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HANDLING OF STOCKS INCLUDING MULTIPLE SUB-COMPONENTS – IMPACT ON STATUS AND TRENDS REPORTING
Author: FIRMS Secretariat

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Purpose of the document

At TWG2, The group did not have the means/time to review the complexity of the issue regarding status and trends reporting of multiple sub-components of a resource, and it was recommended that the issue be properly presented to FSC5 for a recommendation on whether the TWG should address the issue in more detail.

At FSC5, it was agreed that FAO and ICES will present some examples where there are subcomponents of stocks.

This document presents the Facts illustrated with examples, the related issues regarding a consistent exploitation of the FIRMS database, and opens-up to some discussions

FACTS

Six years of FIRMS data contributions' history has demonstrated a dynamic in Marine resources inventories. Not only inventories grow because new knowledge is acquired (typically ICCAT, GFCM, SEAFDEC), but also the inventory profile/structure is fluid: in ICES and CECAF areas in particular, we have examples of stocks which merge, or inversely which split, or which monitoring is interrupted. This to a large extent depends on the changes in assumptions made by scientific working groups regarding the stock units. The following typical situations are encountered, further illustrated in annex.

1. A higher level encompassing resource is the level tackled by the scientific working group, with varying assumptions made regarding sub-units throughout time. However for practical and consistency reasons, reporting should be maintained at the parent level regardless of the evolution affecting the sub-units. Examples are:

- ex.: the high level ICES resource [Norway lobster - West of Scotland (North Minch, South Minch, Clyde)] should be kept for storing common information and sub-stocks should be added
- ex.: the high level CECAF resource [Sardine Northwest Africa] reports throughout time assessments on 2 or 3 sub-stocks, in a reporting style intermingling considerations on the sub-units which makes it quasi impossible to report separately for the sub-stocks without a wrapping resource level.

2. As a result of a split, what used to be a single stock (end-leave of the hierarchical tree) becomes an “unactive” node/group composed of few sub-stocks.

- ex.: The ICES [Norway lobster - North Sea (Moreay Firth, Noup)] stock should be split in two new stocks and not considered any more.

3. As a result of the merging, an additional parent Resource might appear in the inventory, unless it already existed as a node/group.

- ex.: the ICES stock [Saithe - West of Scotland and Rockall] is not monitored anymore as standalone but together with [Saithe - North Sea, Skagerrak, West of Scotland and Rockall]

4. A stock might simply be deliberately not any more monitored:

- ex.: the ICES stock [Harp Seal - Northwest Atlantic] is not assessed anymore or suspended since it’s not part of the collection of stocks for which ICES provides standard advice.

5. An associated issue exists for Resources comprising sub-stocks which for practical reasons would not be matter for separate reporting in the FIRMS database.

- ex.: CCAMLR [Toothfish Southern Ocean] resource.
- ex.: ICES [Salmon resources]: although the status of salmon stocks is assessed on a river basis, ICES wraps these numerous assessments in a single Resource report.

6. Another possible problem is the change of stock name, as recently experienced with ICES and CECAF. This might not be an issue so long the identity of the stock remains the same; therefore a change of name could apply retroactively.

ISSUES

With the current data management rules, the above described situation undermines a consistent exploitation of the FIRMS database, for the following reasons:

7- A query executed in 2010 will most likely return both the parent resource and the children stocks. In examples 1 above, this would probably be desirable for a general search, but not for a search on Status descriptors which should only concern assessed stocks. In examples 2 and 3, this would be meaningless since parent and children should be exclusive at any moment in time, even though the existence of these different units is justified at different time frame. And while the formerly considered unit(s) could be un-activated by un-publishing the corresponding fact sheet, such action might be against the prevailing policy for a given partner who might want historical records accessible.

8- There is no way to track history of decisions taken regarding assumptions made on stock units

9- FIRMS standard status descriptors are by design applied to the single stock unit which the fact sheet describes. Sub-stocks described in the same fact sheet cannot be "tagged" with the FIRMS standard status descriptors. Therefore a search performed on these FIRMS standard status descriptors would return results according to the parent unit (which is not assessed per say) and not according to the sub-stocks (which are actually assessed).

POSSIBLE SOLUTIONS

10. Regarding issue 1 and 2 above, the Marine resource Metadata should be modified to integrate the life cycle of a stock unit, with addition of “End date” and “Ancestor” fields: the “end date” will let the system know that a stock unit should not any more be returned in a search. The “ancestor“ field will enable to affiliate newly assessed stock units to formerly assessed ones. In this way, stock units returned in a query will only be the current ones, and users will have the ability to access from the current fact sheet the published fact sheets of the ancestor(s).

In this way, FIRMS role to archive historical assessments is preserved, and one will be able to track the evolution of the inventory.

11. Issue 3 might be only tackled through suggestions of best practices: even if a parent unit is necessary for consistent reporting, it is recommended that:

- at parent level, FIRMS standard status descriptors should not be added, and the field “Considered a stock” should be specified as “NO”

- reports on status and trends should be loaded in FIRMS at the level of the unit assessed, containing FIRMS standard status descriptors;

Such rule implies that only resource units “Considered as stocks” will be returned in status and trends summaries.

Annex 1 : Details of the case study: Sardine in the northern part of CECAF area

Inventory: evolution has concerned mainly changes in names

Sardine - Northwest of Africa
- North stock of Sardine - Morocco
- Central stock of Sardine - Morocco
- South stock of Sardine - Zone C

became

Sardine - Northwest Africa
- Sardine - North part of Morocco
- Sardine - Central part of Morocco
- Sardine - Morocco (26°N to southern limit of species distribution)

Fact sheets: the situation of Inventory/reports available has been reflected in the following way among fact sheets:

Reference year 2001: Only one high level stock reported as fact sheet
Sardine Northwest of Africa

Reference year 2004: Three sublevel fact sheets
Sardine - North Part of Morocco (North sotck of Sardine)
Central stock of Sardine
South stock of Sardine

Reference year 2007
Sardine - Northwest Africa
including
[Sardine - North part of Morocco (without any fact sheet)
Sardine - Central part of Morocco]

[Sardine - Morocco (26°N to southern limit of species distribution)]

Other examples:

Higher level encompassing resource is the level tackled by the working group, with varying assumptions made for sub-units throughout time

- [Southern pink shrimp - Mauritania, Senegal and Gambia] : the CECAF report specifies: “however, it is not possible to obtain disaggregated information (landing and effort) for the 3 sub-units defined here. For this reason, the Working Group has decided to carry out an assessment for two units, one in Mauritania and the other in Senegal–Gambia”

- [Crevette rose du large - Maroc, Mauritanie, Sénégal, Guinée, Guinée Bissau et Gambie]

- [Horse mackerel Northern area of eastern central atlantic]

Annex 2 : Details of case study in the ICES area

A stock can evolve and being:

(1) split but still monitored

Norway lobster - West of Scotland (North Minch, South Minch, Clyde)	Nephrops in Division VIa
Resource to be added	Nephrops in North Minch (FU 11)
Resource to be added	Nephrops in the South Minch (FU 12)
Resource to be added	Nephrops in the Firth of Clyde (FU 13)

the high level resource Norway lobster - West of Scotland (North Minch, South Minch, Clyde) should be kept for storing common information and 3 more stocks should be added and referenced under the resource structure topic.

- no need of END DATE

(2) split and not monitored anymore

Norway lobster - North Sea (Moreay Firth, Noup)	Nephrops in Division IVa, rectangles 44-48 E6-E7 + 44 E8 (Management Area F)
Resource to be added	Nephrops in Moray Firth (FU 9)
Resource to be added	Nephrops in Noup (FU 10)

in this case ICES is suggesting to split [*Norway lobster - North Sea (Moreay Firth, Noup)*] in two new stocks and the wrapper won't be treated anymore.

- The stock has an END DATE

(3) merged with another stock

Saithe - West of Scotland and Rockall (**Saithe in Subarea VI (West of Scotland and Rockall)**) is not monitored anymore as standalone but together with Saithe - North Sea, Skagerrak, West of Scotland and Rockall (Saithe in Subarea IV (North Sea) Division IIIa West (Skagerrak) and Subarea VI (West of Scotland and Rockall))

- The stock has an END DATE

(4) not assessed anymore or suspended (which can be considered as a particular case of end date)

Harp Seal - Northwest Atlantic	Harp Seal - Northwest Atlantic

ICES comment: not as standard advice - only when request. No updates since 2004.

- The stock has an END DATE