56	22	88

Table 1: Catch Forecast

Here an example how link to tables can be nested within text. Generally tables can be displayed "inline" in "pop up" or at the "bottom" of the fact sheet: [\(Table 2\)](#) text text texttext text texttext text texttext text texttext text texttext text texttext text [\(Table 3\)](#). text text texttext text texttext text texttext text texttext text texttext text texttext text [Table 4](#). text text texttext text texttext text texttext text texttext text texttext text texttext text texttext text texttext text

Assessment <fi:BioAssessment>

Assessment: Table of Contents

Assessment is a container for elements describing the biological assessment of the aquatic resource, such as the description of data sources used for the assessment, the various assessment methods applied with their individual results, and the overall assessment results, including possibly scientific advice.

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Data <fi:Data>

Data contains data, or information about data, used to generate the exploitation indicators, or presented to the scientific assessment for the calculation of assessment indicators.

Direct Assessment Methods [<fi:AssessMethods>](#)

Assessment Methods contains the various methods used in performing a stock assessment. It enables the distinction of methods according to the two major classes "direct" and "indirect" assessment methods.

Assumption [<fi:Assumption>](#)

Assumption is a description of the underlying assumptions upon which stock assessments, or results are based.

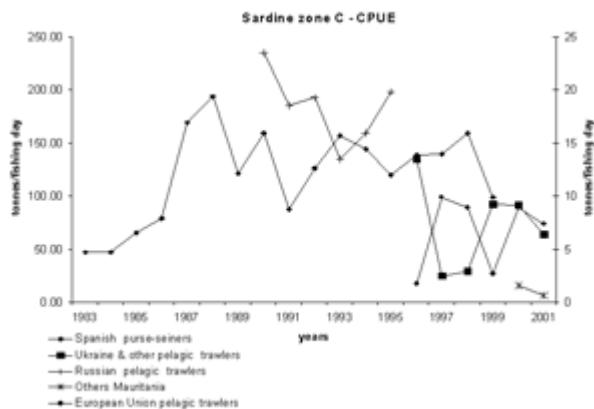


Figure 2: CPUEs of Sardine (*Sardina pilchardus*) from fisheries in Zone C (26°N-20°N)

Methodology [<fi:Methodology>](#)

Title *Methodology is the science behind the method.*

MethodEntry1 Title [<fi:AssessMethodEntry>](#)

Use fi:AssessMethodEntry for each method used in performing a stock assessment. An assessment method is identified by its name, and ideally includes the description of available data, and a summary of the methodology.

Assumption [<fi:Assumption>](#)

Assumption is a description of the underlying assumptions upon which stock perspectives, assessments, or results are based.

Methodology [<fi:Methodology>](#)

Title *Methodology is the science behind the method.*

Data [<fi:Data>](#)

Data contains data, or information about data, used to generate the exploitation indicators, or presented to the scientific assessment for the calculation of assessment indicators.

Results <fi:Results>

Results is a description of the outputs of assessment, either at the level of each assessment method, or as an overall synthesis of the results different methods results. It provides quantitative and/or qualitative details for each of the noticeable assessment indicators generated during the assessment.

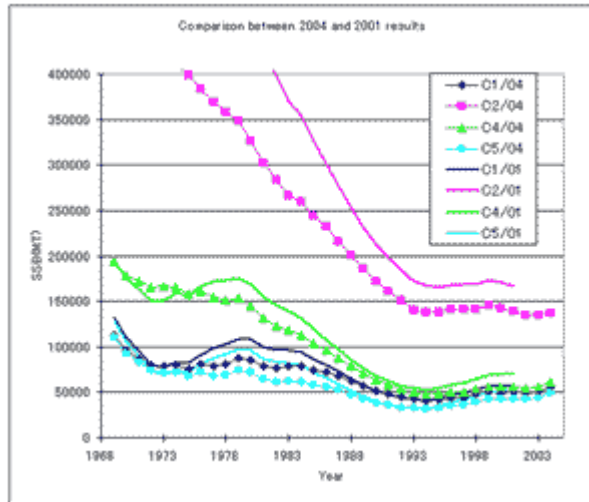


Figure x: text legend text legend text legend.

Assessment Indicator <fi:AssessIndic>

Type: MSY

Title Assessment Indicator contains indicator data commonly generated using stock assessment methods (e.g. fishing mortality, biomass, recruitment, abundance index). According to the FAO Fisheries Glossary, an indicator is "a variable, pointer, or index. Its fluctuation reveals the variations in key elements of a system. The position and trend of the indicator in relation to reference points or values indicate the present state and dynamics of the system. Indicators provide a bridge between objectives and action".

Projection <fi:Projection>

Projection contains stock projections and policy options.

Reference Point <fi:RefPoint>

Type: Recruitment

Reference Point contains reference point data for a stock or a fishery. According to the FAO Fisheries Glossary, "a reference point indicates a particular state of a fishery indicator corresponding to a situation considered as desirable (Target reference point, TRP) or undesirable and requiring immediate action (Limit reference point, LRP, and Threshold reference point, ThRP)".

MethodEntry2 Title <fi:AssessMethodEntry>

Use fi:AssessMethodEntry for each method used in performing a stock assessment. An assessment method is identified by its name, and ideally includes the description of available data, and a summary of the methodology.

Assumption <fi:Assumption>

Assumption is a description of the underlying assumptions upon which stock perspectives, assessments, or results are based

Methodology <fi:Methodology>

Title *Methodology is the science behind the method.*

Data <fi:Data>

Data contains data, or information about data, used to generate the exploitation indicators, or presented to the scientific assessment for the calculation of assessment indicators.

Results <fi:Results>

Results is a description of the outputs of assessment, either at the level of each assessment method, or as an overall synthesis of the results different methods results. It provides quantitative and/or qualitative details for each of the noticeable assessment indicators generated during the assessment.

Here an alternative option to display tagged text without headers for Assessment Indicator, Projection and reference Point:

<fi:AssessIndic Type="MSY"> </fi:AssessIndic> *Assessment Indicator contains indicator data commonly generated using stock assessment methods (e.g. fishing mortality, biomass, recruitment, abundance index). According to the FAO Fisheries Glossary, an indicator is "a variable, pointer, or index. Its fluctuation reveals the variations in key elements of a system. The position and trend of the indicator in relation to reference points or values indicate the present state and dynamics of the system. Indicators provide a bridge between objectives and action"..* <fi:Projection> *Projection contains stock projections and policy options.* </fi:Projection>, <fi:RefPoint> *Reference Point contains reference point data for a stock or a fishery. According to the FAO Fisheries Glossary, "a reference point indicates a particular state of a fishery indicator corresponding to a situation considered as desirable (Target reference point, TRP) or undesirable and requiring immediate action (Limit reference point, LRP, and Threshold reference point, ThRP)".* </fi:RefPoint>

Indirect Assessment Methods <fi:AssessMethods>

Assessment Methods contains the various methods used in performing a stock assessment. It enables the distinction of methods according to the two major classes "direct" and "indirect" assessment methods.

Assumption <fi:Assumption>

Assumption is a description of the underlying assumptions upon which stock perspectives, assessments, or results are based

Methodology <fi:Methodology>

Title*Methodology is the science behind the method.*

MethodEntry1 Title <fi:AssessMethodEntry>

Use fi:AssessMethodEntry for each method used in performing a stock assessment. An assessment method is identified by its name, and ideally includes the description of available data, and a summary of the methodology.

Assumption <fi:Assumption>

Assumption is a description of the underlying assumptions upon which stock perspectives, assessments, or results are based

Methodology <fi:Methodology>

Title *Methodology is the science behind the method.*

Data <fi:Data>

Data contains data, or information about data, used to generate the exploitation indicators, or presented to the scientific assessment for the calculation of assessment indicators.

Results <fi:Results>

Results is a description of the outputs of assessment, either at the level of each assessment method, or as an overall synthesis of the results different methods results. It provides quantitative and/or qualitative details for each of the noticeable assessment indicators generated during the assessment.

Assessment Indicator <fi:AssessIndic>

Type: MSY

Title Assessment Indicator contains indicator data commonly generated using stock assessment methods (e.g. fishing mortality, biomass, recruitment, abundance index). According to the FAO Fisheries Glossary, an indicator is "a variable, pointer, or index. Its fluctuation reveals the variations in key elements of a system. The position and trend of the indicator in relation to reference points or values indicate the present state and dynamics of the system. Indicators provide a bridge between objectives and action".

Projection <fi:Projection>

Projection contains stock projections and policy options.

Reference Point <fi:RefPoint>

Type: Recruitment

Reference Point contains reference point data for a stock or a fishery. According to the FAO Fisheries Glossary, "a reference point indicates a particular state of a fishery indicator corresponding to a situation considered as desirable (Target reference point, TRP) or undesirable and requiring immediate action (Limit reference point, LRP, and Threshold reference point, ThRP)".

Overall Assessment Results <fi:Results>

Results is a description of the outputs of assessment, either at the level of each assessment method, or as an overall synthesis of the results different methods results. It provides quantitative and/or qualitative details for each of the noticeable assessment indicators generated during the assessment.

Assessment Indicator <fi:AssessIndic>

Title Assessment Indicator contains indicator data commonly generated using stock assessment methods (e.g. fishing mortality, biomass, recruitment, abundance index). According to the FAO Fisheries Glossary, an indicator is "a variable, pointer, or index. Its fluctuation reveals the variations in key elements of a system. The position and trend of the indicator in relation to reference points or values indicate the present state and dynamics of the system. Indicators provide a bridge between objectives and action".

Projection <fi:Projection>

Projection contains stock projections and policy options.

Reference Point <fi:RefPoint>

Type: Recruitment

Reference Point contains reference point data for a stock or a fishery. According to the FAO Fisheries Glossary, "a reference point indicates a particular state of a fishery indicator corresponding to a situation considered as desirable (Target reference point, TRP) or undesirable and requiring immediate action (Limit reference point, LRP, and Threshold reference point, ThRP)".

Scientific Advice <fi:SciAdvice>

Advice is a container for scientific advice provided by the scientists at completion of the assessment. The nature of the advice is of strictly scientific nature, ie clean of any management or political consideration. It may deal with the data to be provided, the assessment tools to be used, or the orientations that should be taken to allow a stock to recover, associated with types of measures, or results of simulation.

Management <fi:Management> fi:AqResRef ; fi:FisheryRef ; fi:ManageSystemRef

Management unit: yes

Information about the management of the fishery or the aquatic resource. According to the FAO Fisheries Glossary, "the art of taking measures affecting a resource and its exploitation with a view to achieving certain objectives, such as the maximisation of the production of that resource. Management includes, for example, fishery regulations such as catch quotas or closed seasons. Managers are those who practice management".

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.

Management Objectives <fi:Objectives>

are objectives related to missions, outputs, projects, etc. Use one fi:ObjectiveEntry for each instance of an objective. For management systems, description of main goals/objectives which the governing authority wishes to achieve within the system and strategies applied for that purpose. According to the FAO Fisheries Glossary, "a formally established, more or less quantitative target that is actively sought and provides a direction for management action".

<fi:ObjectiveEntry>

Title *Use one fi:ObjectiveEntry for each instance of an objective. For management systems, description of main goals/objectives which the governing authority wishes to achieve within the system and strategies applied for that purpose.*

Management Strategies <fi:Strategies>

Management Strategies are strategies related to missions, outputs, projects, etc. Use one instance of fi:Strategy for each instance of a Strategy.

<fi:StrategyEntry>

Title *Use one fi:StrategyEntry for each instance of a strategy.*

Management Methods <fi:Methods>

Management Methods describes the set of methods or measures affecting fisheries, and used to implement management strategies. Use one fi:MethodEntry for each instance of a measure.

<fi:MethodEntry>

Title *Use one fi:MethodEntry for each instance of a method. For management systems, description of measures and institutional arrangements applied to manage the system: management measures may be classified under the categories found in fi:MethodEntry (this section should, in addition, describe the performance of the selected measures, i.e. the extent to which goals/objectives have been obtained.)*

Management Advice <fi:Advice>

Management advice are those recommendations generally evolving from the assessment, addressed to management authorities. Advice may be proposed under different management options. This definition contrasts with scientific advice (found under assessment results) but evolves from it.

Management Resolutions <fi:Resolutions>

It contains management resolutions decided upon by Management authorities.

<fi:ResolutionEntry>

Title *Use one fi:ResolutionEntry for each instance of a resolution.Cod - Baltic Sea (western part) ICES, 2000 Here some examples of AqResRef Hake fishery - Baltic Sea ICES, 2003*

Problems <fi:Problems>

It contains information about management problems.

<fi:ProblemEntry>

Title

Use one fi:ProblemEntry for each instance of a problem.

Biological State and Trend <fi:AqResStatusTrends>

State: over exploited

AqResStatusTrend is a container for Aquatic Resource Status and Trend information entries. This element includes a short statement (which should be understandable by the public) summarising the current observation made on the resource or stock considered, with a focus on the status of the fish population and the trends characterising its evolution, and possibly outlooks on its future. For resources units defined at aggregated level, this topic may consist of a general statement including a list of status and trends entries fitting each of the sub-units making up that aggregated resource.

History

Historic information related to the element which contains fi:History. e.g. an historical review of the Stock or Resource exploitation, management regimes over time and their effect, and trends.


<fi:AqResStatusTrendEntry>

Title

Use an fi:AqResStatusTrendEntry for each instance of a status or trend statement, in case distinct statements applying to different aquatic resources under review are included.

Source of Information <fi:Sources>

Sources is a container for biblio entry elements. It is used to identify the source of a piece of data within an object when it is not part of a bibliography. For example, an editor inserting a table of data from a FIDI dataset into the middle of an object might cite FIDI using fi:Sources. Use an instance of fi:BiblioEntry for each separate citation. Use fi:BiblioEntryLink to point a source citation to an existing fi:BiblioEntry anywhere in the FIGISDoc. fi:Sources contains a list of fi:BiblioEntry. fi:Sources can be found at any level where there is not an fi:ObjectSource.

Commission for the Conservation of Southern Bluefin Tuna (CCSBT). Report of the Ninth Meeting of the CCSBT Scientific Committee. 2004-09-13. 

Disclaimer:

yThis is an extract of the XXXX fisheries advice presenting the fish stock information. The full XXXX advice is available on <http://www.XXX.XX> and accounts for fisheries constraints in addition to the stock considerations.y

Bibliography <fi:Bibliography>

BiblioEntry is a container for elements that define a reference source. It is similar in spirit to the bibliographies found in traditional books. All the fields that would be expected in a Bibliographic Entry are included, as well as the possibility of tagging hyperlinks and adding free text.

<fi:BiblioEntry>

Title Author. Series. Publisher. Date.....

<fi:BiblioEntry>

Title Author. Series. Publisher. Date.....

.....

Related Information <fi:RelatedResources>

Literature of papers cited in the source text that may or may not have been used in the construction of the object , and/or are considered as 'suggested additional reading'. It is an element for entering literature info that has no direct relation with the origin of the data in the object: it can be considered as 'additional reading' information.

fi:RelatedResources contains a list of fi:BiblioEntry elements, which ARE NOT COLLECTED in the fi:Bibliography element. There can be ONLY ONE fi:RelatedResources in a given object, located at its root (This includes FIGISDoc).

<fi:BiblioEntry>

Title Author. Series. Publisher. Date.....

<fi:BiblioEntry>

Title Author. Series. Publisher. Date.....

Tables <Table>

Table 2: Landing per month [back >>](#)

Landing per month				
3435	fff	bnnn	bnnn	bnnn
vvv	555	jhy	bnnn	bnnn

Table 3: Reference points proposed by ICES in 1999 [back >>](#)

Reference points	5	4	3	22
4	3ggfg	44	33	22
12	stat	5567	22	88
12	44	bbb	22bb	8

Table 4: Total Effort [back >>](#)

Total Effort	5	4	55	67
4	3ggfg	5	11	22
5t6	stat	33	48	88
12	789	befgrb	acc6	9