

# FIGIS-FIRMS stocks and resources domain Topic tree and related definitions

## version 1-0

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Management Summary

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## DOCUMENT SOURCE

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FIGIS Institutions objects are formal organizations (e.g. FAO) and/or their sub-divisions, departments, divisions, decentralized offices, dependent bodies, ... all with a legal status.

- ◆ The Institution's profile section describes its mandate, structure, membership and establishing legal texts.
- ◆ The features section deals with the Institution's life, e.g. meetings, programmes, projects, publications, or job opportunities.

Programme : programmes are the operational extensions of institutions. They generally represent homogeneous institutionalised units of small size focussed on specific objectives. Hence it is generally at the level of Programme units that intellectual products (of interest to information systems) are generated, and that corresponding working arrangements and practices (including quality assurance) are set. Thus programmes often represent the units at which level focussed information exchange can be defined, in a partnership agreement established with the responsible institution.

Collection : a collection is a set of information consisting of a combination of different data types such as statistics, text, images, maps, ....., prepared consistently according to agreed procedures, rules and generally presented using defined and agreed template. A collection is under the direct control of a programme, and in the absence of defined programme, an institution. Thus, a collection should be homogeneous enough to allow easy description of the concerned data types, rules and procedures. A statistical time series, or a publication series, are two typical examples of a collection. From a FIGIS system information management view point, the basic unit used for assigning permissions to users is the concept of "Collection".

Cover page : cover page provides information of bibliographical nature (title, author, year, ...) under which the content presented has been prepared

## STOCKS AND RESOURCES

### Concepts definition :

Stocks definition: The FAO Glossary for Responsible Fisheries indicates, *inter alia*, that from a pragmatic point of view, a **stock** is “*the part of a fish population which is under consideration from the point of view of actual or potential utilisation. In more biological terms*, it is also “*a group of individuals in a species occupying a well defined spatial range independent of other stocks of the same species. It can be affected by random dispersal movements and directed migrations due to seasonal or reproductive activity. It can be regarded as an entity for management or assessment purposes. A **unit stock** comprises all the individuals of fish in an area which are part of the same reproductive process. It is self-contained, with no emigration or immigration of individuals from or to the stock. On practical grounds, however, a fraction of the unit stock may be considered as a "stock" (or as a **management unit**) for management purposes as long as the results of the assessments and management remain close enough to what they would be on the unit stock.*”

A stock is defined by a wide range of characteristics selected for their relevance to the fisheries that exploit the stock . A stock may consist of widely separated species such as fish, shrimp and clams, and may also be multi-species. It may be highly migratory, straddling or shared as well as global, ocean-wide, regional, national and local -- all attributes that carry diverse management implications. Stocks are units generally defined by scientists for assessment purposes, and their indicators tend to describe their size, potential, health status and trends.

- ◆ Hence, Stocks are identified in FIGIS as the compulsory combination of an AQUATIC SPECIES (or SPECIES GROUP) and a WATER AREA geographical location. This water area may be described at any scale using standard statistical areas, areas of competence (e.g. EEZs) or environmental geo-classification systems such as Large Marine Ecosystems.
- ◆ The Stocks profile section describes the water area main environmental characteristics, the stock's biological and ecological features, and if necessary it's structure.
- ◆ The Stocks features section presents a stock's dynamic aspects such as exploitation, assessment, management, and status and trends.

Aquatic resources definition: The term “**resources**” is also often used when referring to vaguely defined “stocks.” The FAO Glossary for Responsible Fisheries indicates that **aquatic resources** are the “*biotic element of the aquatic ecosystem, including genetic resources, organisms or parts thereof, populations, etc. with actual or potential use or value (sensu lato) for humanity. Fishery resources are therefore those aquatic resources of value to fisheries.*” Just like a stock, a fishery resource is delimited in space and its geographical demarcation often has a political or juridical connotation, e.g. Moroccan resources, EEZ or high seas resources. Potential or actual catch is a typical resources indicator reflecting the notions of **use** or **value** attached to the resource's concept. It could be local, national (e.g. the shrimp resource of Ghana), regional (e.g. Atlantic tuna) or global (e.g. cephalopod resources of the world.)

- ◆ Aquatic Resources are identified in FIGIS along the same patterns as are Stocks.
- ◆ The main structural difference between Resources and Stocks is the absence in the Resources Feature section of the Assessment topic, which is strictly reserved to Stocks as defined and assessed by scientists.

## **Topic tree definitions :**

Stock / Resource identity : the identity section allows assignment of essential identifiers needed by computer systems for the creation and management of Stocks or Resources objects.

Name : the name of the Stock or Resource unit; it may be a commonly established local name, but in absence of such a name, the name should as much as possible combine the species and area components.

Species or species group reference : a compulsory reference to the species group, or the single species that compose the considered stock or resource. When the composition of the species group is known, then these species should be listed under the group's hat.

Area reference : a compulsory reference to one or more geographical area(s), be it of statistical, jurisdictional, or environmental type, or a combination of these. A minimum requirement is to geo-reference Stock or Resource units using an international referencing system such as FAO major area. More precision can be obtained in geo-referencing by using local statistical area systems, water of competence referencing systems, such as high seas, EEZs or territorial seas, convention areas or spatial management units, or environmental referencing system like Large Marine Ecosystems.

Stock / Resource type : a standard type assigned to the stock or resource unit according to a typology made up of meaningful combinations of governance-or-jurisdiction (high seas, shared, straddling, ...), geographical scale (regional, national, sub-national, ...), environment (oceanic, coastal,...), and view-discipline-or-approach prevailing in identifying the unit, or prevailing concept (stock, or resource). This type is an essential aspect of the stocks and resources domain quality assurance scheme, as it should participate in justifying the existence of the stock or resource unit inventoried in reference to the inventory objectives.

Stock / Resource profile : as for every FIGIS domain, the profile section contains topics which describe essential (or intrinsic) characteristics of stock or resource units, ie the reasons for creating the unit. Stocks and resources being built based on species and geographical criteria, the corresponding (scientific) knowledge (fish population biology, effect of the environment, jurisdiction considerations) will be organised under this section.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8009>

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8001>

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=6001>

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=5029>

Area profile : a description of the water area where the stock occurs, including environmental characteristics, jurisdictional limits, ....

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8000>

Habitat and biology : a description of the biological and ecological parameters of the fish population under consideration

Stock / Resource structure : this topic serves the purpose of introducing one or more sub-unit(s) of the stock or resource under consideration, ie gives access to a lower level of

aggregation. Where possible, a short explanation should be provided to justify the existence of this sub-unit.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8010>

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=6006>

Stock / Resource feature : as for every FIGIS domain, feature contain topics which do not describe intrinsic (permanent) characteristics of the stock

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=8301>

Reporting year : corresponds to the year for which the latest indicators can be supplied for the stock (generally the year of the latest data available).

History : an historical review of the Stock or Resource exploitation, management regimes and their effect, and trends

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8000>

Exploitation : this topic covers the description of both the level, and patterns of exploitation of a fishery resource. The level of exploitation is usually expressed using “simple” exploitation indicators such as catch, effort parameters, size of fish caught. The patterns of exploitation are usually developed describing the various fisheries in a more or less detailed way.

Exploitation indicator : this is a generic topic used to describe the common exploitation parameters such as catch, landings, efforts, discards, size of fish caught. The indicator has to be assigned one of these above listed types, is usually identified using a more precise indicator name, and includes quantitative related information such as value, unit, date, source, and/or qualitative such as statement on the status or trend of the indicator. When analytical work is reported, considerations are given as to how the overall indicator value applicable to the resource or stock unit is formed : the indicator is broken down into values given according to different reporting units, be it by species, or by area, or by gear type, etc...

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=23>

Reporting unit : an element allowing for the reporting of an indicator value (and associated data) for a given unit. The unit value(s) (a species name, a stock name, a gear type, ...) is (are) supplied together with the indicator value.

(Overall) fisheries : this topic is the description of the patterns of exploitation of the stock or resource unit, either by simply mentioning the different fisheries working on a stock, or by describing in more details how each of these fisheries operate on the stock

Fishery overview : topic to be used for those fisheries which interaction with the stock is described in details, including possibly the various exploitation indicators specific to this fishery on this stock. The fishery is identified through its key criteria such as target species, location, gear type, flag state, ....

[http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&qid=st\\_33026&xp\\_obsfid=4131&xsl=figis/stockres/format/observation.xsl](http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&qid=st_33026&xp_obsfid=4131&xsl=figis/stockres/format/observation.xsl)

Assessment : this topic describes the scientific assessment work done on a fish population identified as a stock unit. As such, this topic is not available within the “Resource” concept. It includes 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.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=23>

Available data : the data used to generate the exploitation indicators, or presented to the scientific assessment for the calculation of assessment indicators.

Assessment method : an assessment method is identified by its name, and ideally includes the description of available data, a summary of the methodology

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=4>

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=5029>

Methodology : a description of how the generic method has been applied in the context of the current assessment, considering shortcomings on the available data, expert knowledge, assumptions, ...

Results : result is a generic topic either found at the level of each individual assessment method, or for the overall assessment. It provides quantitative and/or qualitative details for each of the noticeable assessment indicators generated using one assessment method (in the former case), or the set of methods (in the later case).

Assessment indicator : this is a generic topic used to describe the assessment parameters commonly generated using stock assessment methods. Fishing mortality, biomass, recruitment, abundance index are classic ones. The indicator has to be assigned a type (one of these above listed for example), is usually identified using a more precise indicator name (eg f0.1, or Bmsy), and includes quantitative related information such as value, unit, date, source, and/or qualitative such as statement on the status or trend of the indicator. When analytical work is reported, considerations are given as to how the overall indicator value applicable to the stock unit is formed : the indicator is broken down into values given according to different reporting units, eg gender classes (female biomass), or age classes (recruitment at age 2) etc...

Results : see above. However, when results is provided for the overall assessment, it may specifically include a set of scientific advice (to be differentiated from management advice)

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=3105>

Scientific advice : 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 : from a Stock or Resource information perspective, management considerations are usually limited to summarising the management context, including a list of applied management methods and measures of direct interest to stock exploitation. Management advice is also included for those institutions having by mandate to provide advice to management bodies.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=3105>

Management overview : a summarised description of the present management context applied to the stock or resource. It may give some emphasis on the management objectives, strategies, and methods currently in force.

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<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=5029>

Management advice : by contrast to scientific advice (found under assessment results), management advice are those recommendations generally evolving from the assessment, addressed to management authorities. Advice may be proposed under different management options.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=stock&fid=4>

Status and Trends : this topic 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.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8011>

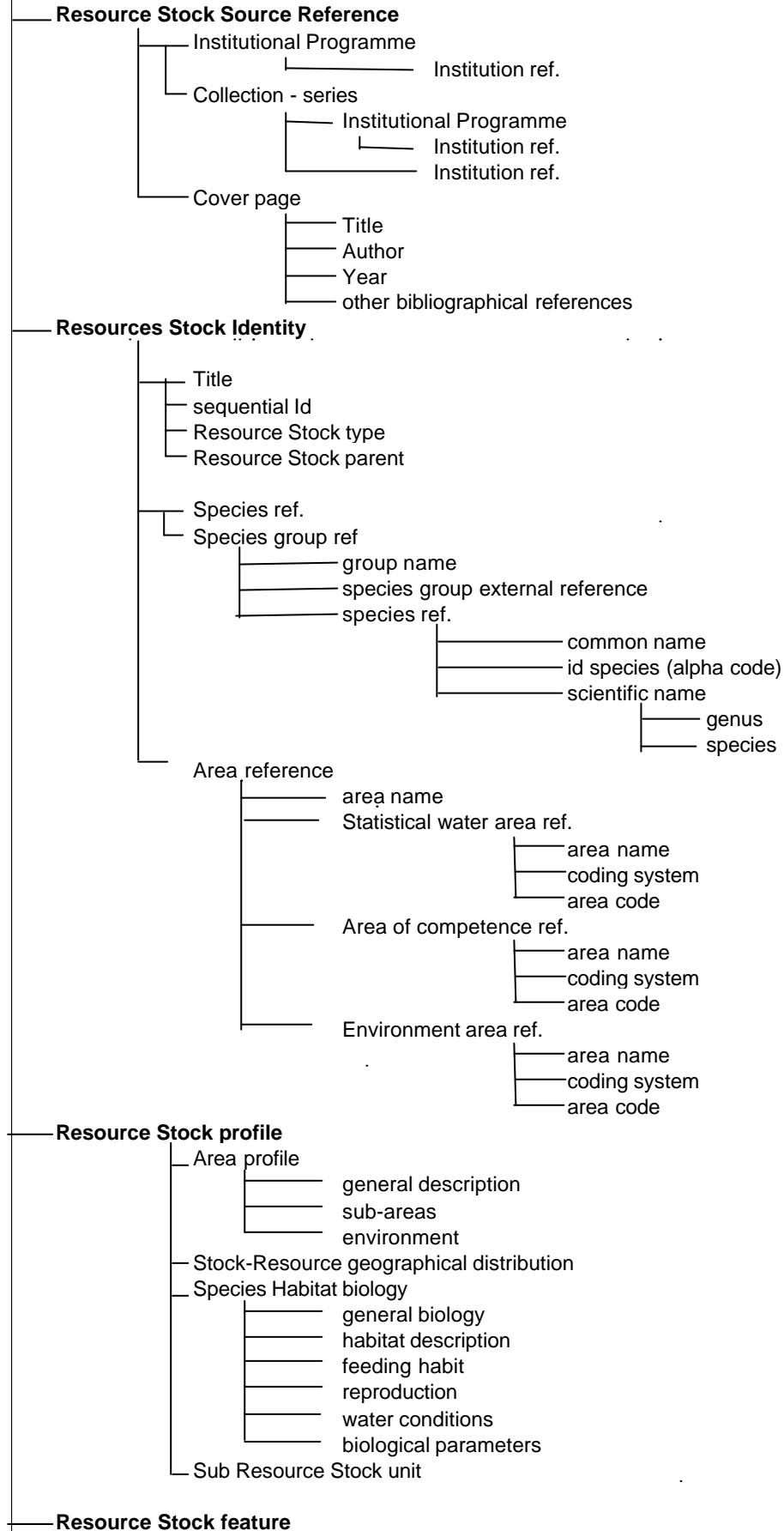
<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=6006>

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.

<http://figis01/fiservlet/org.fao.fi.common.FiRefServlet?ds=resource&fid=8010>

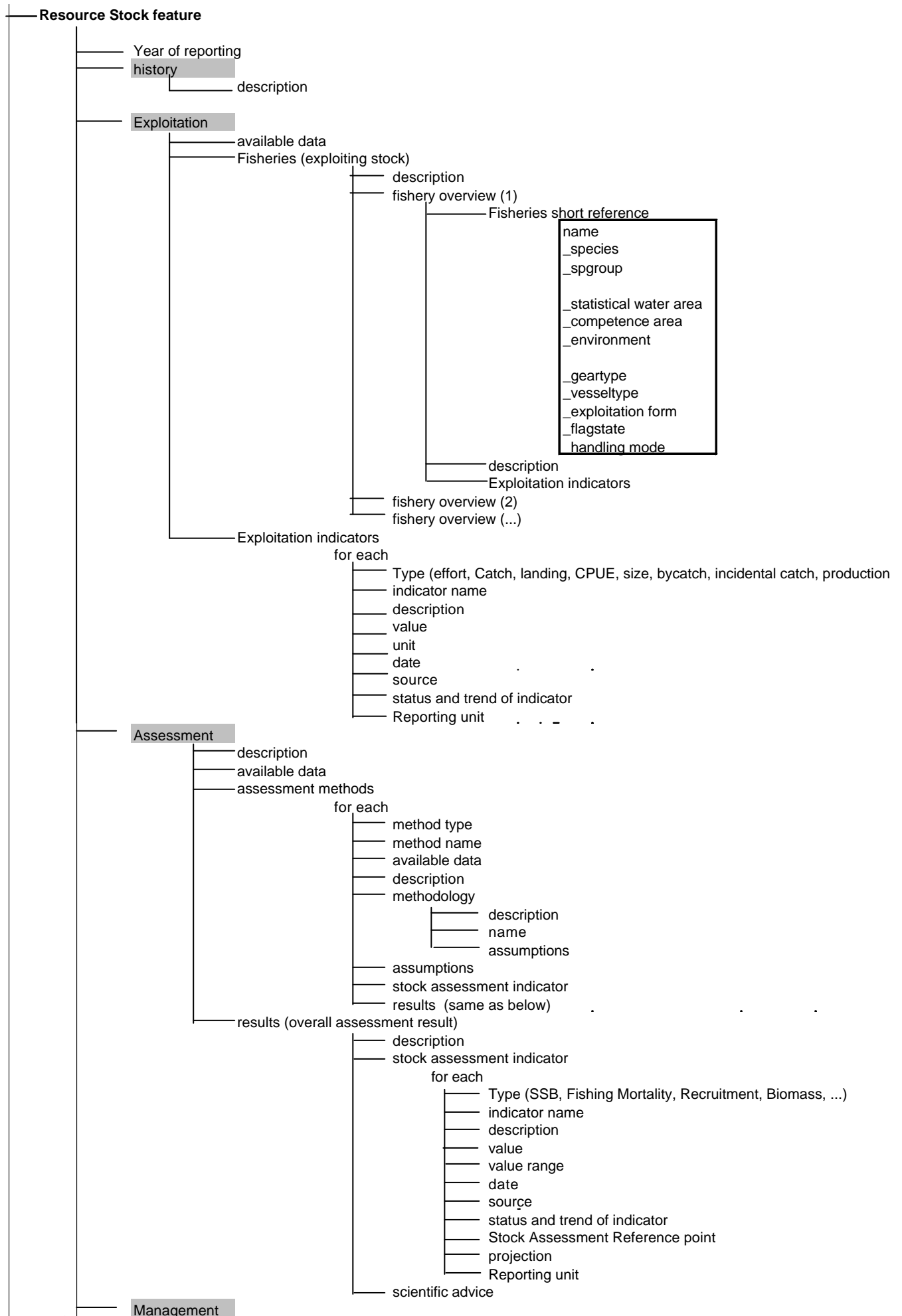
## FIGIS-FIRMS Stocks and Resources topic tree

### Resources Stock Object





## FIGIS-FIRMS Stocks and Resources topic tree



## FIGIS-FIRMS Stocks and Resources topic tree

