FAO VME DATABASE - USER'S GUIDE

DRAFT FOR DISCUSSION

Initiated: 12 August 2013

Revised: Several times to 27 November 2013

CONTENTS

INTENDED USERS

The potential users of the database are those people who want quick access to information on the work that is and has been undertaken by RFBs on VMEs in ABNJ. This includes information on the VMEs, any RFB (or State), management measures, and management and scientific meeting reports that are connected with VMEs. This information is often widely dispersed through various documents that is difficult and time consuming to find. The likely user groups would be RFB Secretariats, fisheries managers and scientists, researchers, conservationists, and others with specific interests in high seas VMEs.

The users would be expected to have a basic understanding of high seas fisheries management and the processes used to govern this.

FAO VME PORTAL

FAO is hoping to develop a VME portal that will have various areas to assist users in understanding and identifying aspects of fisheries related to VMEs. The portal may include some of the following:

- **VME Database**
- **United Nations** (and closely related international agreements e.g. UNGA, FAO, UNEP, CBD, etc)
- **Regional Fisheries Bodies** (and other bodies with competence to manage fisheries)
- **Species Identification**
- **Projects**
- **Networking and Forum**

The target audience for the portal is wider than for the VME database alone and the purpose is to allow users to understand the various and many actors and processes that control how deepsea fisheries can sustainably harvest target fish species and safeguard the wider marine environment. It would also include certain user and networking areas to allow users to promote their own work and feedback.

The portal page may look something like:

This present document only elaborates on the VME database area shown at the top centre.

Readers with an interest in FAO's deepsea fisheries work are referred to their website at http://www.fao.org/fishery/topic/4440/en

VME DATABASE

Introduction

FAO, based on the following invite from UNGA (UNGA Resolution 61/105, para. 90):

> "*Invites* the Food and Agriculture Organization of the United Nations to consider creating a global database of information on vulnerable marine ecosystems in areas beyond national jurisdiction to assist States in assessing any impacts of bottom fisheries on vulnerable marine ecosystems, and invites States and regional fisheries management organizations or arrangements to submit information to any such database on all vulnerable marine ecosystems identified in accordance with paragraph 83 of the present resolution;"

is developing a VME database consistent with the UNGA request. This document will explain the VME Database (VME-DB) and provide details of the information required to populate the database.

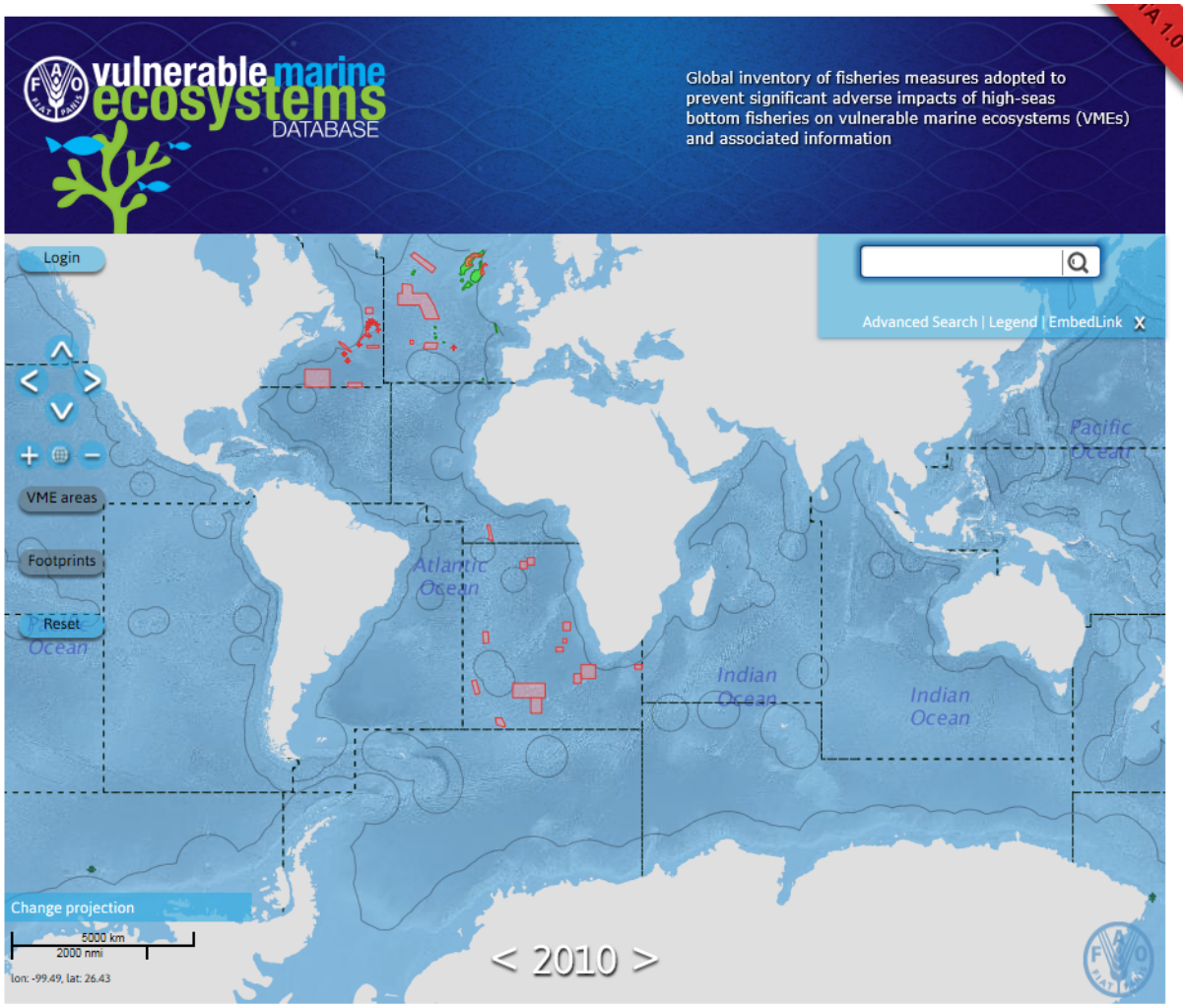
Current status of VME-DB

The VME-DB has been developed as an Oracle database and partially populated with information from 2006-2012 entered by FAO. The Oracle database will have customised input forms that will be developed after the Beta version has been tested. As a temporary development measure, the VME-DB has an MS ACCESS version that uses input forms (either MS ACCESS or MS EXCEL) for data entry which is then mapped in to the Oracle VME database. The MS ACCESS version of the VME-DB has no functionality beyond the ability to input information. The Beta version of the Oracle database is available online at http://figisapps.fao.org/figis/geoserver/figis-vme/ . Using this guide, it is hoped that each Regional Body will be able to enter information, say for 2012 or as decided, to populate the VME-DB. This will allow FAO to finalise the design of the VME-DB to accommodate the particular requirements of each Regional Body.

VME-DB Entry page

This is the VME-DB entry page, here showing the VMEs in red and the bottom fishing areas in green for the Atlantic Ocean. Fishing areas have not yet been entered for the southern Oceans. The individual elements and functions on the entry page are described below.

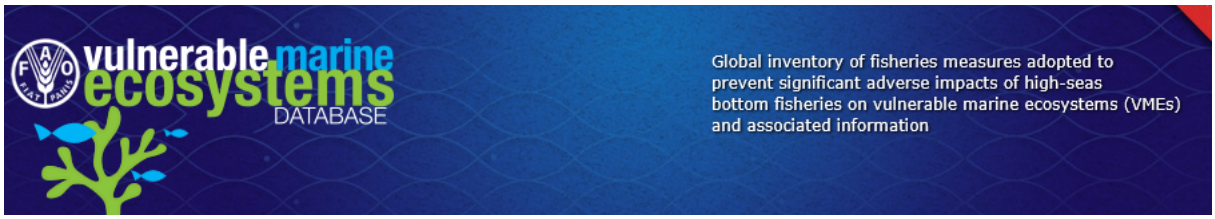
The VME-DB is on-line at the above link, and we suggest you open this link and become familiar with the functionality prior to entering any information.



Disclaimer: The designations employed and the presentation of material in the map(s) are for illustration only and do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers or boundaries.

Banner

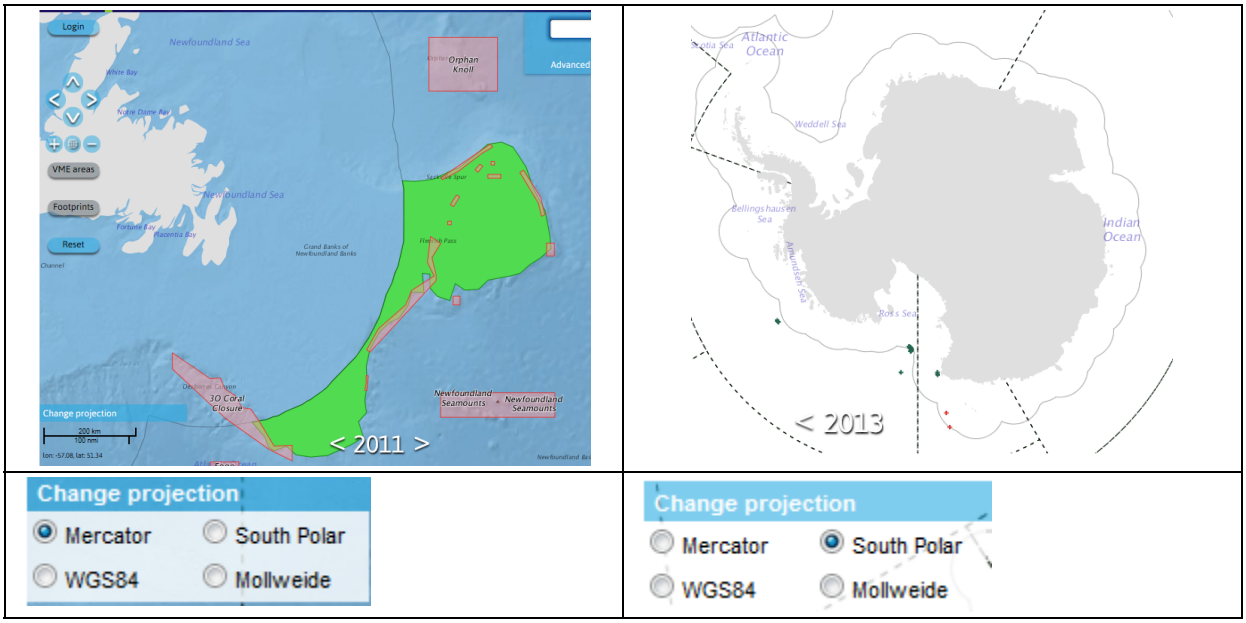
The banner at the top of the page will eventually contain a number of navigation buttons not yet present in the Beta 1.0 version. These will provide access to other areas of the Portal.



Map

The map is available in Mercator, South Polar, WGS84 and Mollweide projections.

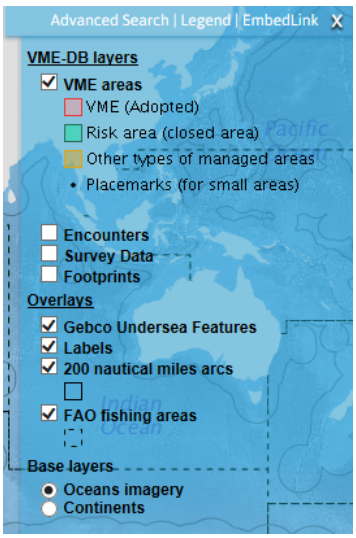
The map shows the land, sea, and various layers than can be set as on/off according to selections in the legend.



Map navigation

Navigation and zoom in the map area is controlled by the panel on the left or by dragging the map with the mouse cursor and zooming with the mouse scroll button. The map can be **Reset** to the initial opening view. **Login** is for future use if the database houses information specific to individual user groups, **VME areas** and **Footprint** are toggle switches that turn data layers on and off.

Legend



The legend is viewed upon clicking **Legend** on the top right. The drop-down overlay legend displays the layers that are visible on the map when checked. The map is refreshed after each action.

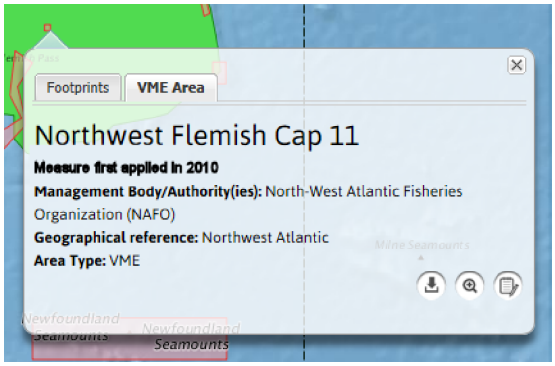
You will observe that there are check boxes for “Encounters” and “Survey data”. These are currently place holders for future expansion of functionality as required.

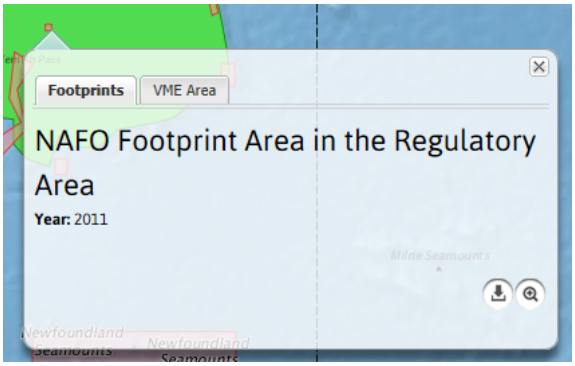
VME (and Footprint) Area

Click on a VME (or a footprint) and a pop-up showing the basic details appears. The three buttons  allow for, respectively, (1) the download of shape file, (2) zoom to area, and (3) link to factsheet view.

The footprint information can be displayed by clicking on a footprint. Factsheets for footprints will be developed in the future.

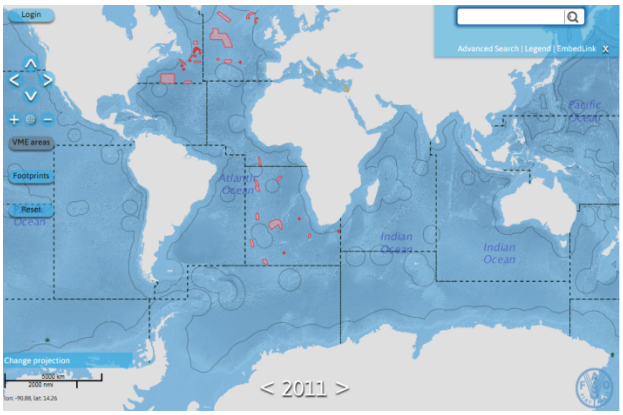
In areas of close association, the pop-up contains both types of information.





Year selector

The database runs on an annual time frame from 1 January - 31 December. At present, the database starts from 2006, which is the year that UNGA Res 61/105 was adopted. The selection of the **<YEAR>** allows for information for that year to be viewed. This applies both to the map and to any extracted factsheets. For example, if you select the years in order from 2006 to 2010, you can see the evolution of VMEs in the NW Atlantic NAFO area.

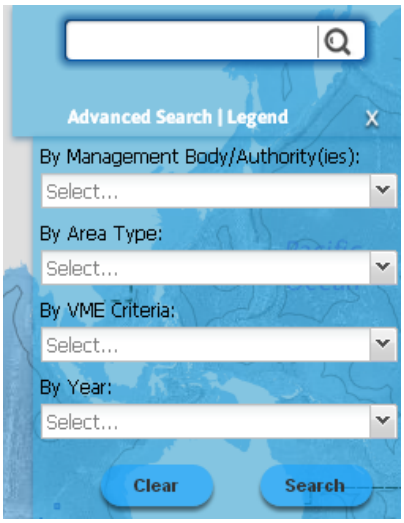


2006

2007

2011

Search and advanced search



The search (top) and advanced search (pop-up). Various options are provided.

Factsheets

The factsheets are the core of the DB and provide the information on the selected VMEs for a selected year. The factsheets are selected from the opening page by selecting the button on the right on the map pop-up or from the search results. The factsheets are essentially printable documents but displayed in a web screen format making use of tabs to control the information displayed.

The categories on each factsheet are:

Tab	Fact Sheet header
Description	VME name and basic information Habitat and Biology • Biological characteristics • Physical characteristics • Impacts
Map	Detailed map of VME area
Management	Measures specific to this VME • Measure • Period in force • Source of information General measures • Exploratory fishing protocol • Encounter protocols • Threshold • Indicator species • Source of information
Regional overview	Regional history of VMEs Development of fishing footprint
Meeting reports	Lists meeting reports by the regional body
Media	A general tab showing news and pictures of interest

Factsheet view

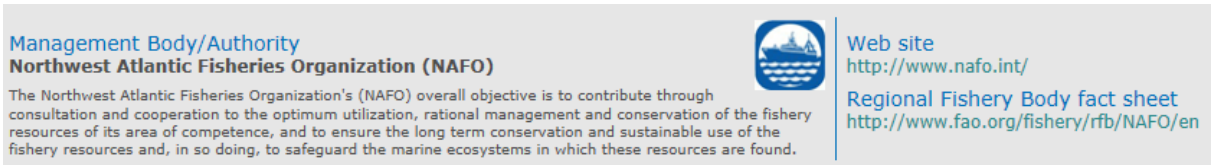
There are several elements in the factsheet view. The central pane is the factsheet with the 5 tabs controlling the information displayed. Sub-screen areas are at the top and bottom of this central pane.

Banner

The banner at the top of the page and will have the same appearence in all screen views.

Footer

Links to regional body home page and FAO factsheets on regional bodies.

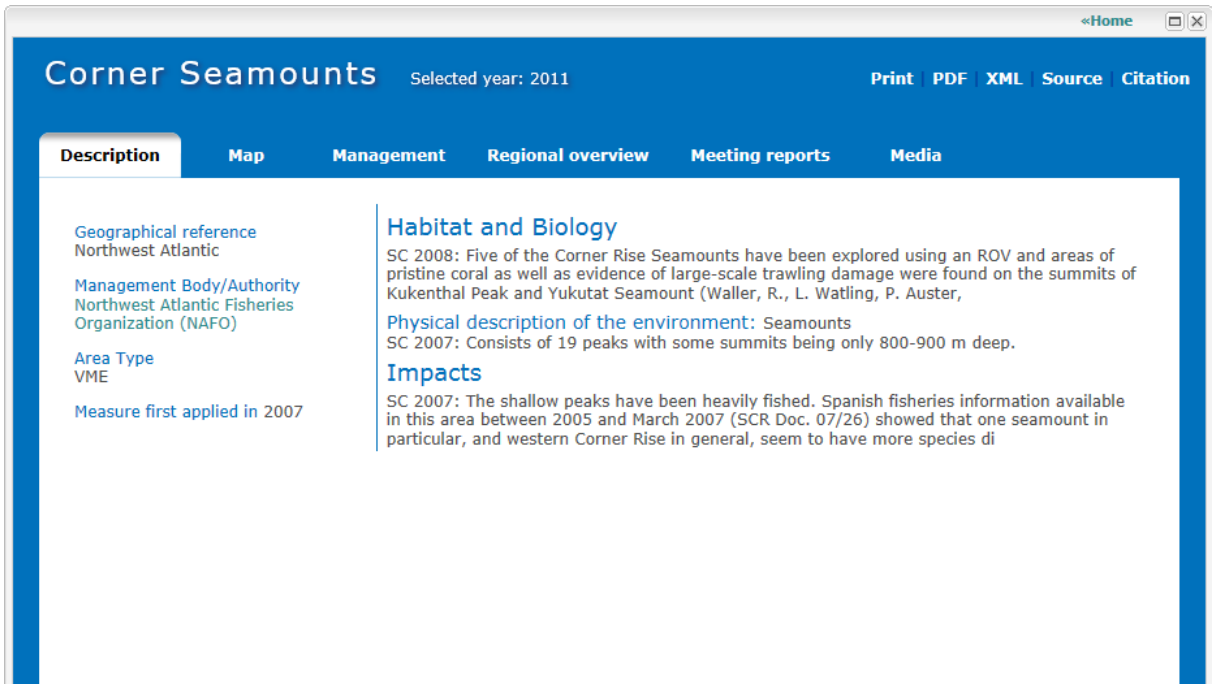


Factsheet area

The VME name is listed at the header along with the selected year and some basic functionality such as: Print,

PDF, XML, source, and citation, that control various factsheet operations.

The 6 tabs control the factsheet view.



Factsheet components

The categories on each factsheet are:

Tab	Fact Sheet header
Description	VME name and basic information Habitat and Biology ● Biological characteristics ● Physical characteristics ● Impacts
Map	Detailed map of VME area
Management	Measures specific to this VME ● Measure ● Period in force ● Source of information General measures ● Exploratory fishing protocol ● Encounter protocols ● Threshold ● Indicator species ● Source of information
Regional overview	Regional history of VMEs Development of fishing footprint
Meeting reports	Lists meeting reports by the regional body
Media	A general tab showing news and pictures of interest

Tab	Factsheet header	Description
Description	VME name and basic information	Repeats information from pop-up on entry page. Geographic reference: Intersecting FAO major fishing area and possibly also the FAO sub areas codes (e.g., 21.6G to be automatically provided by the application). Management Body/Authority(ies): The entity that implements the measures. Area Type: A list defining the type of VME in terms of management. Measure first applied: The year in which the measure was first "in force" (that to-date has typically been closures, requests for more benthic information, and a review date.
	Habitat and Biology	This describes the biology and biota present of the VME (summary text to be written for each VME)
	Physical description of the environment	Information on the physical characteristics such as profile, depth, geology, hydrology, etc as appropriate
	Impacts	History of human impacts including fishing
Map	Map	Generated by the FAO map-viewer application.
Management		The regulations are listed here as defined in the management measures. An attempt has been made to split the measures into their separate components, so as to assist users in finding information quickly. The original concept was a summary and a link to the exact measure. However, summaries of measures are difficult to write and it may be preferred to simply paste in the exact text or to link to the measure on the RFB website.
	VME-specific measures	These are measures that apply only to the selected VME. Typically this will only be the coordinates and be part of another measure. It should however be entered separately here.
	VME general measures	These measures apply typically to all VMEs under the management of a regional body. They may be in separate measures and should be referenced as such. These general measures need only be entered once per regional body per year. ● Encounter protocols [NEEDS TO BE ADDED TO FACTSHEET] ● Threshold ● Indicator species ● Exploratory fishing protocol ● Source of information

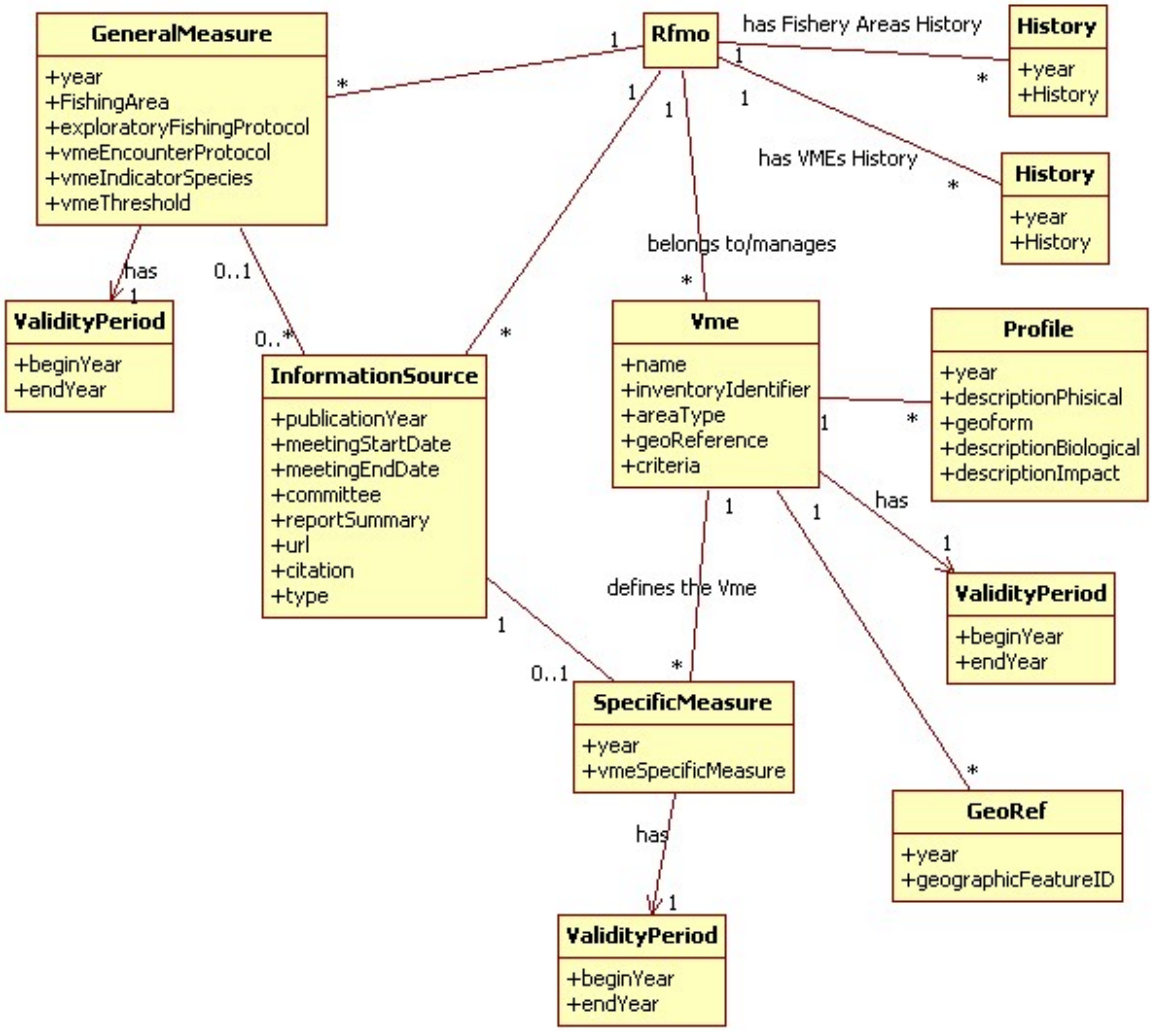
Regional overview		This is more general summary of information on the most important decisions made in the region. Care needs to be taken as to how to place the current years decisions at the beginning whilst maintaining some form of history lower down in the paragraph. Needs only to be entered once per regional body per year.
	Regional history of VMEs	The development of the VME process within the RB
	Development of fishing footprint	The development of the fishing footprint within the RB
Meetings reports		This is a list of meetings and their reports that have been held by RFB management and scientific committees (including WGs as appropriate) along with a summary of the parts of the meeting that relate to VMEs. The idea is to allow users to quickly find the relevant text in a meeting report. Enforcement measure documents can also be housed here and if desired the summary could contain the main changes made regarding VMEs so as to guide the user to quick understand and find information. The summary would need to contain specific page or article numbers so as text can be found.

DATA ENTRY

This guide serves to assist in the data input of the basic information that will populate the "core" of the FAO VME database. The VME Database Beta 1.0 version is developed in Oracle and does not yet have its own customised input forms. Input is currently via an MS ACCESS database with the information being entered on MS EXCEL worksheets. The information is mapped for input into the Oracle database. The structure of the Oracle and MS ACCESS databases are not identical. The Oracle structure is taken as the working structure and the MS ACCESS structure is a simplified version of this that is not longer used. Both are mentioned here as the MS ACCESS structure helps to understand the input workflow.

VME-UML Class Diagram

The Oracle database is based on the following UML class diagram. This is used to build the Oracle database.



The MS ACCESS database structure

As stated above, this structure was used for development but has now been superseded by the above Oracle UML class diagram. The core of the database uses published open-access information that, in the MS ACCESS

structure, falls into six categories (or Tables). This is shown diagrammatically below:

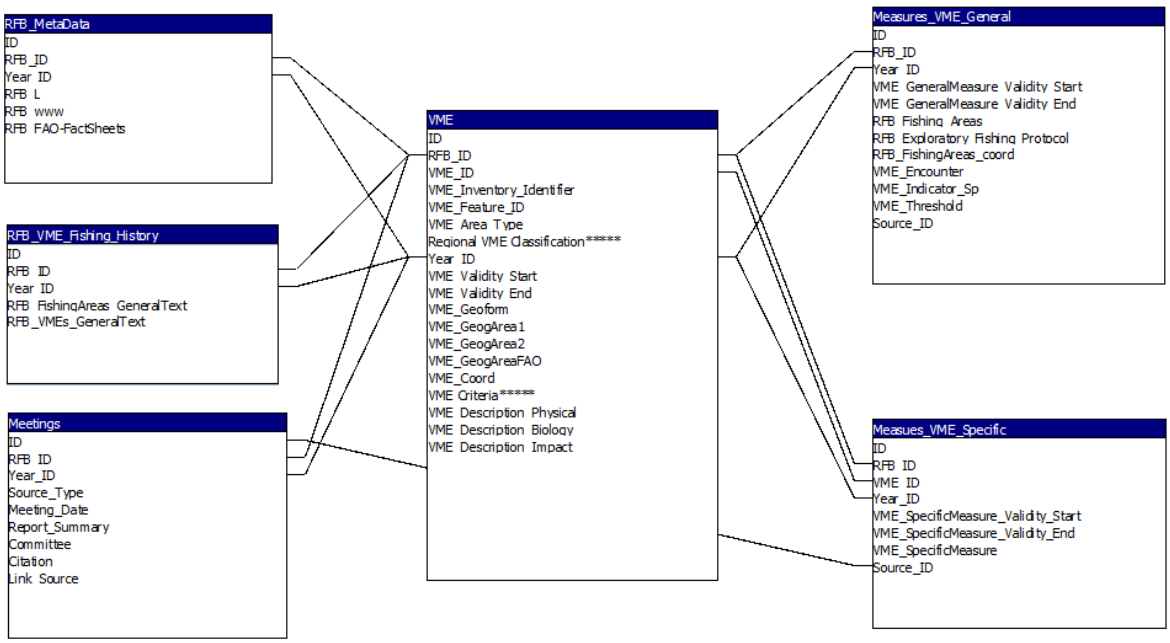


Figure: MS Access relationship diagram (note that the two field marked ***** in the VME table are in the MS EXCEL input worksheet but not actually included in the MS ACCESS (or Oracle) databases at present)

There are various fields within each of these categories as identified diagram.

Category (Table)	Summary of contents
RFB_MetaData	Information and links concerning the RFB
RFB_VME_Fishing_History	This is more general information that is a summary of the most important decisions made in the region regarding the development of the VME process and the fishing footprint within the RFB.
Meetings	Details of meetings and their reports
VME	Information on specific VMEs
Measures_VME_General	Measures applying to all VMEs and defining “bottom” fishing areas
Measures_VME_Specific	Measures specific to individual VMEs. Usually only the coordinates but can be more.

A note on “year” and “Validity Period”

Year

The database uses, in general, two type of time descriptors: one is called “YEAR” (or Year_ID) and the other is called “VALIDITY PERIOD” (e.g. VME_Validity_Start and VME_Validity_End) which has a start and end year.

The YEAR refers to the year in which information is relevant. So, for example, if we want to know about what is happening in 2011, then we need to enter information relevant to that year. This helps with teh selection of hte time scroller to recover information for a selected year.

To avoid repetition of data entry, the record does not need to be updated if the information has not changed. Upon query, the database will provide the most recent information (as long as it falls within a validity period if applicable). The following example will illustrate this. An RFB changes web address in 2010. The following data entries would be made.

Actual year or year of query	**YEAR (entered in database)**	**Web address displayed**
2008	2008	RFB.org
(2009)	No change so data not updated. The 2009 web address will be generated based on the last entered record	RFB.org
2010	Web address changed in 2010. Enter 2010 with new address.	RFB.int
(2011)	No change so data not updated. The 2010 web address will be generated based on the last entered record	RFB.int

Validity period

The VALIDITY PERIOD refers to the start and end year of an entry that applies over one or more years, like a measure for a VME closure or VME encounter protocol.. The principal use of the validity period is in the mapping interface, but it can also be used to validate the YEAR when generating records. For example, if the measures were published in 2007 for a VME that was declared as being closed for 2008-2009, and in a publication in 2009 the closure was rolled over for 2010 onwards, the following entries would apply.

Note: The Validity_Start defaults to 1 January and Validity_End defaults to 31 December. So a validity period of 2010-2010 would cover the year 2010 and the period 1 January – 31 December 2010.

Actual year or year of query	**YEAR**	**VALIDITY START**	**VALIDITY END**	**VME closure dates given in measures upon query**
2007	2007	2008	2009	
(2008)	NO UPDATE No change so data not updated. The 2008 Factsheet will be generated based on the last entered record			2008-2009
2009	2009 The 2009 Factsheet will be generated based on the last entered record. The new measure is entered with new validation dates	2010	9999	2008-2009
(2010)	NO UPDATE Note that **no** 2010 data would be generated from the 2007 input as it falls outside of the validity period. However, in this case there is a new entry for 2010 arising from a roll-over measure made in 2009, so this is entered as shown below. Note that the original validity start date is used as there has been no change to the boundary in this roll-over measure.			2010 – (no date given)
(2011)	NO UPDATE No change so data not updated. The 2011 Factsheet will be generated based on the last entered record			2010 – (no date given)

A note on partial years

For most times or often, the measures are in force from the beginning of a year (1 January) or the end of a year (31 December). In some cases measures start or end during the year, and this would be reflected in the text given in the measures areas of the VME database output. However, the times used by the database are full years. In this case (and subject to revision if this is not appropriate), the enforcement of a measure for part of a year will be displayed as if it had been for the whole year. Thus a closure from 1 August 2008 to 31 July 2010 would have a validity period of 2008-2010. The details of the actual dates are shown in the measures area.

A note on "Information sources"

It is the intention to provide links to information sources for information provided in the database. Unpublished information should be avoided, but if desirable can be listed as *pers. com.* or compiled from *Scientific Council reports*, etc. In this database this will mainly be to RFB meeting reports and RFB measures. The reason for this is that these sources are invariably difficult to find and can be easily made during routine data entry. It is hoped that these links will add considerably to the use and functionality of the database. At present, and judging from feedback received, this is best achieved through a page or article reference in the text, and then a link to the whole pdf. We will explore possibilities further with partners.

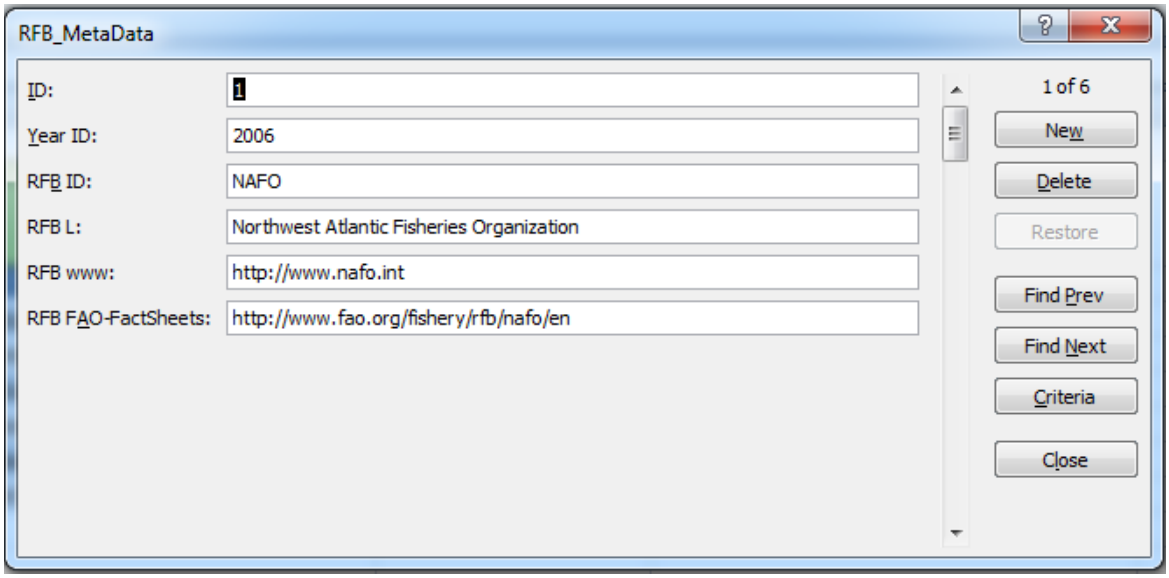
Journal articles may be referenced in the text (particularly for the physical, biological and impact descriptions of the VMEs, but should be given in sufficient detail so the reader can find them. At present, these references will not be stored in the database, and the VME database does not aim to be a literature database. Bibliographic databases should be used for this.

Input Frequency

Table	Input Frequency (approx)	First year of input (hours per year)	Subsequent input (hours per year)
RFB_MetaData	Once every 5 years	1	0.1
RFB_VME_Regional_History	Once every 2 years	3	1
VME	Once every year	14	3
Measures_VME_General	Once per year	2	2
Measures_VME_Specific	Once per year	1	1
Meetings	Say 3 times per year	3	3
TOTAL INPUT PER YEAR		24 (= 3 days)	10.1 (= 1+ days)

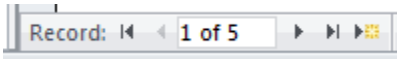
A note on "Input forms"

Input in this Beta version is via an MS EXCEL form.

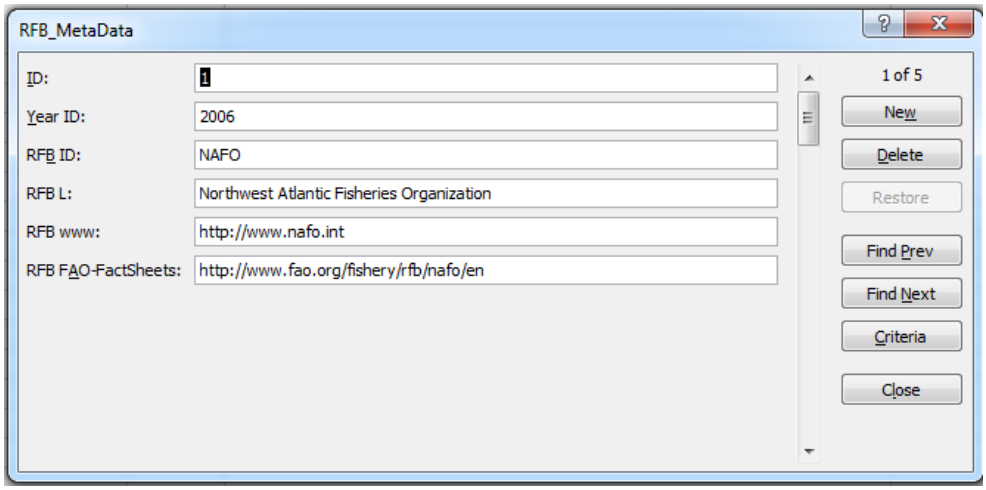


The input form shows the fields (ID, Year_ID, RFB_ID, etc) and the boxes where data is entered. The above form shows an example from one record. The data entries in this example "RFB_MetaData" Table, are organised into records, with each record containing a number of fields, here shown on the left hand side.

The records can be viewed using the slider at the bottom of the page:



Here there are five records that can be viewed containing previously entered data. A new blank record ready to receive new information is displayed when the end of the slider  is selected, as shown in the form below. Data can be entered and accepted as long as it corresponds to the data type of the field.

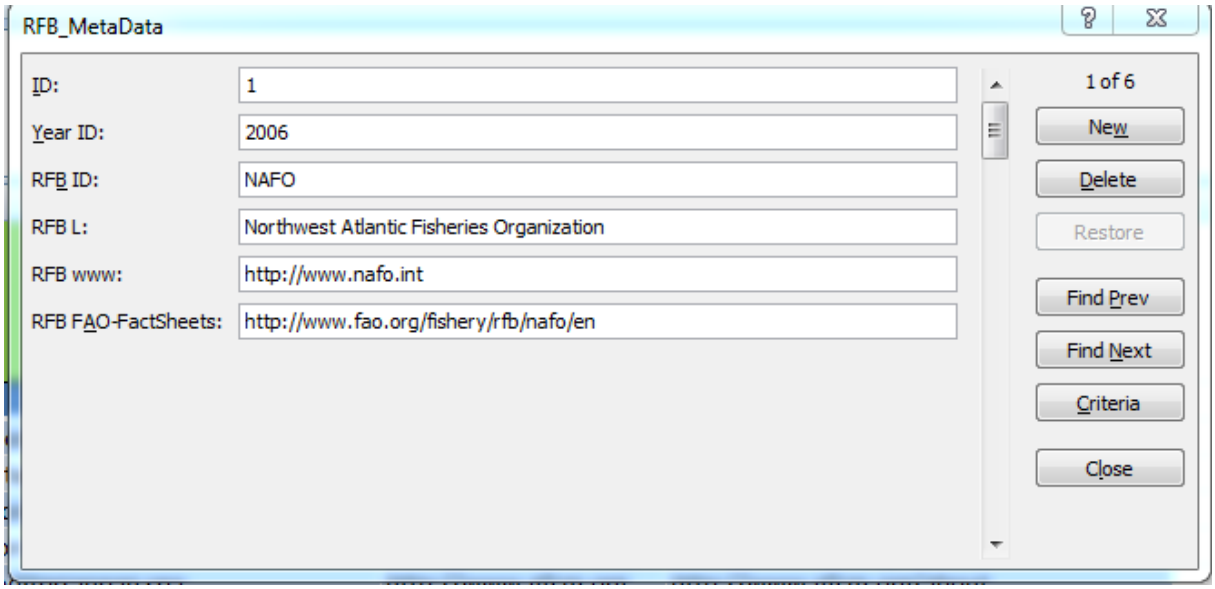


Input -RFB_Metadata

Table

Label (Field name)	Type	Description	Example of information entered.
ID	Integer	Record number	1
Year_ID	Integer	Year of new or published information (enter 2006 if no updates)	2006
RFB_ID	Text	Acronym of management body	NAFO
RFB_L	Text	Full title of management body	Northwest Atlantic Fisheries Organization
RFB_www	URL	URL of management body homepage	http://www.nafo.int
RFB_FAO-FactSheets	URL	URL of FAO RFB page	http://www.fao.org/fishery/rfb/nafo/en

Input Form



Input – RFB_VME_Regional_history

Table

A general summary within RFB: DSF "Bottom fishing areas," and VMEs

This will provide an overview of DSFs and VMEs within the region. The style may be like:

Label (Field name)	Type	Description	Example of information entered.
ID	Integer	Auto-generated record number	1
RFB_ID	Text (list)	Acronym of management body	NAFO
Year_ID	Integer	Year of new or published information	2006
RFB_FishingAreas_GeneralText	Text	Summary Bottom Fishing areas development in RFB	see below for two examples
RFB_VMEs_GeneralText	Text	Summary of VME process development within RFB	see below for two examples

Example of "RFB_VMEs_GeneralText":

NAFO

NAFO started developing in protocols for protecting vulnerable marine ecosystems from possible significant adverse impacts resulting for the use of bottom contact fishing gears in the NRA in 2006. Initially, four seamount areas were closed as a precautionary measure and a request made for contracting parties to submit their benthic survey data. SC established WGEAFM and also worked jointly with ICES WGDEC to provide advice to FC. Extensive data sets from Canadian Government fisheries surveys were used to provide initial distributions of corals and sponges and these were later supplemented by dedicated Canadian and Spanish NERIDA project cruises in 2008-2010. Early fishing and benthic surveys undertaken in the 1970s by Russia provided much of the historical seamount information. NAFO has a total of 18 areas that delimit the most significant areas of corals and sponges in the NRA and are closed to fishing with bottom contact fishing gears. There are now a total of 18 closed areas within the NRA providing protection to vulnerable marine ecosystems on seamounts, slopes and canyons (CEM 2012 Art 16 *http://archive.nafo.int/open/fc/2012/fcdoc12-01.pdf*

OR

NAFO

2010: The VME closed areas were revised with some areas made open to fishing, some areas having boundary changes, and some new areas closed along the MAR [CM 18/10 *http://www.seafo.org/ConservationMeasures/2009%20conservation%20measures/CM%2018-10%20CLOSED*

%20AREAS.pdf
2009: Coral and Sponge key adopted.
2008: Protcols for encounters and reporting of VME indicator species in existing and new fishing areas, and thresholds adopted [Annex 3 CM 12/08 http://www.seafo.org/TheCommission/Reports/Commission%20Report%20Eng%202008.pdf
2007: Benthic mapping for VMEs required prior to opning of any fishery in a closed area [CM 11/07 http://www.seafo.org/TheCommission/Reports/4th%20Annual%20Commission%20Report%202007.pdf
2006: 10 areas closed to fishing 2007-2010 to protect VMEs [CM 06/06 http://www.seafo.org/TheCommission/Reports/3rd%20Annual%20Commission%20Report%202006.pdf

Example of RFB_FishingAreas_GeneralText

NAFO

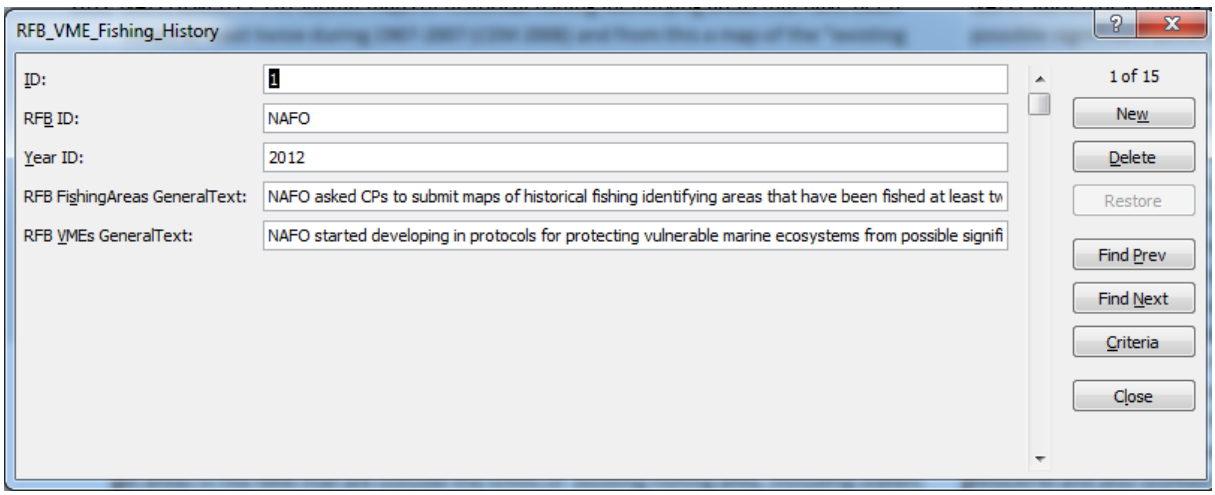
NAFO asked CPs to submit maps of historical fishing identifying areas that have been fished at least twice during 1987-2007 (CEM 2008 Art 1bis http://archive.nafo.int/open/fc/2008/fcdoc08-01.pdf) and from this a map of the "existing bottom fishing areas" in the NRA was produced that covers most of the Grand Bank and Flemish Cap east of the EEZ boundary (CEM 2011 Art 2bis http). It has not since been modified (CEM 2012 Art 17 http). "New bottom fishing areas" are defined as areas in the NRA that are outside the limits of existing fishing area, including waters deeper than 2000 metres (CEM 2008 Art 1.4 http://archive -2011 Art 1bis.4 http), though this qualifier was removed in 2012 (CEM 2012 Art 15.4 http://archive). Closures to protect VMEs can be in either existing or new bottom fishing areas. Spatial or seasonal closures to protect commercial fish stocks are within the existing bottom fishing area.

OR

SEAFO

2011: New CM Bottom Fishing Activities drafted and fishing footprint adopted [CM 22-11].
2010: The development of the fishing footprint proceeded using data from EU and Namibian that was in the required format.
2009: Further submissions of historical fishing activities required [Commission 2009 report, http p. 5]
2008: Bottom fishing activities defined in "existing" and "new" and CPs asked to submit historical fishing activities. [CM 12/08 http p.39].
2007: Protocol on the resumption of fishing in closed areas adopted that requires impact on sustainability of the fisheries resource and impact to VMEs to be identified [CM 11/07, http p.45].
2006: Interim measures adopted for vessel documentation, catch and effort reporting, VMS, observer programmes and the beginnings of a non-CP vessel register. [CM 07/06, http, p.45].
2005: SEAFO introduced VMS for fishing vessels [CM 01/05] with the intention of a closer monitoring and understanding of the fisheries in its Convention Area.

Input Form



Input - VME

Table

Label (Field name)	Type	Description	Example of information entered
ID	Integer	Add the next number in the series	1
RFB_ID	Text (list)	Acronym of management body	NAFO
VME_ID	Text (list??)	Name of VME in measures (or proxy name if not named in measures)	Fogo Seamounts 1
VME_Inventory_Identifier	Text	Internal identifiers to be compiled by FAO	VME_NAFO_1
VME_Feature_ID	Text	Internal identifiers to be compiled by FAO	VME_NAFO_1_2009
VME_Area_Type	Text (List)	The designation of the VME	VME, Risk area, , Other type of closed/restricted area
Regional_VME_Classification**** * [NOT CURRENTLY IN DATABASE BUT IN DATA ENTRY FORMS]	Text	Regional classification for VME - This is the classification given by the RB and usually groups under this title in the measures	NAFO 2013 currently uses "Seamount, Coral and Sponge Protection Zone" for its areas closed to protect benthic habitats.
Year_ID	Integer	Year in which measure is applicable	2012
VME_Validity_Start	Integer	The first year of the measure (closure) – backdates to original measure if just roll-overs	2008
VME_Validity_End	Integer	The last year of the measure (closure) 9999 if no end year)	9999
VME_Geoform	Text (list)	The geographical feature	Seamounts
VME_GeogArea1	Text	FAO Major fishing area	Northwest Atlantic
VME_GeogArea2	Text	Name or description of location	South of Grand Bank
VME_GeogAreaFAO	Text	FAO area (to finest level possible)	21.3O
VME_Coord	Text	Coordinates. Entered by FAO.	42.5222 -52.6138, 42.5222 -51.4438, 41.9247 -52.6138, 41.9247 -51.4438
VME_Criteria***** [NOT CURRENTLY IN DATABASE BUT IN DATA ENTRY FORMS]	Text	The criteria used to designate the VME in FAO guidelines Section 5.2 Para 42. These are i. Uniqueness or rarity, ii. Functional significance of the habitat, iii. Fragility, iv. Life-history traits, and v. Structural complexity	Functional significance of the habitat
VME_Description_Physical	Text	This describes the VME. Information on the physical characteristics such as profile, depth, geology, hydrology, etc as appropriate.	See below
VME_Description_Biology	Text	This describes the VME. Descriptions of the biota present from surveys[1]	See below
VME_Description_Impact	Text	This describes the VME. History of human impacts including fishing[2]	See below

Example of VME_Descriptions

This is an overview of an individual VME

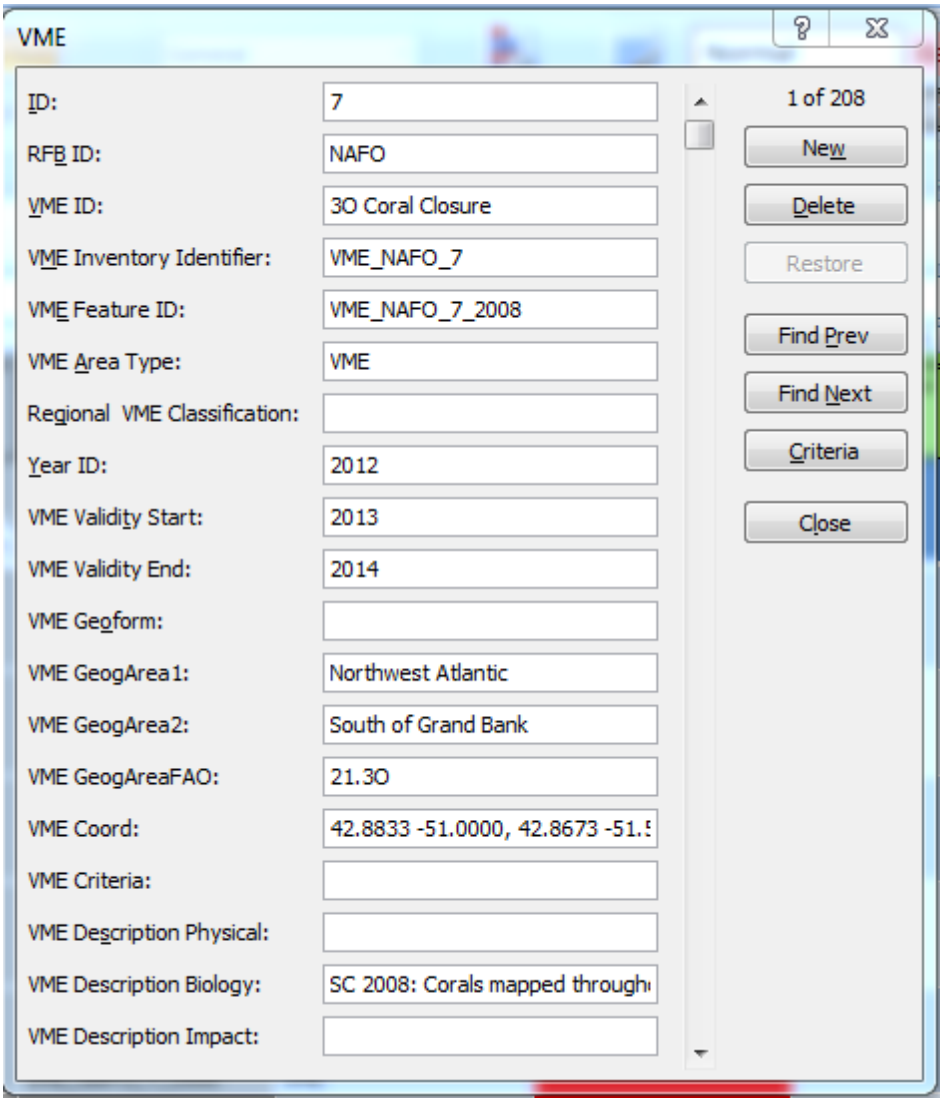
Physical: SC 2007: Consists of 19 peaks with some summits being only 800-900 m deep.

[1] References self contained without links.
[2] References self contained without links.

Biological: SC 2008: Five of the Corner Rise Seamounts have been explored using an ROV and areas of pristine coral as well as evidence of large-scale trawling damage were found on the summits of Kukenthal Peak and Yukutat Seamount (Waller, R., L. Watling, P. Auster, and T. Shank. 2007. Anthropogenic impacts on the Corner Rise seamounts, North-west Atlantic Ocean. J. Mar. Biol. Ass. UK, 87: 1075-1076.), both of which are within the NAFO closed area covering the Corner Rise Seamount complex. SC 2007: Information was available which suggested fishing on the Corner Seamounts had encountered hard corals, that fixed gear (e.g. Pots) had been used in some areas and was likely lost due to entanglement in corals, although exact locations were not available.

Impacts: SC 2007: The shallow peaks have been heavily fished. Spanish fisheries information available in this area between 2005 and March 2007 (SCR Doc. 07/26) showed that one seamount in particular, and western Corner Rise in general, seems to have more species diversity. There was a Russian fishery in the 1970s. A Canadian fishing company undertook exploratory fishing on the Corner Rising Seamounts to ascertain the viability of an orange roughy fishery in the spring 1995. (NAFO SCR 7/61).

Input Form



Input - Measures_VME_General

Table

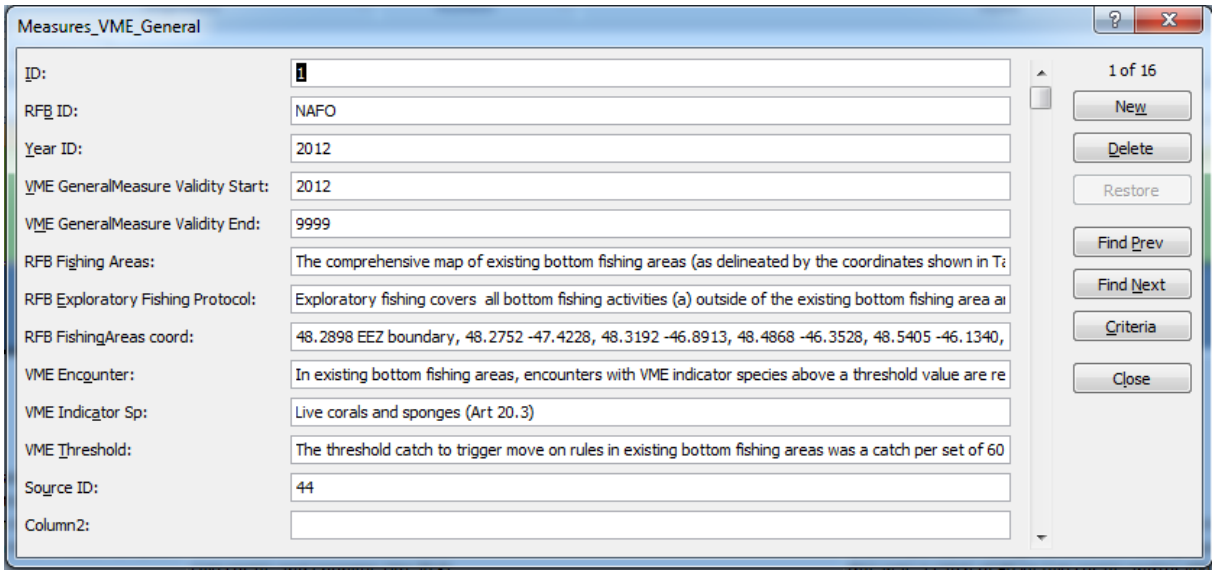
RFB measures for VMEs can be divided into two types – General and specific, so the distinction is not always apparent as they tend to occur within the same measure at times depending on the RFB. In this database, there is an attempt to separate them. General measures are: VME encounter protocol, Exploratory fishing protocol, VME indicator species/taxa, VME encounter thresholds. Specific measures relate to the specific VME searched, and typically consist of coordinates. VME measures, source and link to tagged measures document. It is difficult, undesirable to summarise this and so it will be either copied text or link to the source document.

Label (Field name)	Type	Description	Example of information entered
ID	Integer	Add the next number in the series	1
RFB_ID	Text (list)	Acronym of management body	NAFO
Year_ID	Integer	Year in which measure is applicable	2012
VME_GeneralMeasure_Validity_Start	Integer	First year measure in force – backdates to original measure if just roll-overs	2012
VME_GeneralMeasure_Validity_End	Integer	Last year measure in force 9999 if no end year	9999
RFB_Fishing_Areas	Text	Defining existing and new fishing areas, etc. Copy or summary from measures (with article/paragraph no.)	Article 15[3] - Purpose and definitions. 3. The term "existing bottom fishing areas" means that portion of the Regulatory Area where bottom fishing has historically occurred and is defined by the coordinates shown in Table 1 and illustrated in Figure 4. 4. The term "new bottom fishing areas" means all other areas within the Regulatory Area which are not defined as existing bottom fishing areas. Article 17 - Map of existing bottom fishing areas (footprint). The comprehensive map of existing bottom fishing areas (as delineated by the coordinates shown in Table 1 and illustrated in Figure 4) shall be revised regularly to incorporate any new relevant information. Contracting Parties may, in the future, consider the possibility of refining the comprehensive map on the basis of haul by haul information, if available.
RFB_Exploratory_Fishing_Protocol	Text	The exploratory fishing protocol. Copy or summary from measures (with article/paragraph no.).	Exploratory fishing covers all bottom fishing activities (a) outside of the existing bottom fishing area and (b) to fisheries within the existing bottom fishing area that show significant change. (Art 15.8). Exploratory fisheries must be conducted according to exploratory fishing protocol.
RFB_FishingAreas_coord	Text	Coordinates entered ina standard format by FAO	48.2898 EEZ boundary, 48.2752 -47.4228, 48.3192 -46.8913, 48.4868 -46.3528, 48.5405 -46.1340, 48.8017 -45.6265, 48.9923 -45.2910, 49.0367 -44.8862, 48.9410 -44.5530, 48.5588 -44.1708, 48.1382 -43.9547, 47.7000 -43.6073, 47.2073 -43.4727, 46.9523 -43.4358,
VME_Encounter	Text	Encounter protocol. Copy or summary from measures (with article/paragraph no.).	In existing bottom fishing areas, encounters with VME indicator species above a threshold value are reported to the Executive Secretary and trigger a 2 nmile move on rule. In new fishing areas, such encounters also result in temporary closures of 2 nmile
VME_Indicator_Sp	Text	Indicator taxa and/or species.	Live corals and sponges (Art 20.3)

[3] The article number provides the source of the information to the measures of the CEM of the same year.

		Copy or summary from measures (with article/paragraph no.).	
VME_Threshold	Text	Threshold values. Copy or summary from measures (with article/paragraph no.).	The threshold catch to trigger move on rules in existing bottom fishing areas was a catch per set of 60 kg live corals or 600 kg sponges. In new bottom fishing areas this was a catch of 60 kg live corals and/or 400 kg sponges. (Art 20.3)
Source_ID	Text	ID from the Meeting table where measure was adopted (To relate one specific measure to one or many meeting reports)	44

Input Form



Input - Measures_VME_Specific

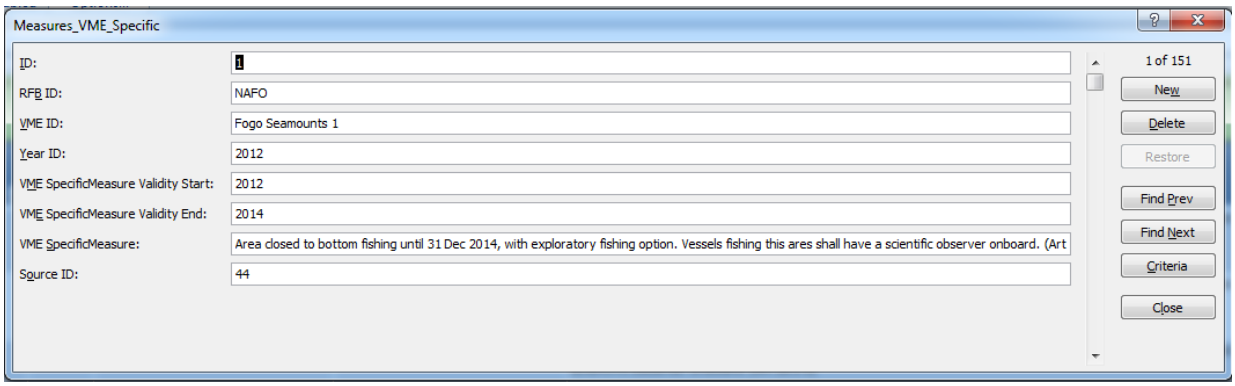
Table

RFB information: Basic information on RFB/State.

Label (Field name)	**Type**	**Description**	**Example of information entered**
ID	Integer	Add the next number in the series	1
RFB_ID	Text (list)	Acronym of management body	NAFO
VME_ID	Text (list??)	Name of VME in measures (or proxy name if not named in measures)	Fogo Seamounts 1
Year_ID	Integer	Year in which measure is applicable	2012
VME_SpecificMeasure_Validity_Start	Integer	First year measure in force – backdates to original measure if just roll-overs	2012
VME_SpecificMeasure_Validity_End	Integer	Last year measure in force 9999 if no end year	2014
VME_SpecificMeasure	Text	Specific measure applying to VME. Copy or summary from measures that relate only to	Article 16 - Seamount, Coral, and Sponge Protection Zones

		specific VME (often just coordinates with a little text) (with article/paragraph no.)	1. Until December 31, 2014, no vessel shall engage in bottom fishing activities in the areas defined by connecting the following coordinates (in numerical order and back to coordinate 1). Fogo Seamounts 1 42°31'33"N 53°23'17"W; 42°31'33"N 52°33'37"W; 41°55'48"N 53°23'17"W; 41°55'48"N 52°33'37"W 2. A request to conduct exploratory bottom contact fishing, in the areas defined by paragraph 1, shall be in accordance with the Exploratory Protocol for New Fishing Areas (Annex I.E). In addition to the protocol, vessels fishing in the areas defined in paragraph 1 shall have a scientific observer onboard. 3. If vessels fishing in the areas defined in paragraph 1 encounter a VME indicator species, as defined in Article 20.3, interim encounter provisions as set out in Article 20.2 will apply.
Source_ID	Integer	ID from the Meeting table where measure was adopted (To relate one specific measure to one or many meeting reports)	1

Input Form



Input - Meetings

This includes primarily RFB Commission and Scientific meeting reports, but also published measures and other documents if relevant. This section is not intended to be a bibliography, and so citations to referenced scientific document should be included within the text (in a minimal form).

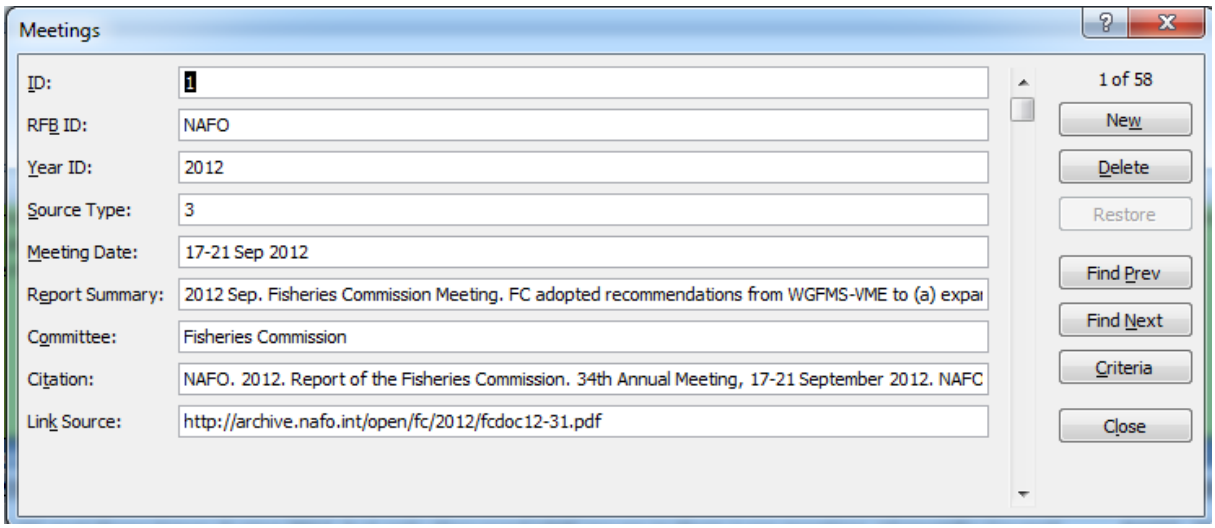
Table

Label (Field name)	Type	Description	Example of information entered
ID	Integer	Add the next number in the series	1
RFB_ID	Text (list)	Acronym of management body	NAFO
Year_ID	Integer	Year in which meeting was held (or measure adopted).	2012
Source_Type	Integer	A numeric value coding for (1) measures, (2) others, and (3) reports	1
Meeting_Date	Text	Date of meeting in text format dd-dd mmm	17 – 21 Sep 2012

		yyyy	
Report_Summary	Text (memo)	Summary written by inputter of all the reference to VMEs made in the text with associated agenda/para/page number as needed to find the source text. The summary is intended to be little more than a header and just sufficient to find the full text in the report.	The recording and reporting of VME indicator species below threshold levels by observers is a policy issue (Para. 5) SC Chair presented the responses and advice on the VME-related topics of *VME Indicator Species and Elements, GIS modelling of sponge encounters, Encounter thresholds and move on rules, Mapping of VME indicator species and elements, and Work plan for re-assessment of VMEs*. The VME advice was utilized by the FC Working Group of Fishery Managers and Scientists on VME (Para 8.4). FC adopted recommendations from WGFMS-VME to (a) expand the list of VME Indicator Species and Elements, (b) clarify exploratory bottom fishing activities, (c) strengthen the assessment of bottom fishing activities. (Para 15 and Annex 12)
Committee	Text	Committee	Fisheries Commission
Citation	Text	Reference citation	NAFO. 2012. Report of the Fisheries Commission. 34th Annual Meeting, 17-21 September 2012. NAFO/FC Doc. 12/31. 123 pp.
Link_Source	URL	URL to document	http://archive.nafo.int/open/fc/2012/fcdoc12-31.pdf

This table provides a brief summary of discussions on VME or VME related issues that occurred during a meeting of the RFB Management or Scientific Committees. It can be extended to include working groups as required. This is not currently linked to specific VMEs.

Input Form



DATA ENTRY PLAN

Step 1 – RFB_VME_Regional_Histories

There are regional histories that are descriptive texts that summarise the history and development within the region. If possible the total length of the text should not exceed 250 words - these are intended to be summaries. They should include information up to the current year (not just for the current year). They can be updated as required, but need not change every year.

Draft these first before entering data into the database.

RFB Fishing Areas General text

Draft information on the development of the fishing footprint. Ideally, this can be done as a time series showing the development over the years and so would represent separate texts for each year in which progress was made. Maximum length around 100 words is ideal.

RFB VMEs General text

This is a history of the development of VMEs in the region. Ideally, this can be done as a time series showing the development over the years and so would represent separate texts for each year in which progress was made. Maximum length around 100 words is ideal.

Step 2 – Descriptions of VMEs

These are individual descriptions of the physical and biological characteristics of each VME and any known human impacts (normally fisheries but could be something else) that have occurred on that VME. Recommended max length per description say 100 words.

Step 3 - Meeting reports

Using the fisheries commission and scientific commission meeting reports held in a particular year, write very brief summaries of any sections that refer to VME issues (including the fishing footprint). At the end of each statement, as appropriate, refer to a section or paragraph number, so readers can find the full text. The summaries should not describe information in detail, but be sufficient so a user can be directed to the appropriate part of the report via the link provided.

Step 4 – Measures

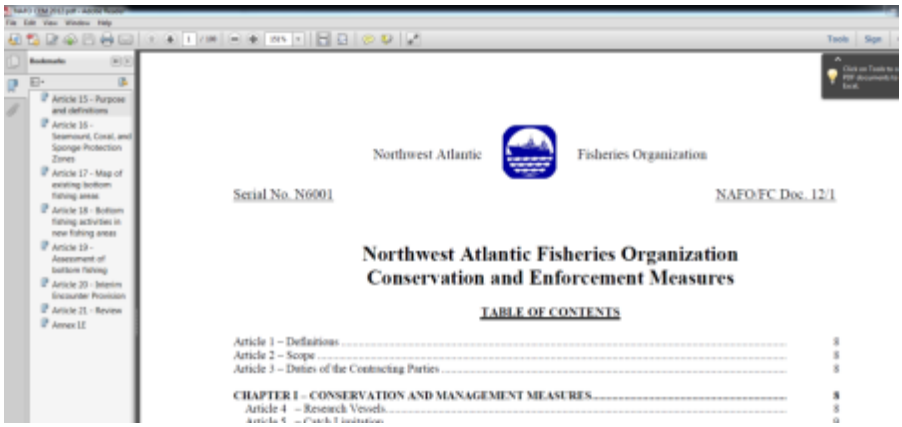
Identify the general and specific measures for each year and draft or copy text that will be entered under each of the headings.

REPORTS, BOOKMARKING, AND LINKING

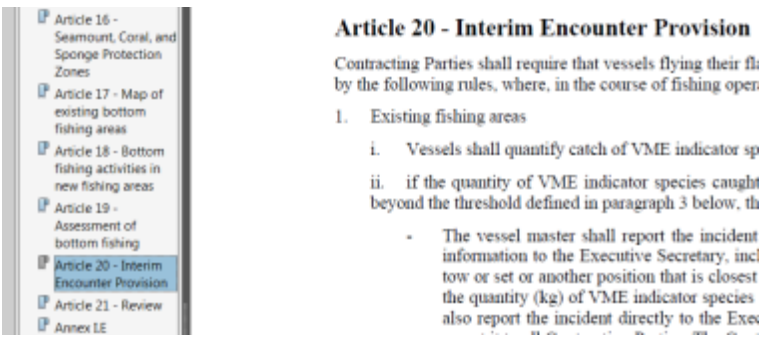
At present, this is not a preferred option owing to the need to have a bookmarked pdf that would probably be stored within the database.

There are likely a number of ways that linking could be achieved, but it appears that there is an intermediate method using bookmarking in pdf files that could be ideal. The pdf documents could be bookmarked at the same time as undertaking the data entry. Bookmarks can only be added using Adobe Acrobat Pro but can be seen and used in Adobe Reader.

Below is an example of a bookmarked pdf from NAFO CM 2012.



The reference in the above box (2012:Art 20.1-2) can quickly be found by clicking on the bookmark in the left navigation panel.



There may be advantages in using this simple bookmark method compared to a more complex direct linking.

1. It keeps the number of links between the database and the document to a minimum.

1. It can be undertaken by the data inputter at the time of data entry and, if done at this time, takes virtually no time at all.

2. Since it is undertaken by the inputter, the reference name can be made the same as the bookmark name – which is very important otherwise you would not find it!

3. The use of reports keeps the text in the database to a minimum.

4. The use of reports allows the user to quickly go to the original source text.

5. It would allow the bookmarked pdf to be housed at the same location as the database. If distributed on

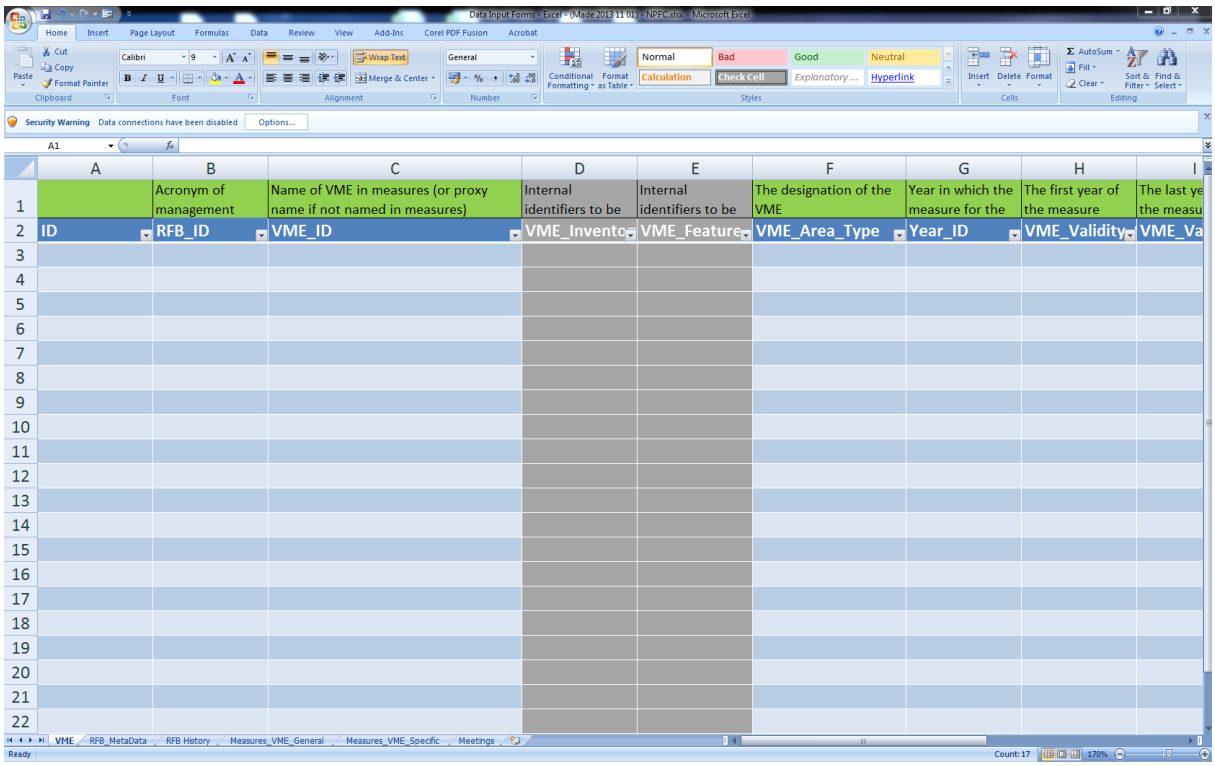
disk, it would allow for a users to have a complete set of reports that can be accessed directly (assuming that any copyright issues are satisfied).

6. It would be advisable for any user to check the document on the host (RFB) website to ensure that no changes or errata have been made.

INPUT THROUGH EXCEL

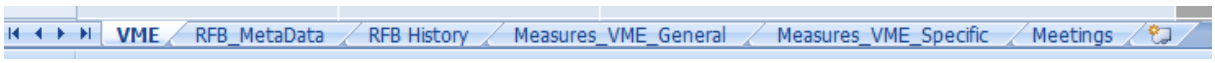
Information can be entered into the VME database in a number of ways. This is then mapped to the Oracle database. Input can be undertaken via an MS Excel interface and by an MS Access interface; both look very similar. Both have their advantages, but we recommend using an MS Excel interface manly because more users have and are familiar with this programme. This section describes the ways to input information using MS Excel.

Template

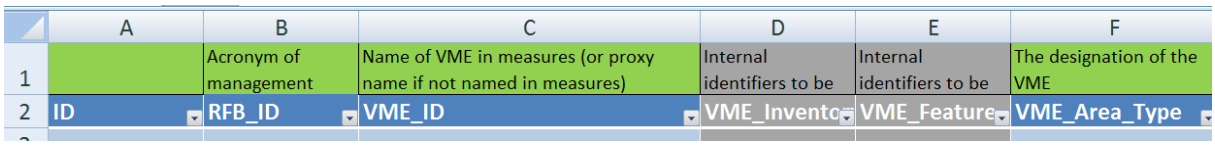


A file has been developed to assist you with input. This has a number of features you should be aware of:

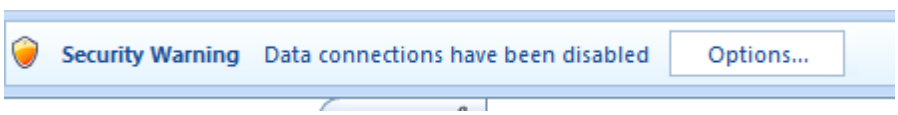
1. The file has six worksheets, that correspond with the main areas of data entry.



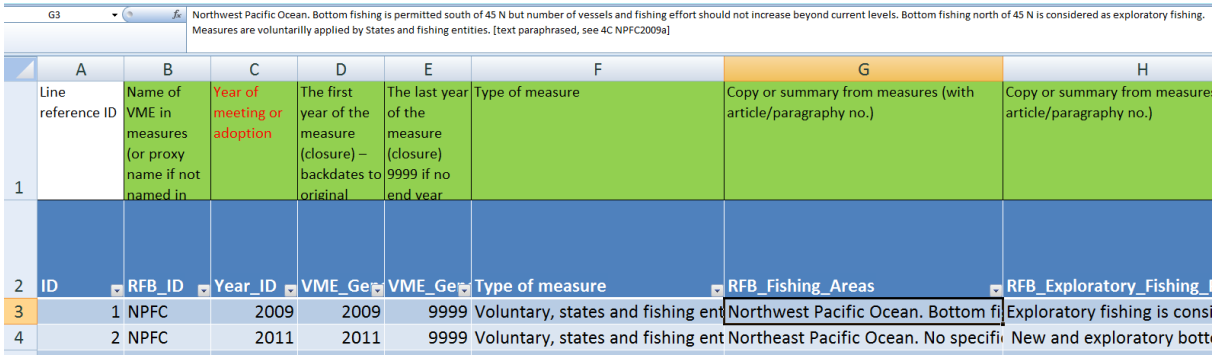
2. Each worksheet has a description of the field in row 1 (green) and the field names (dark blue). Areas in grey are to be left blank for data entry by FAO.



3. A security warning appears because of the way in which the worksheets were made using MS Access. Click on options and press OK. The unknown content (links) are not needed.

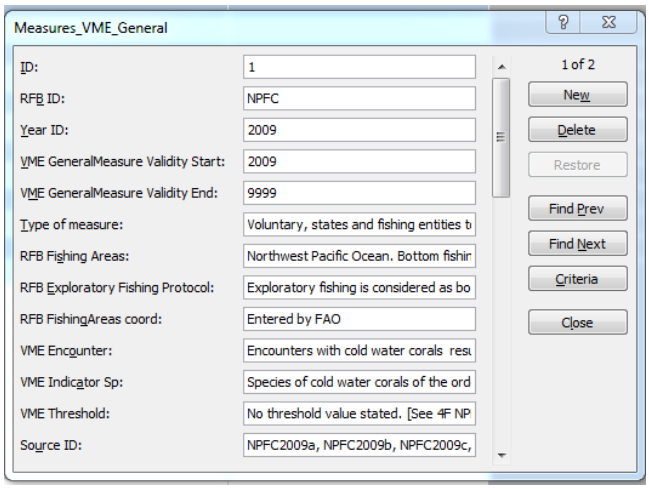


4. Data entry can be directly into the worksheet. This is made easier if the window in the formulae bar is enlarged using the mouse so longer text strings can be seen.

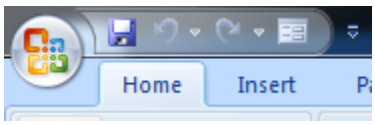


	A	B	C	D	E	F	G	H
1	Line reference ID	Name of VME in measures (or proxy name if not named in	Year of meeting or adoption	The first year of the measure (closure) – backdates to original	The last year of the measure (closure) 9999 if no end year	Type of measure	Copy or summary from measures (with article/paragraphy no.)	Copy or summary from measure article/paragraphy no.)
2	ID	RFB_ID	Year_ID	VME_Ge	VME_Ge	Type of measure	RFB_Fishing_Areas	RFB_Exploratory_Fishing_
3	1	NPFC	2009	2009	9999	Voluntary, states and fishing ent	Northwest Pacific Ocean. Bottom fi	Exploratory fishing is consi
4	2	NPFC	2011	2011	9999	Voluntary, states and fishing ent	Northeast Pacific Ocean. No specifi	New and exploratory bott

5. The worksheet is displayed in its normal format displaying rows and columns. This is ideal for entering numbering and short text strings, but less ideal for long text strings. There is an option to use a "form" style input, according to the preference of the inputter. These can be further customised if needed.



6. The "forms" option is not loaded by default. It must be installed. It is activated by clicking on the "form" button  on the "quick access toolbar" at the top left of the screen.



7. The "form" option is loaded by the following instructions that work for both MS Excel 2007 and MS Excel 2010.

1. Click on down arrow at the end of the Quick Access Toolbar to open the drop down menu.

2. Choose *More Commands* from the list to open the Customize the Quick Access Toolbar dialog box.

3. Click on down arrow at the end of the *Choose commands from* line to open the drop down menu.

4. Choose *All Commands* from the list to see all the commands available in Excel 2007 in the left hand pane.

5. Scroll through this alphabetical list to find the *Form* command.

6. Click on *Add* button between the command panes to add the Form command to the Quick Access Toolbar.

7. Click OK.

8. The Form button should now be added to the Quick Access Toolbar