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**FIRMS design: Alternative Data model options for Aquatic Resources,
Fisheries and Management Units concepts**

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Note: the FIRMS Secretariat dispatched this document on 03/12/2004 under the title "Data models proposal" to FIRMS technical group.

This document presents two possible alternative models for FIRMS with respect handling of Aquatic Resources, Fisheries and Management Units concepts. Model A is the current one proposed in the high level requirements document (July 2004), whereas Model B is an alternative to Model A proposed considering feedback received from FIRMS partners.

Model (A) described in the FIRMS High Level Requirements document (July 2004)

Rational

This model is based on the statement that “what is managed are fisheries, not resources”. In other words, while Aquatic resource can be the target of the management, the unit used as instrument of management is the Fishery. Therefore, the “Management Unit” is a qualifier of a fishery and this qualifier is not applicable to an Aquatic Resource.

Remark: not all the managed fisheries are management units: a fishery may be managed as part of the management unit considered at a more aggregated level.

The word Stock in FIRMS is used for what scientists consider a biological stock, and Aquatic resource is a more generic concept, which can cover more than one species. Therefore, Stock is considered as a qualifier of an Aquatic Resource.

Concepts

- Aquatic Resource
 which can be or not qualified as a Stock
- Fishery
 which can be or not qualified as a Management Unit
- Management System
 Operate on Management Units

Impacts of Model A on the information management within the FIRMS System

FIRMS partners making use of the same entity to represent the Aquatic Resource and its Fishery would expect to report within one single observation on all topics, namely exploitation, assessment and management. Model A doesn't allow this since it enforces differentiation of the concepts based on the set of associated reporting topics.

Consequently, where such situations are encountered, two objects must be created: an Aquatic Resource and a Fishery. Detailed information on Assessment will be provided under the Aquatic Resource, where detailed information on Management and Exploitation will be provided under the Fishery. A link between both objects observations will be established. The table 1 summarise the high level reporting topics for both entities.

Table 1 – Model A – Main topics for Aquatic Resource and Fishery

Aquatic Resource		Fishery	
Stock	Not Stock	Management Unit	Not Management Unit
<u>Keys</u>			
1 species	1 specie or group of species	Fishery Activity descriptor	
1 area		1 area	
<u>Biological Assessment topic</u>			
Detailed (1)		Not applicable (reported under Exploitation topic)	
<u>Exploitation topic</u>			
Overview		Detailed (2)	
<u>Management topic</u>			
Overview		Detailed (3)	Overview
<u>Other thematic topics...</u>			
Status and trends		Status and trends	
Statistics		Statistics	
Historical data		Historical data	
Water Area Overview		Fishing Area Overview	
Habitat and Biology		Production System (4)	
Geographical distribution		Post harvest information	
		Issues	

(1) Detailed Biological Assessment Topic includes the following sub-topics:

- Available data
- method
- result
- scientific advice
- Biological state and trends

(2) Detailed Exploitation Topic Includes the following sub-topics:

- Available data
- Exploitation indicators
- Resource Assessment Overview

(3) Detailed Management Topic Includes the following sub-topics:

- Objectives
- Strategies
- Methods
- Advice
- Resolutions
- Problems

(4) Production System topic includes the following sub-topics:

- available data
- socio-economic indicators

Alternative Model (B)

In order to avoid the duplication of objects, which could be a source of confusion for the user and would dissociate information that a partner would prefer to be displayed together, Model B would authorize the use of “Management Unit” qualifier for Aquatic Resource entity. Having this qualifier, an Aquatic Resource could be the subject of detailed reporting on management. Detailed information related to Exploitation would be still restricted to the Fishery entity.

Impacts on the information management within the FIRMS System

Using this model, the distinction between the 2 entities Aquatic Resource and Fishery is getting subtle when the Fishery descriptors used as keys for the fishery are a species (or group of species) and a water area.