EBM Tools webinar 25 Feb 2014

Monitoring and evaluation of spatially managed marine areas

MESMA
Monitoring and Evaluation of Spatially Managed Areas

Part 1: Background MSP
Part 2. MESMA project and results
Part 3. Demo MSP evaluation tool

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Part 1: Background

Marine Spatial Planning

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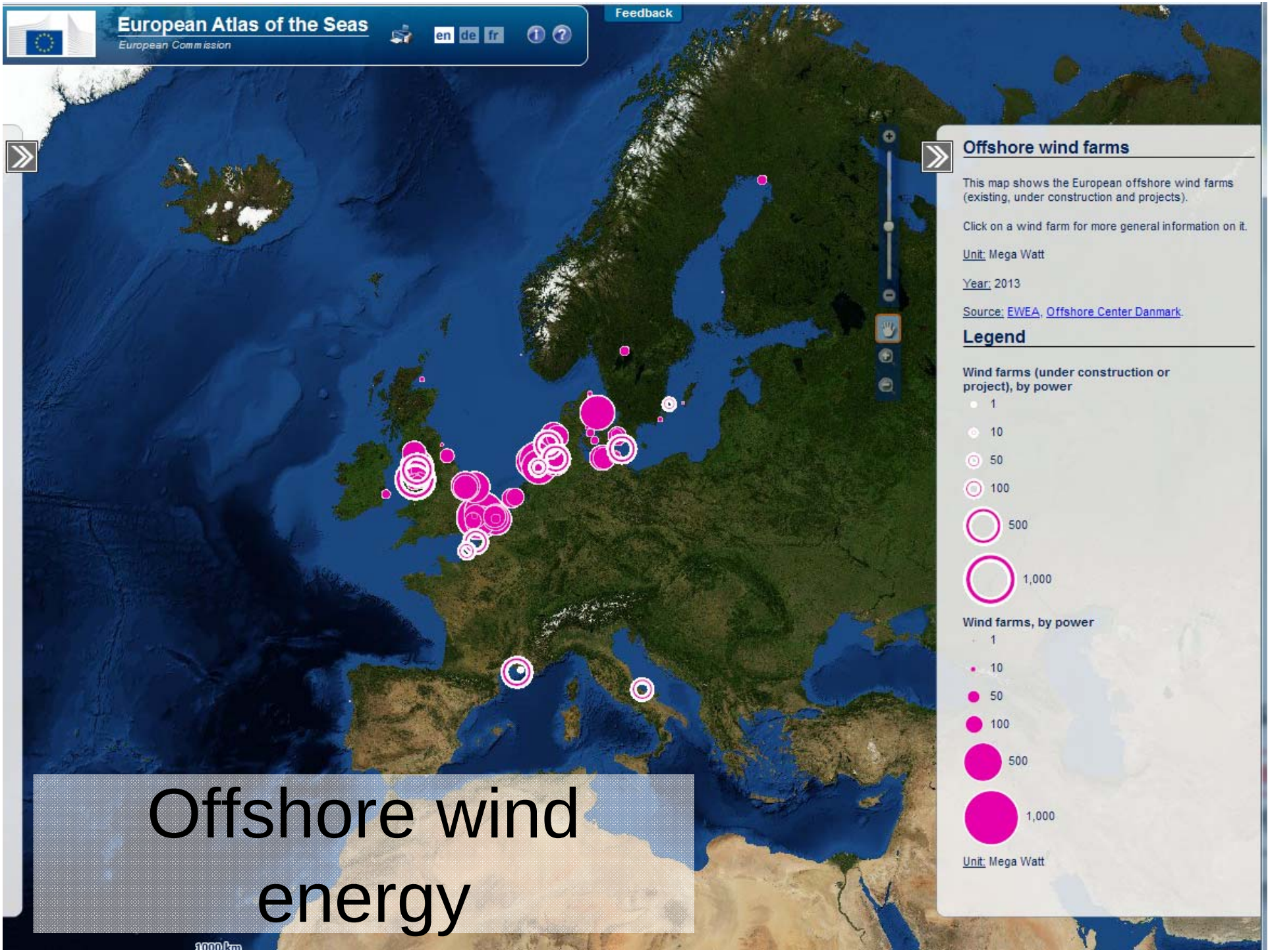
www.mesma.org

Driver #1: human use

- shipping
- fisheries
- gas / oil industry
- aquaculture
- **off shore wind farms**
- mining
- sand extraction
- recreation


European Atlas of the Seas
European Commission
en de fr
Feedback
Offshore wind farms
This map shows the European offshore wind farms (existing, under construction and projects).
Click on a wind farm for more general information on it.
Unit: Mega Watt
Year: 2013
Source: EWEA, Offshore Center Danmark.
Legend
Wind farms (under construction or project), by power
1
10
50
100
500
1,000
Wind farms, by power
1
10
50
100
500
1,000
Unit: Mega Watt
Offshore wind energy

Driver # 2. Nature conservation

EU Birds directive (1979)

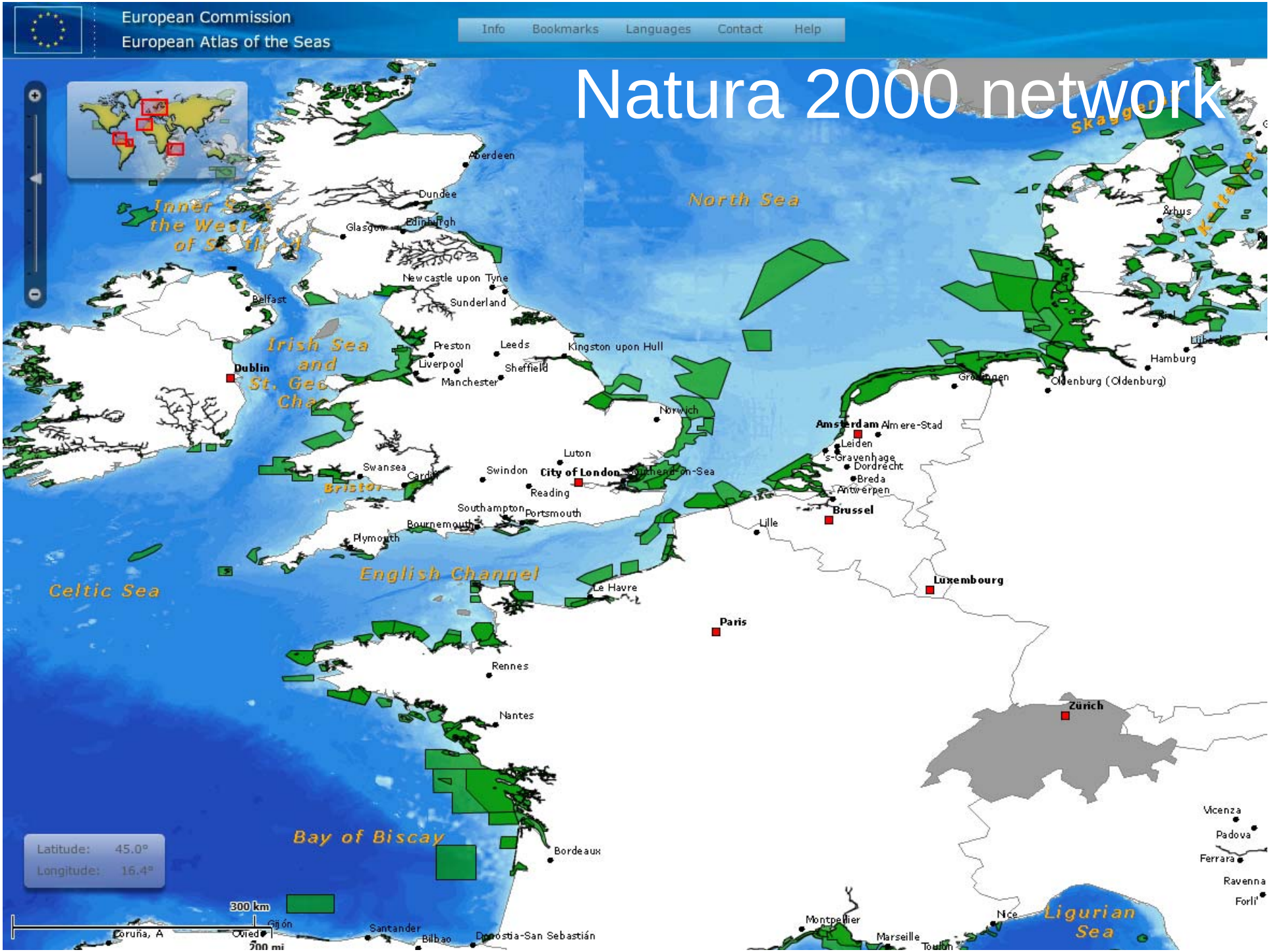
- Birds

- **EU Marine Strategy Framework Directive (2008)**
  - Biodiversity
  - Seabed integrity
  - Foodwebs
  - Commercial fish stocks
  - Pollution, noise, plastic
  - Eutrophication

  Aim: Good Environmental Status (2020)

EU Habitat directive (1992)

- Habitats
  - Sandbanks
  - Seagrass beds
  - Reefs
  - Deep sea habitats
- Species
  - Marine mammals
  - Migratory fish


European Commission
European Atlas of the Seas
Info
Bookmarks
Languages
Contact
Help
Natura 2000 network
North Sea
Irish Sea
English Channel
Celtic Sea
Bay of Biscay
Ligurian Sea
Aberdeen
Dundee
Glasgow
Edinburgh
Newcastle upon Tyne
Sunderland
Belfast
Dublin
Preston
Leeds
Liverpool
Manchester
Sheffield
Kingston upon Hull
Norwich
Luton
Swansea
Swindon
City of London
Reading
Southampton
Portsmouth
Bournemouth
Plymouth
Bristol
Amsterdam
Almere-Stad
Leiden
s-Gravenhage
Dordrecht
Breda
Antwerpen
Brussel
Lille
Luxembourg
Le Havre
Paris
Rennes
Nantes
Bordeaux
Hamburg
Oldenburg (Oldenburg)
Zürich
Vicenza
Padova
Ferrara
Ravenna
Forlì
Montpellier
Marseille
Nice
Toulon
Santander
Bilbao
Gijón
Oviedo
Coruña, A
Latitude: 45.0°
Longitude: 16.4°
300 km
200 mi

What is Marine Spatial Planning?

Marine spatial planning is also called:

- Maritime spatial planning (EU)
- Marine planning (England)
- Integrated management (Norway)
- Bioregional planning (Australia)
- Ocean management (Massachusetts, USA)
- Special area management planning (Rhode Island, USA)
- Schemas de mise en valeur de la mer (France)
- Marine functional zoning (China)
- Marine zoning (Great Barrier Reef Marine Park)

(source: Charles Ehler / UNESCO)

Characteristics of Marine Spatial Planning

Continuing and adaptive, with an **emphasis on performance monitoring and evaluation of the plan**

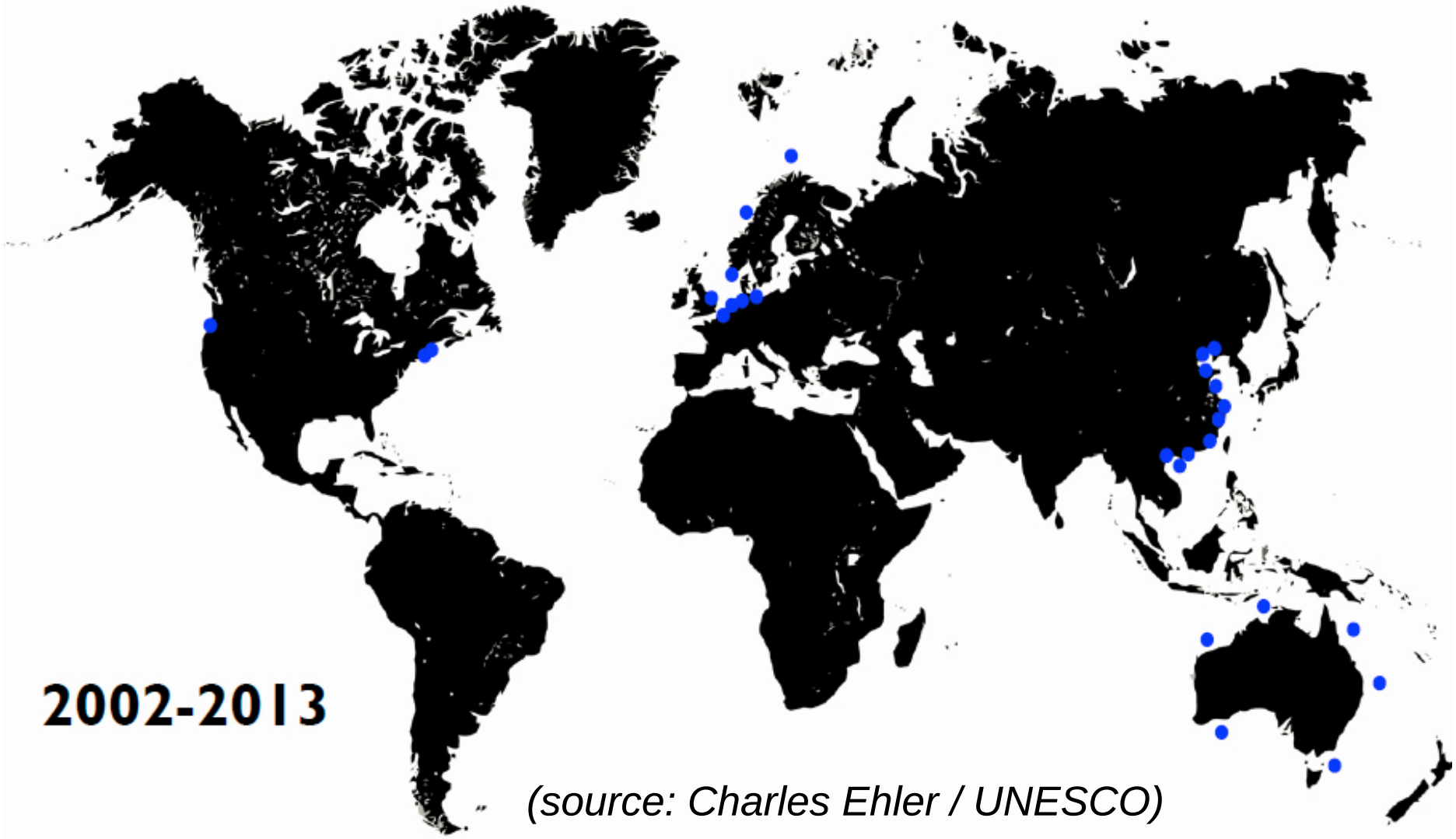
Strategic and future-oriented

Participatory process (stakeholders)

Integrated and multi-objective setting (economy+society+ecology)

Ecosystem-based

Countries with Approved Marine Spatial Plans



(source: Charles Ehler / UNESCO)

Lessons learnt in MSP

1. MSP works
2. No best approach
3. Political will required
4. Authority needed
5. Adequate financing
6. Involve stakeholders
7. Don’t try everything at once
8. Clear objectives essential
9. Develop Spatial Planning Capacity
10. Use best available information
11. Focus on future
12. Implementation, Enforcement, & Compliance
13. Monitor and Evaluate Performance
14. Adapt the plan (learn by doing)
15. Integrate MSP with other spatial plans
16. Encourage international cooperation

JUST DO IT

(source: Charles Ehler / UNESCO)

Part 2. MESMA project

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www.mesma.org

How can we evaluate the effectiveness of spatially managed areas in Europe? (2009-2013)

SEVENTH FRAMEWORK PROGRAMME

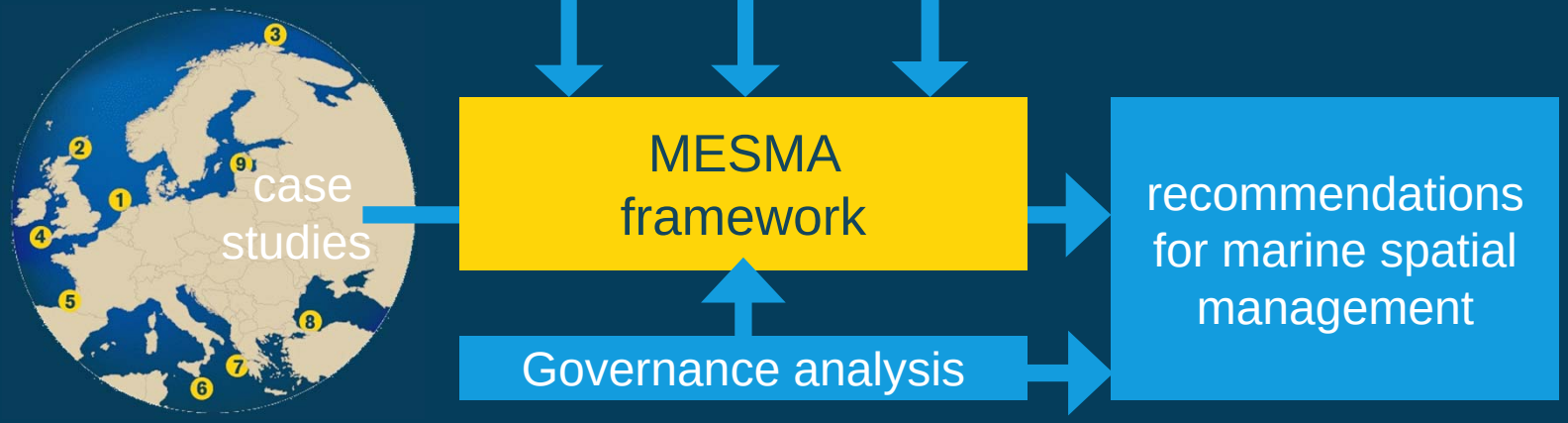
21 partners
8.5 million Euros

MESMA

Aim of MESMA:

Produce an integrated and flexible management tool box (concepts, models and guidelines) for monitoring and evaluation of spatially managed marine areas at different scales (local, national, regional)

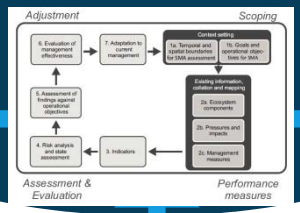
MESMA framework at the heart of the project



MESMA framework at the heart of the project

tools data geoportal

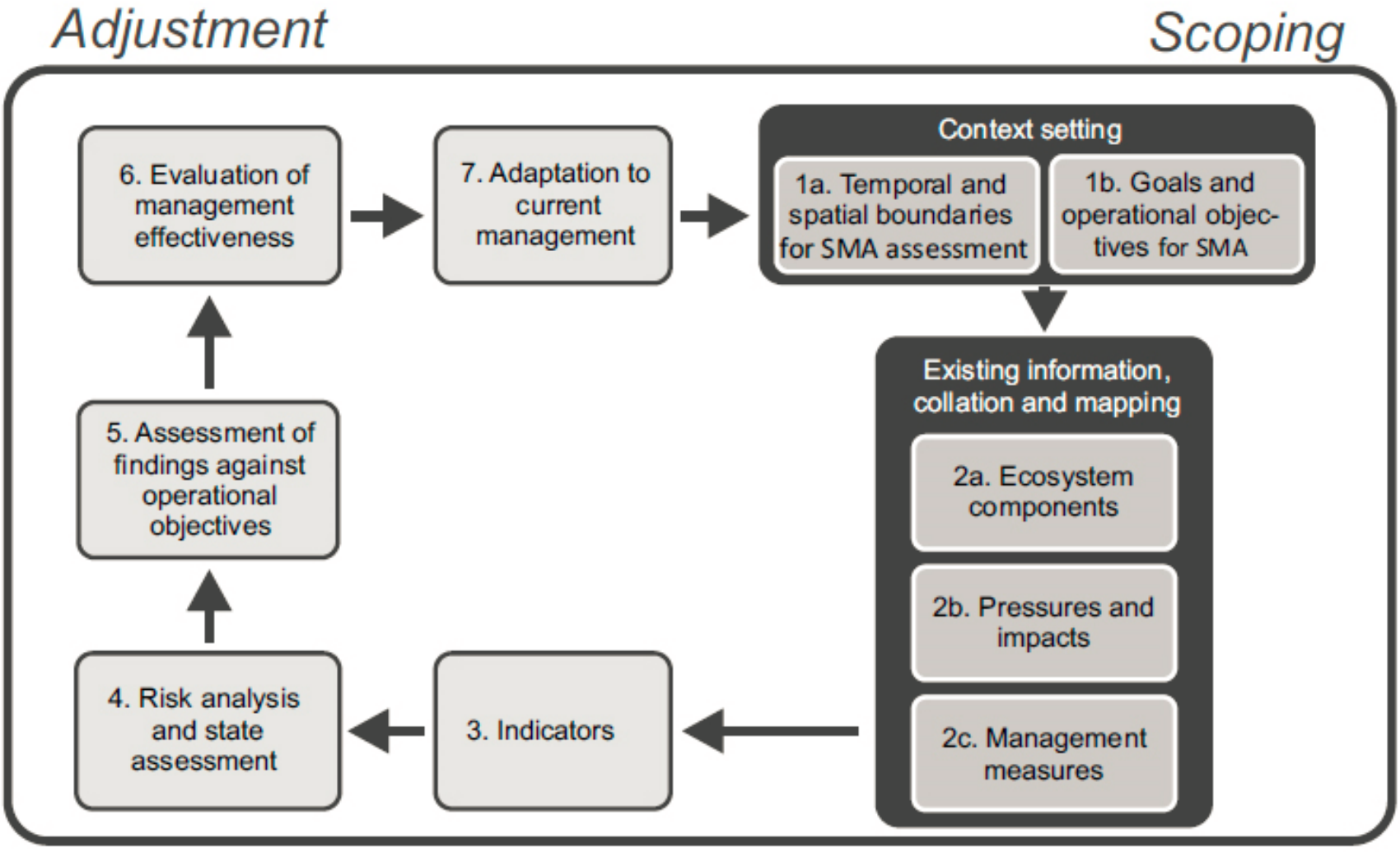
case studies



Governance analysis

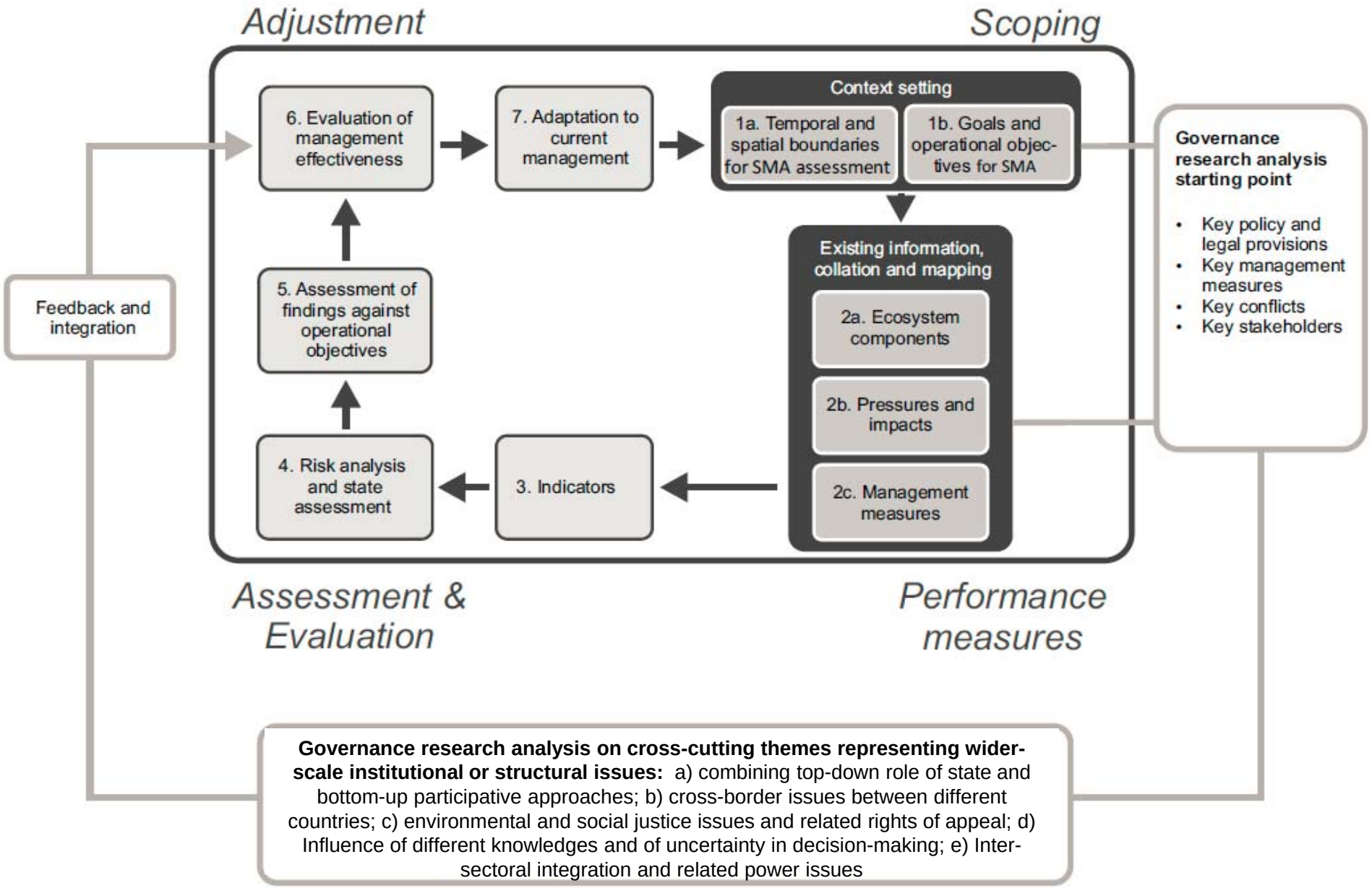
recommendations for marine spatial management

MESMA Framework

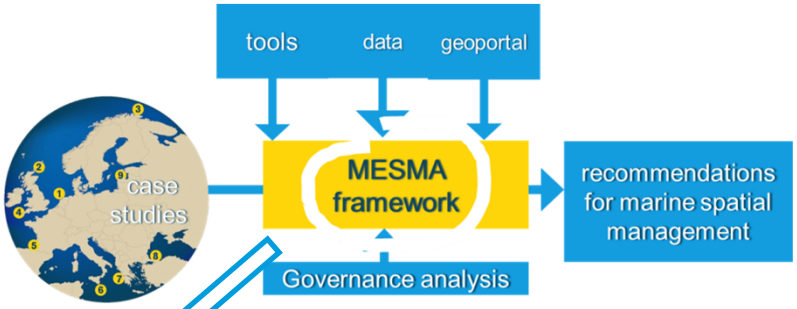


Stelzenmüller et al. (2013). J. Mar. Policy 37:149-164

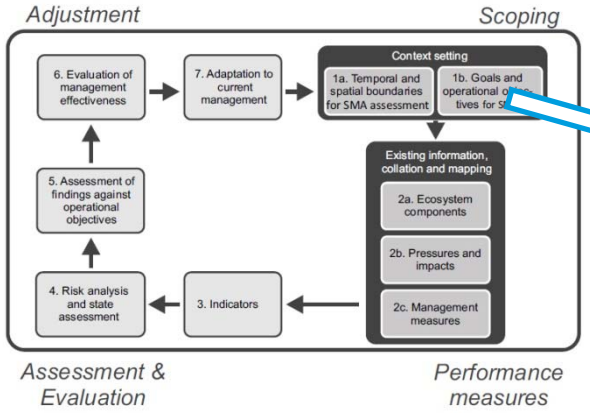
Parallel governance analysis

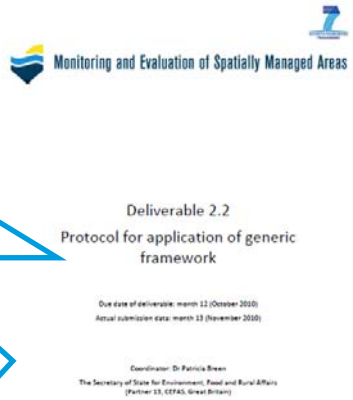


Framework with detailed manual



framework





Assessment of Spatially Managed Areas

Detailed instructions, tables, etc (manual)

Framework literature

Stelzenmüller et al (2013) Monitoring and evaluation of spatially managed areas: A generic framework for implementation of ecosystem based marine management and its application. Marine Policy 37:149-164

Stelzenmüller et al (in prep). Assessing uncertainty associated with the monitoring and evaluation of spatially managed areas.

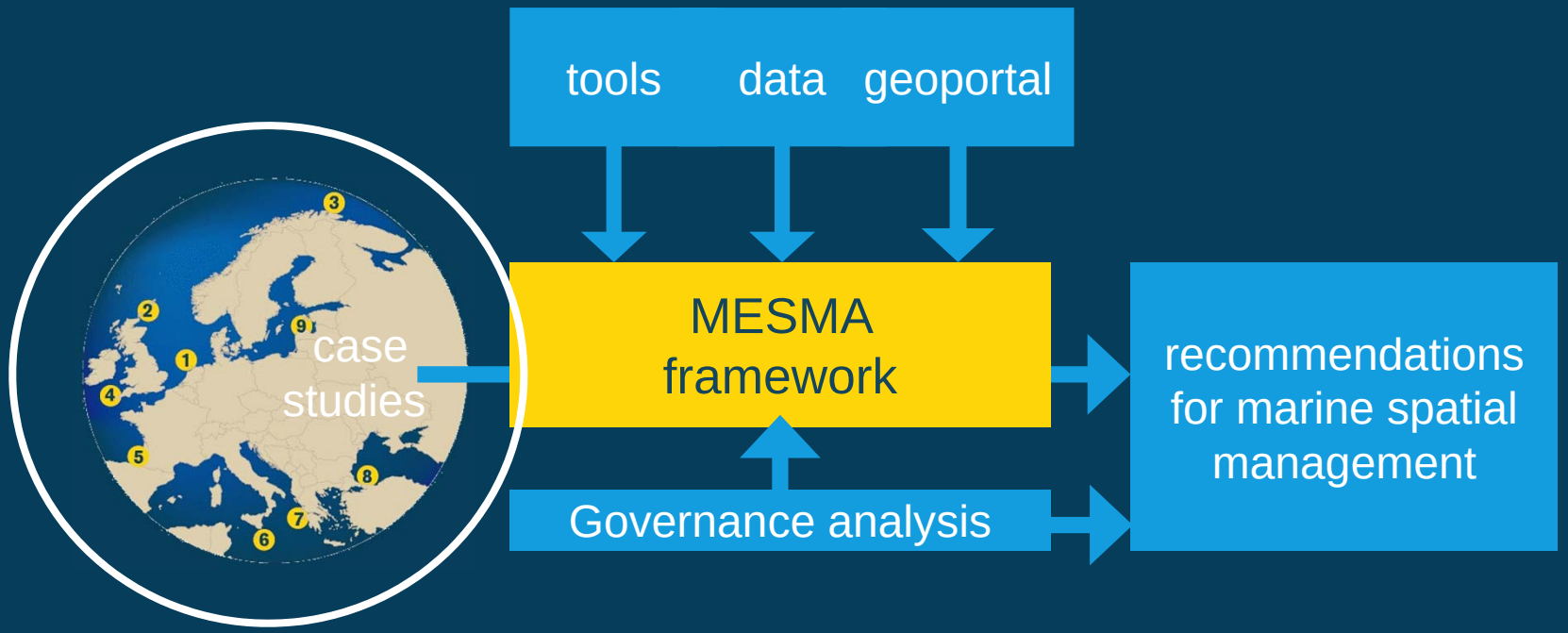
Manual and detailed descriptions:

- D 2.1 Generic framework for monitoring and evaluation of Spatially Managed Areas (SMAs) (PDF)
- D2.2 Generic framework manual (PDF)
- D2.3 Protocol for Application of Generic Framework (PDF)
- D6.2 Approaches for addressing conflicts in the MESMA case studies (PDF)

- Case study reports

Available at http://www.mesma.org/default.asp?ZNT=S0T1O733

Case studies to test framework



MESMA Case studies

1. Southern North Sea
2. Pentland Firth & Orkney Waters
3. Barents Sea and Lofoten
4. Celtic Sea
5. Basque country Continental Shelf
6. Strait of Sicily
7. Inner Ionian Archipelago
8. Black Sea
9. Baltic Sea

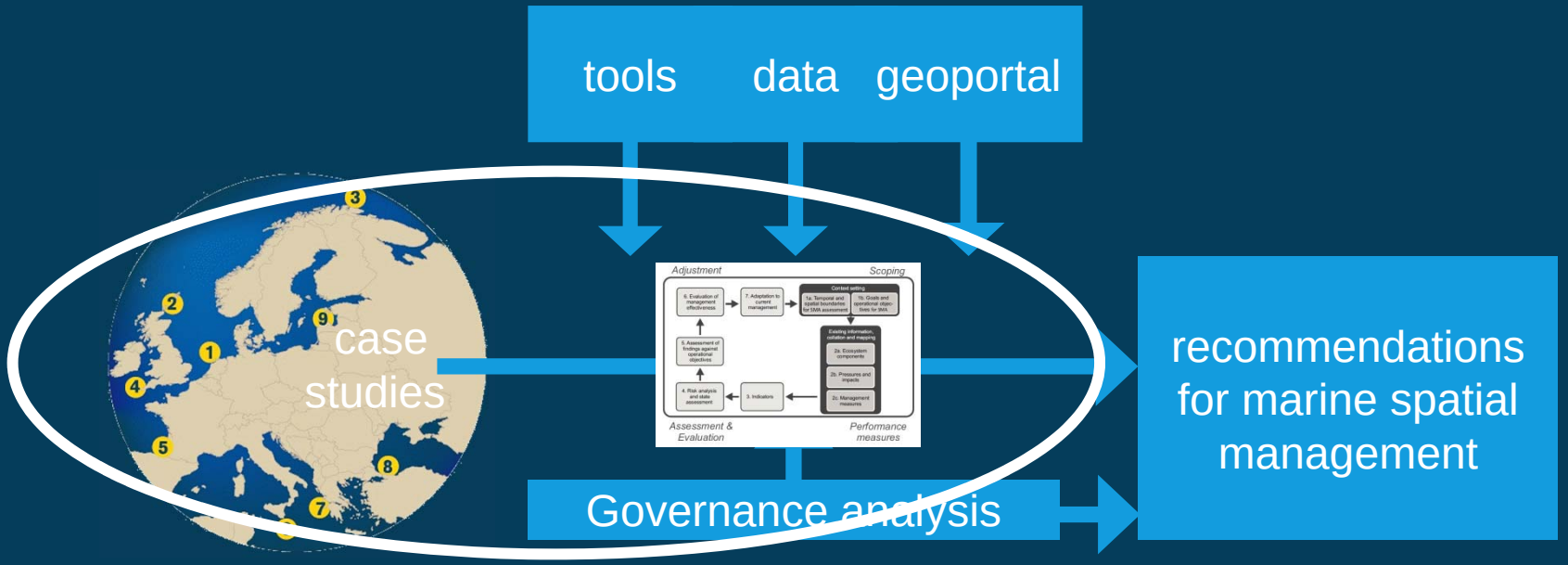
MSP in place?

yes

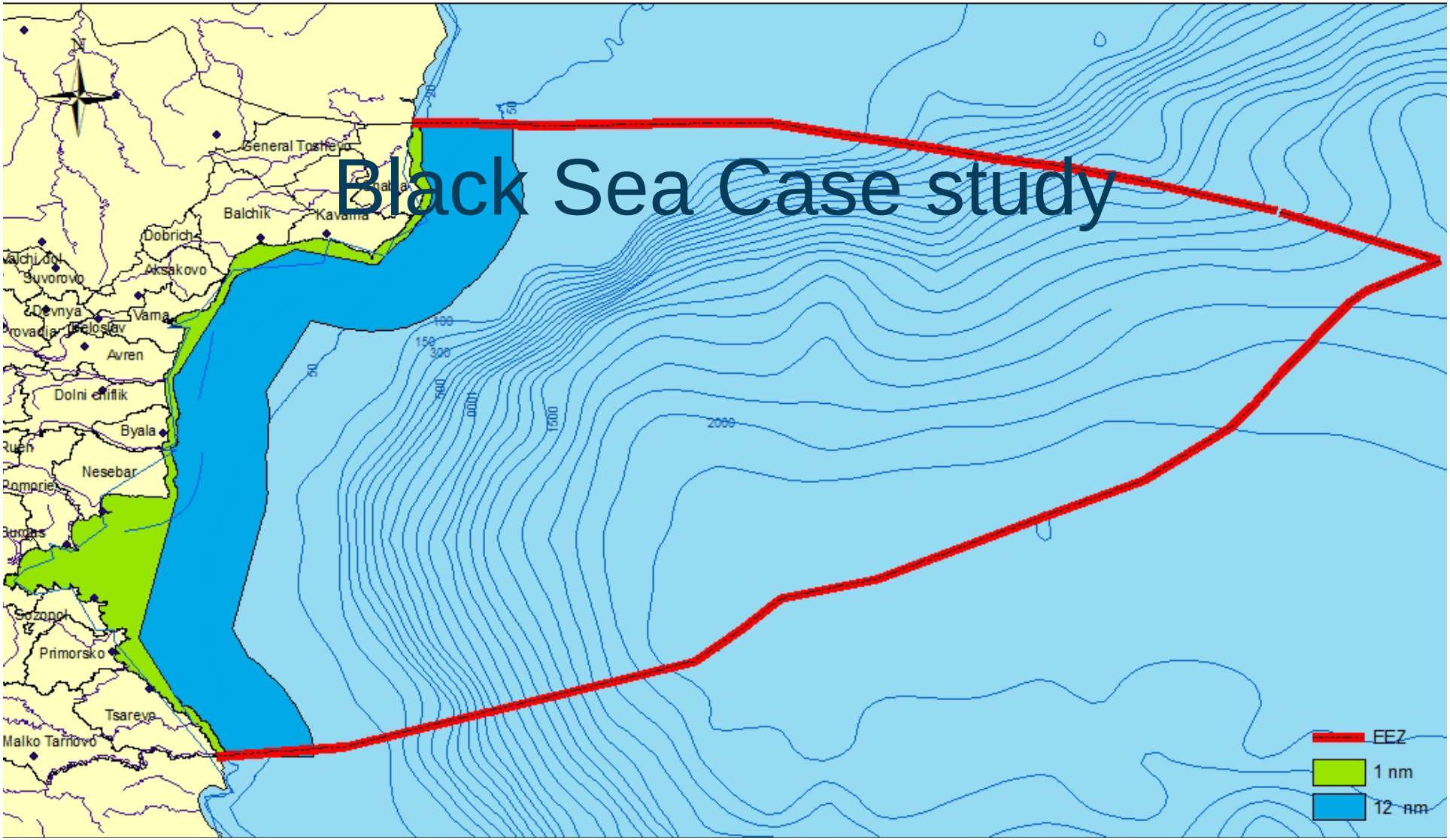
progress

no

Application of the MESMA framework to case studies

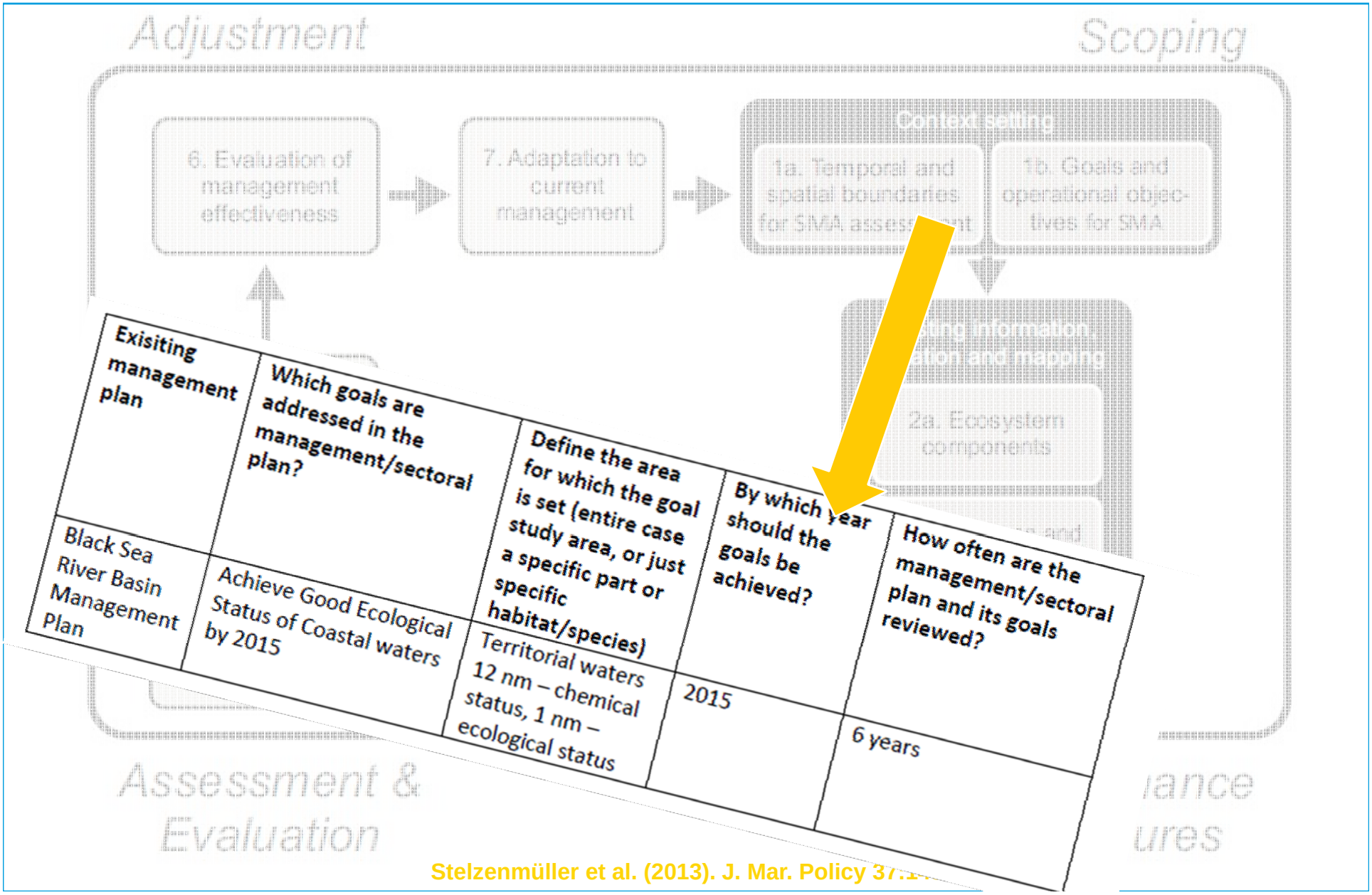


Black Sea Case study



- Evaluation of The Black Sea River Basin Management Plan.
- Boundaries: national territory Bulgaria + 12 nm offshore
- 6-years duration (2010-2015)

Step 1 context setting

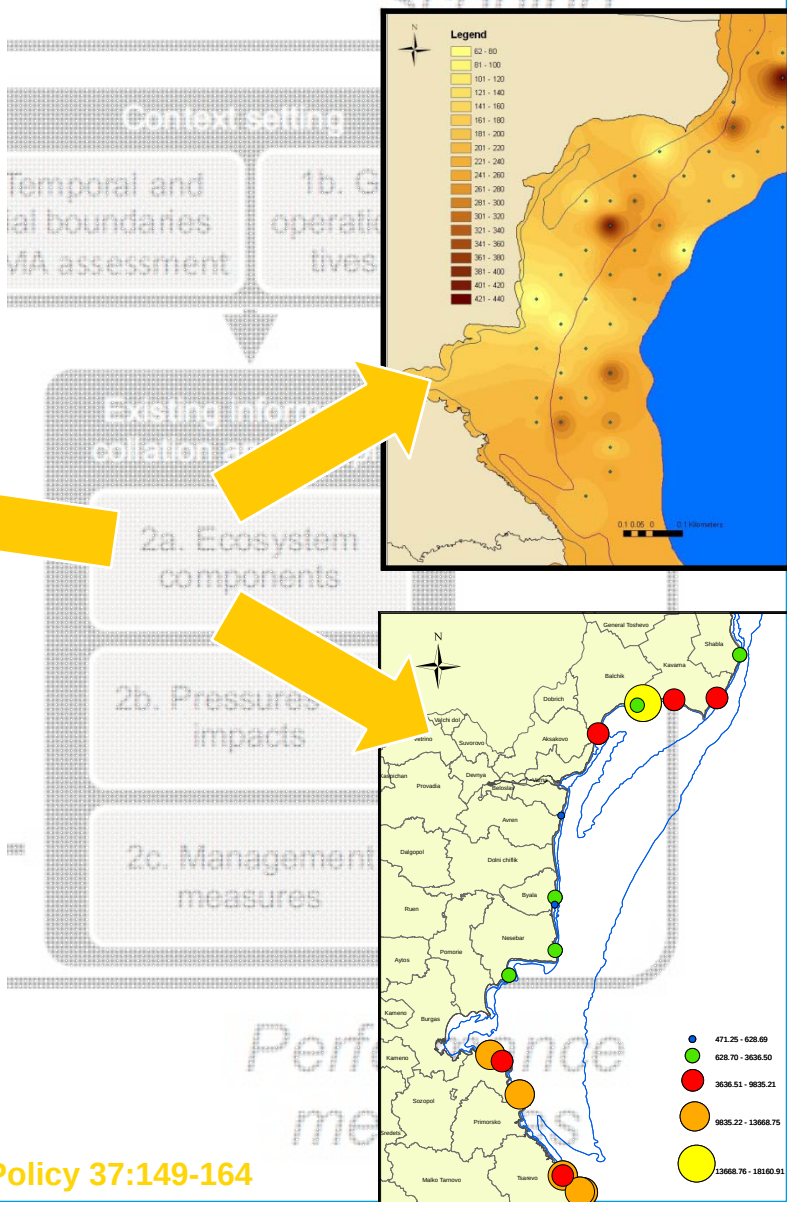


Exisiting management plan	Which goals are addressed in the management/sectoral plan?	Define the area for which the goal is set (entire case study area, or just a specific part or specific habitat/species)	By which year should the goals be achieved?	How often are the management/sectoral plan and its goals reviewed?
Black Sea River Basin Management plan	Achieve Good Ecological Status of Coastal waters by 2015	Territorial waters 12 nm – chemical status, 1 nm – ecological status	2015	6 years

Stelzenmüller et al. (2013). J. Mar. Policy 37:1...

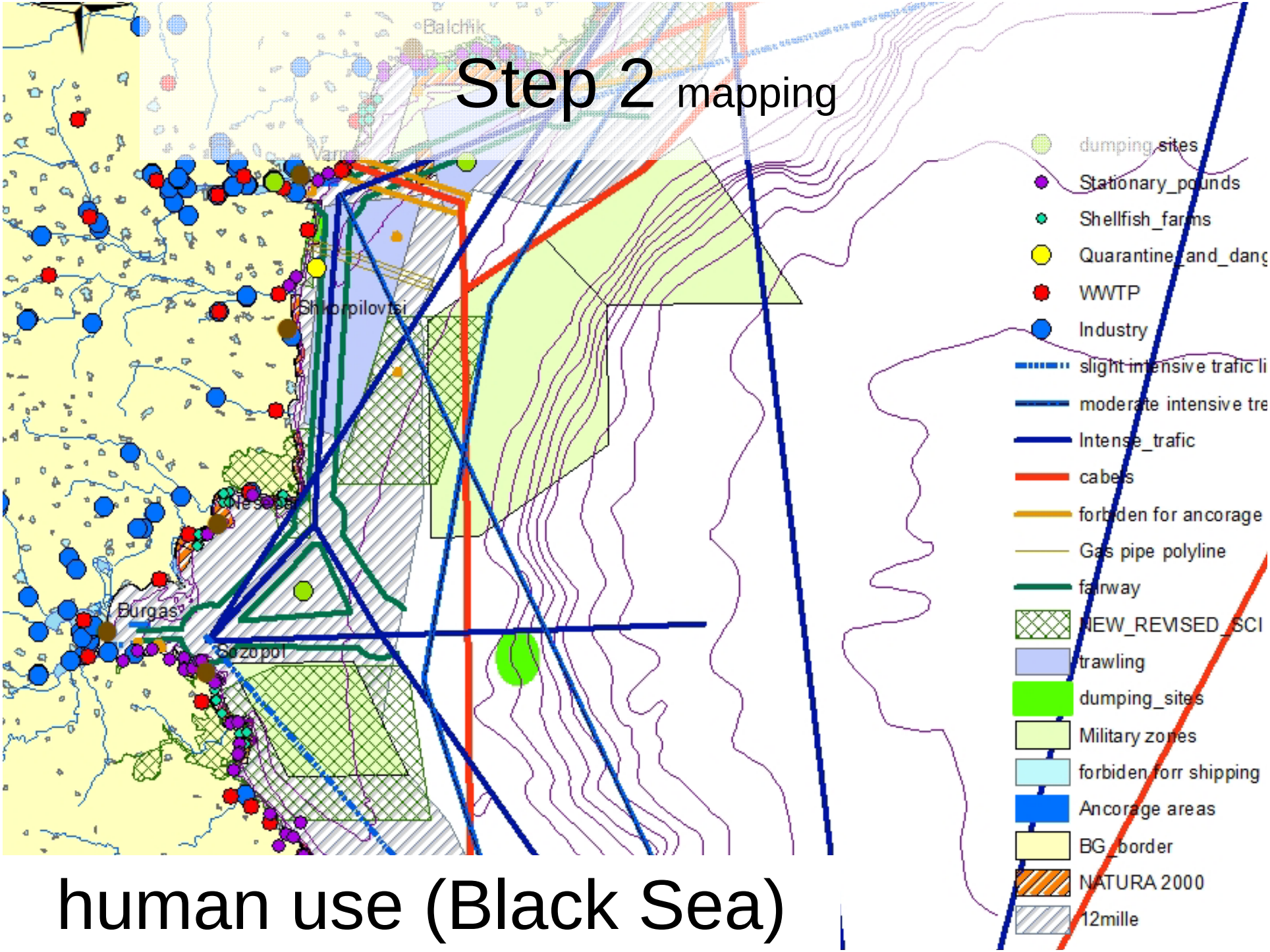
Step 2 existing information, pressures, impacts

Type	Ecosystem component	Reference (e.g. MSFD or other)	Relevant objective
Physical and chemical	Topography and bathymetry of the seabed	MSFD, WFD	1-7
	Annual and seasonal temperature regime	MSFD	1-7
	Turbidity	MSFD	1-2
	Wave exposure	MSFD, WFD	1-2
	Salinity	MSFD,WFD	1-6
	Nutrients	MSFD, WFD	1-2
	Oxygen	MSFD, WFD	3-5, 7
	Hazardous substances	MSFD, WFD	1-5, 7
Habitat types	Structure and substrata composition of the seabed	MSFD, WFD	1-5
	Special habitat types (Habitats Directive)	MSFD, HD	1-5
	Areas which merit a specific protection regime - biogenic habitats	MSFD	4
Biological features	Angiosperms	MSFD, HD	2
	Macro-algae	MSFD, WFD	1
	Invertebrate bottom fauna	MSFD, WFD	3,4,5
	Exotic species (*Rapana venosa*)	MSFD	6
	Fish populations (turbot, Alosa spp.)	MSFD	7

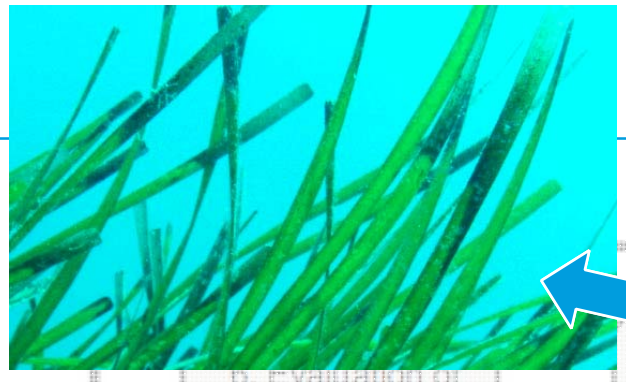


Stelzenmüller et al. (2013). J. Mar. Policy 37:149-164

Step 2 mapping



human use (Black Sea)



Step 3 indicators

Indicator	Needed data	Availability		Remarks
		YES	NO	
Cystoseira biomass	Cystoseira biomass	+		
Seagrass biomass	Seagrass biomass		+	Very limited data
Size structure of *Mytilus galloprovincialis* on rocky facies	Size structure of *Mytilus galloprovincialis* on rocky facies		+	Lack of research
% cover of *Mytilus galloprovincialis* mussel beds on sediments	% cover of *Mytilus galloprovincialis* mussel beds on sediments	+		Very limited data
M-AMBI in sand banks	M-AMBI in sand banks	+		
Rapana venosa abundance	*Rapana venosa* abundance		+	Very limited data Data collected in 2010 will be reported through Knowseas 7FP EC
Biomass index of turbot	Population age of turbot		+	Very limited data

Stelzenmüller et al. (2013). J. Mar. Policy 37:149-164

Step 4 risk analysis

Table 4a.2

Indicator	Threshold / Trend	Pressure	Magnitude of Impact (high, medium or low)
Cystoseira biomass	Trend	Increase in turbidity Changes in Nutrient levels	High High
S… biomass	Trend	Increase in turbidity Abrasion and physical disturbance of seabed Changes in Nutrient levels	High High High
Size structure of *Mytilus galloprovincialis* on rocky facies	Trend	Invasive non-native species	High
% cover of *Mytilus galloprovincialis* mussel beds on sediments	Trend	Abrasion and physical disturbance of seabed Changes in oxygenation Invasive non-native species	High Medium High
Rapana venosa abundance	Trend	Predatory Pressure of invasive species	High
Biomass index of turbot	Trend	Extraction of target species Extraction as by-catch	High Medium

Stelzenmüller et al. (2012). J. Mar. Policy 37:149-164

Step 5 assessment findings vs objectives

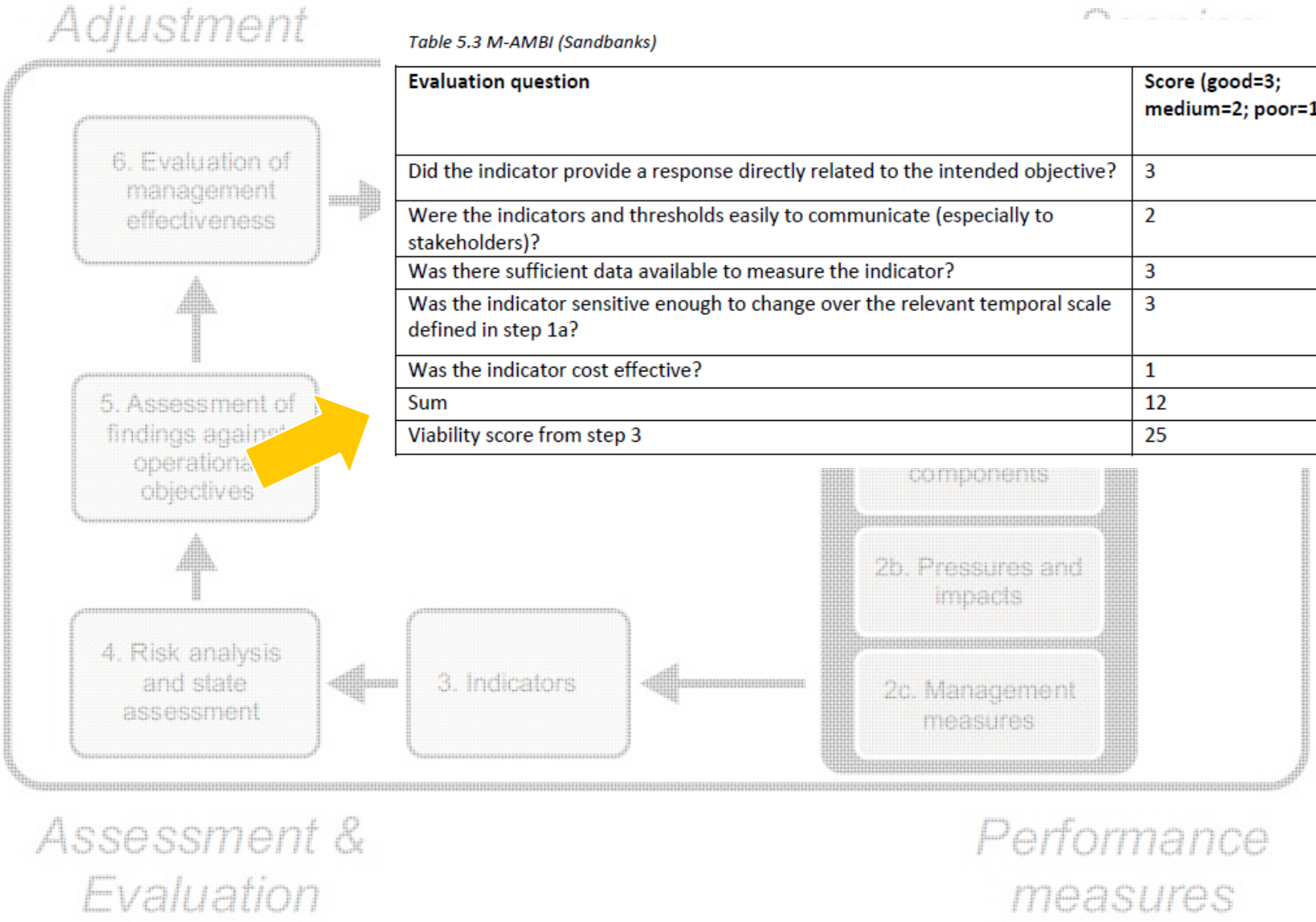


Table 5.3 M-AMBI (Sandbanks)

Evaluation question	Score (good=3; medium=2; poor=1)
Did the indicator provide a response directly related to the intended objective?	3
Were the indicators and thresholds easily to communicate (especially to stakeholders)?	2
Was there sufficient data available to measure the indicator?	3
Was the indicator sensitive enough to change over the relevant temporal scale defined in step 1a?	3
Was the indicator cost effective?	1
Sum	12
Viability score from step 3	25

Stelzenmüller et al. (2012). J. Mar. Policy 37:149-164

Step 6 evaluation management effectiveness

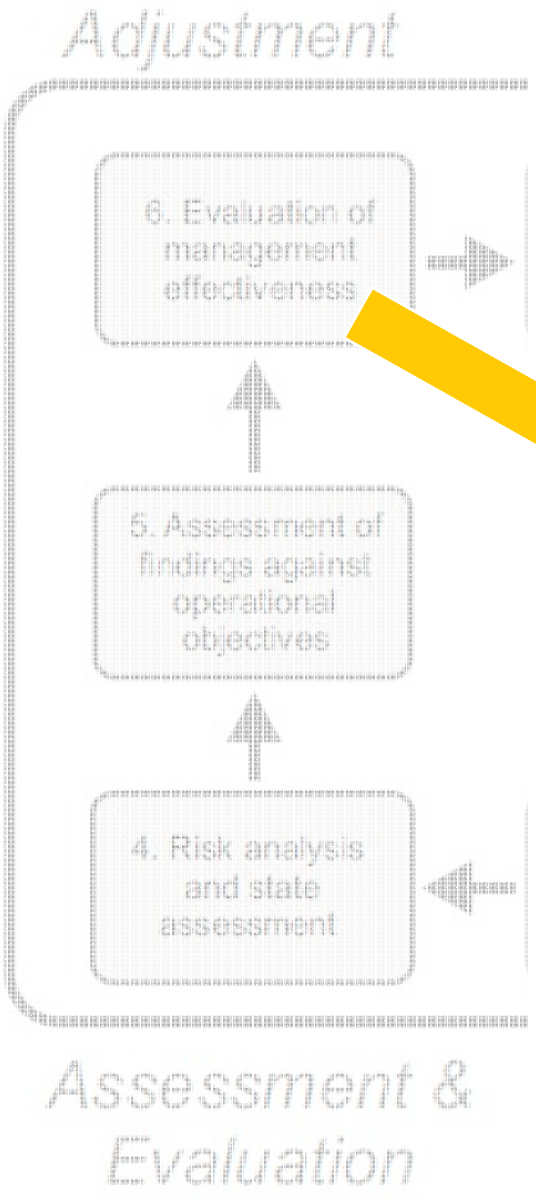
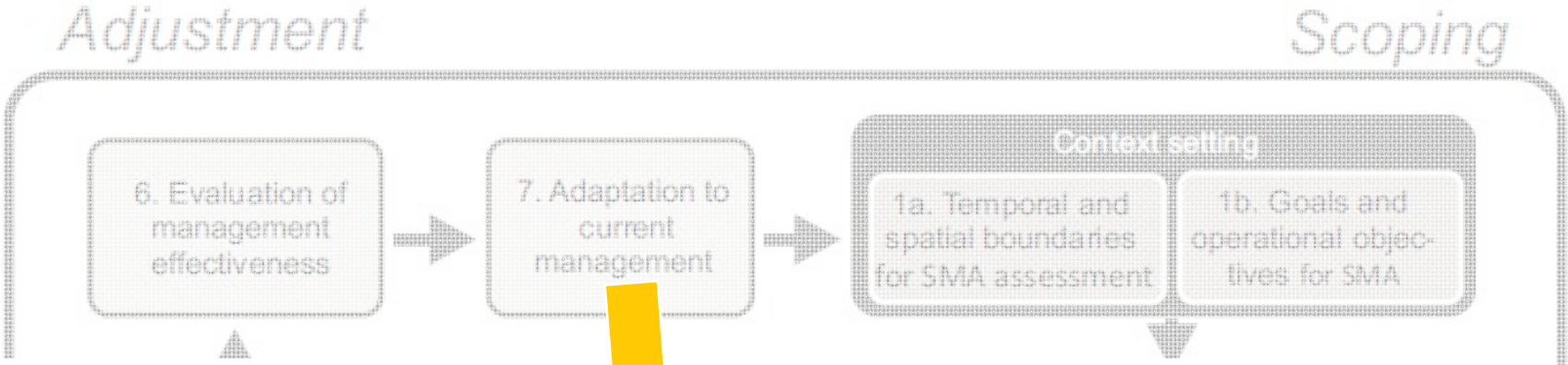


Table 6.1:

Operational objective	Management measure	Useful? yes/no/partly	Achieved yes/no/partly
1. Cystoseira association	Construction/reconstruction and modernization of WWTP	Yes	?
	Construction/reconstruction of sewerage system and collectors	Yes	?
	Construction of deep sea outfalls for waste water	Partly	?
	Removal of outfalls from sea waters, which have prospects as bathing waters	Yes	?
	Control on fertilisers and herbicides use	Yes	?
	Good practices in agriculture	Yes	?
	Development and implementation of plans, programmes and measures for the conservation and restoration of rare and threatened fish species, aquatic species and habitats	Yes	Not developed at the present
	Monitoring on the coastal waters ecological status	Yes	Yes
	Research , development and demonstration projects	Yes	Partly
	Education and information programs	Yes	Partly
2. Seagrass meadows	As above	Yes	As above
	Coastal defence from land slides	Yes	?
3. Rocky facies with *Mytilus galloprovincialis*	Invasive species ecological and socio-economic impact assessment (research)	Yes	Not made until now

Step 7 adaptation management



Objective 6. The invasive non-indigenous species *Rapana venosa* demonstrates decreasing trends in its population size and impact.
Recommended measures:

- Research on stock and population parameters and dynamics of *Rapana venosa*
- Research on the *Rapana* predatory pressure magnitude and impact
- Subsidize catch of small-sized *Rapana*
- Evaluate the environmental harm-benefit of bottom trawling for rapana and reconsider trawling ban for this particular target species

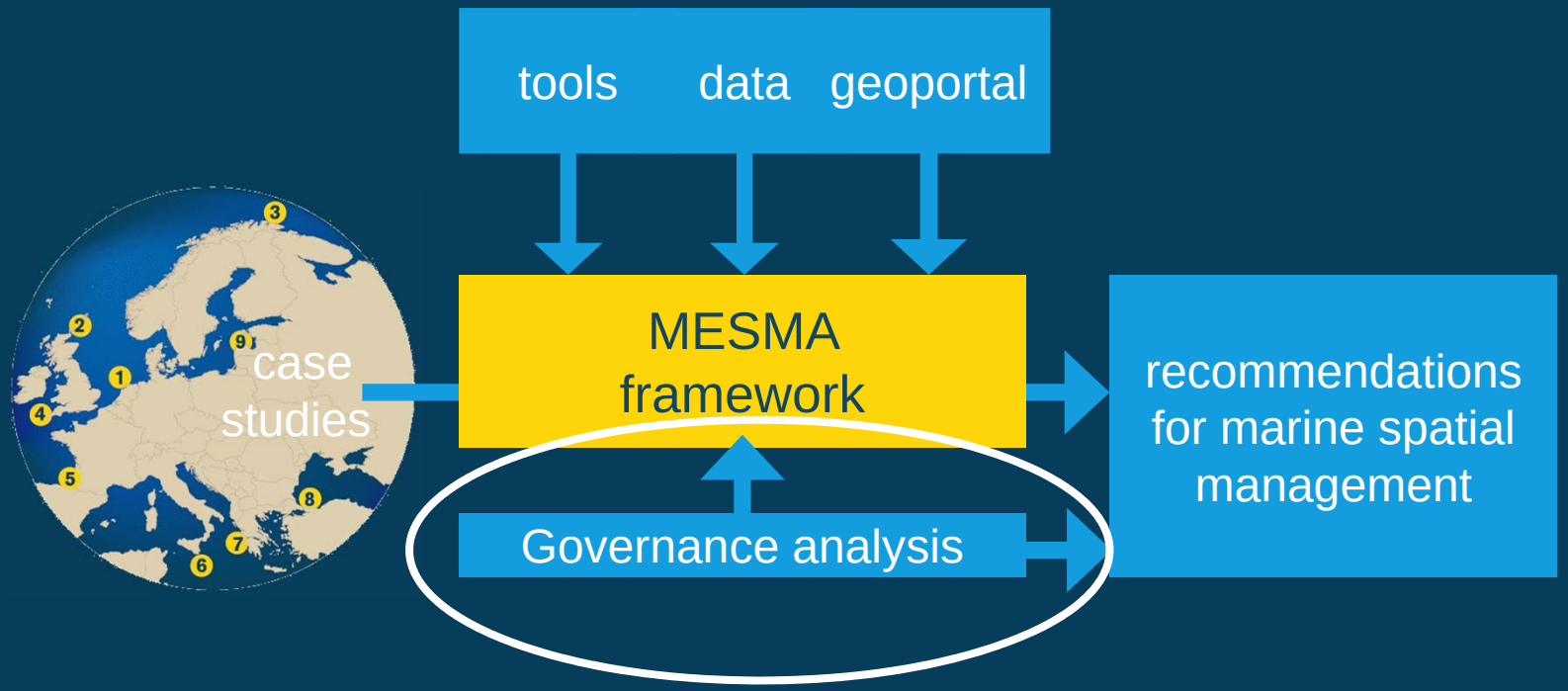
Objective 7. The population of turbot (*Psetta maxima*) demonstrates increasing trend.
Recommended measures:

- Increase the control on illegal fishing

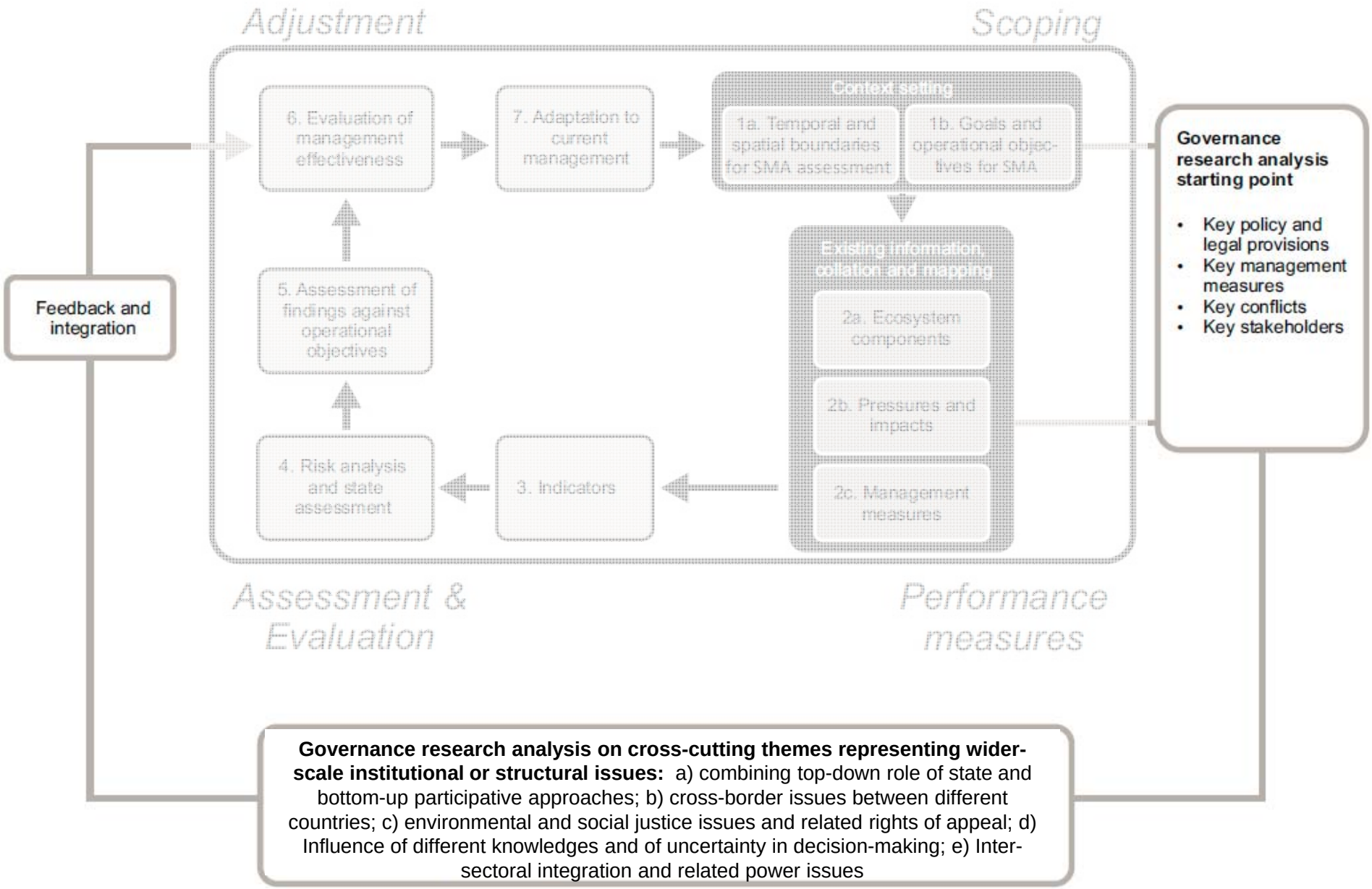
Evaluation Measures

Stelzenmüller et al. (2013). J. Mar. Policy 37:149-164

Governance analysis



Parallel governance analysis



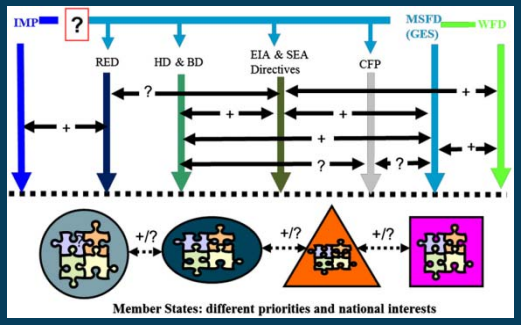
Governance analysis

1) **Context** –The socio-economic and political context of the initiative being analysed, as well as some basic information about the initiative itself (who is involved, its location & scale, its history).
2) **Objectives and management measures** – The key priority objective which the analysis is focused on, which should be the - or one of the - key objective(s) of the initiative itself, as well as existing policies, laws, plans or regulations that facilitate the achievement of the priority objective.
3) **Conflicts** –The conflicts generated by the implementation of the above measures, and the driving forces behind those conflicts.
4) **Governance approach and effectiveness** – The overall governance approach adopted in the initiative (top-down, bottom-up, or market-led), and its effectiveness in achieving the priority objective.
5) **Incentives** – A description of economic, legal, knowledge, interpretative, and participative incentives employed within the initiative in order to achieve the priority objective (a list of possible incentives is supplied within the framework, derived from previous empirical work carried out on MPA initiatives).
6) **Cross-cutting themes** – A discussion of the combination of top-down and bottom-up approaches, inter-sectoral integration, cross-border issues, environmental and social justice issues, and the influence of uncertainty in decision-making.

http://www.mesma.org/default.asp?ZNT=S0T1O-1P111

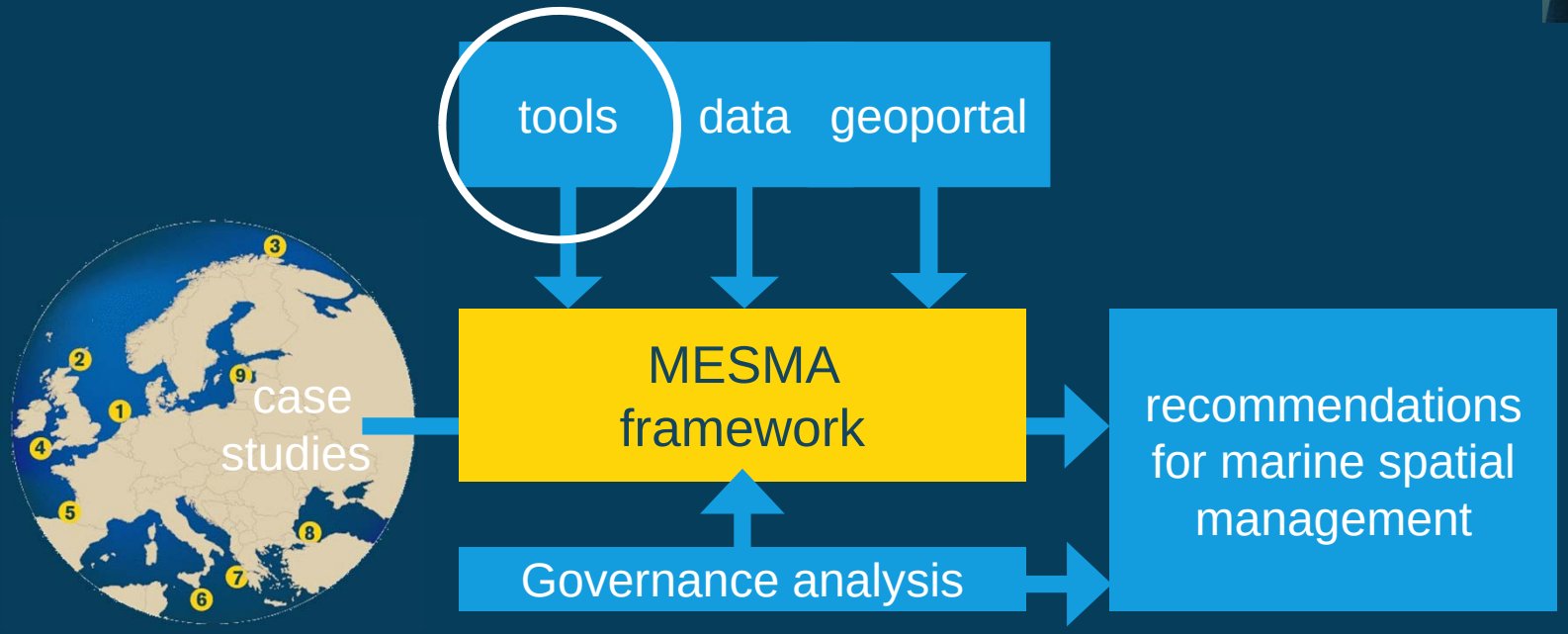
Results

- Introduction to MESMA governance analysis framework (http://www.mesma.org/default.asp?ZNT=S0T1O-1P111)
- Qiu W, Jones PJS (2013) The emerging policy landscape for marine spatial planning in Europe. Marine Policy 39:182-190



- Governance reports per case study: D6.1 Typology of Conflicts in MESMA case studies (PDF)

Tools



MESMA tools collection: >70 tools that can be used in combination with the MESMA framework.

Tool Name	Category	Step(s) in Framework
Zonation	Spatial Analysis Mapping Spatial Planning	1a. Temporal and Spatial Boundaries for SMA Assessment 2a. Ecosystem Components 2b. Pressures and Impacts
Spatial Data Modeler (SDM)	Mapping Data Processing	2a. Ecosystem Components 2b. Pressures and Impacts
SimLab	Decision support	2b. Pressures and Impacts 4. Risk Analysis and State Assessment
SimCoast	Decision support Governance	6. Evaluation of Management Effectiveness 7. Adaptation to Current Management
RAMAS GIS	Decision support Spatial Analysis Visualization Mapping Numerical Model	2a. Ecosystem Components
POLCOMS	Spatial Analysis Visualization Numerical Model	2a. Ecosystem Components
PATHMATRIX	Mapping Data Processing	1a. Temporal and Spatial Boundaries for SMA Assessment 2a. Ecosystem Components
PAT	Spatial Analysis Mapping Spatial Planning	1a. Temporal and Spatial Boundaries for SMA Assessment 2a. Ecosystem Components 2b. Pressures and Impacts
PANDA	Mapping Spatial Planning	1a. Temporal and Spatial Boundaries for SMA Assessment 2b. Pressures and Impacts
Netica	Decision support	2a. Ecosystem Components 2b. Pressures and Impacts 2c. Management Measures
Open OceanMap	Data Management or Collection	2b. Pressures and Impacts 5. Assessment of Findings against Operational Objectives

Geoportal

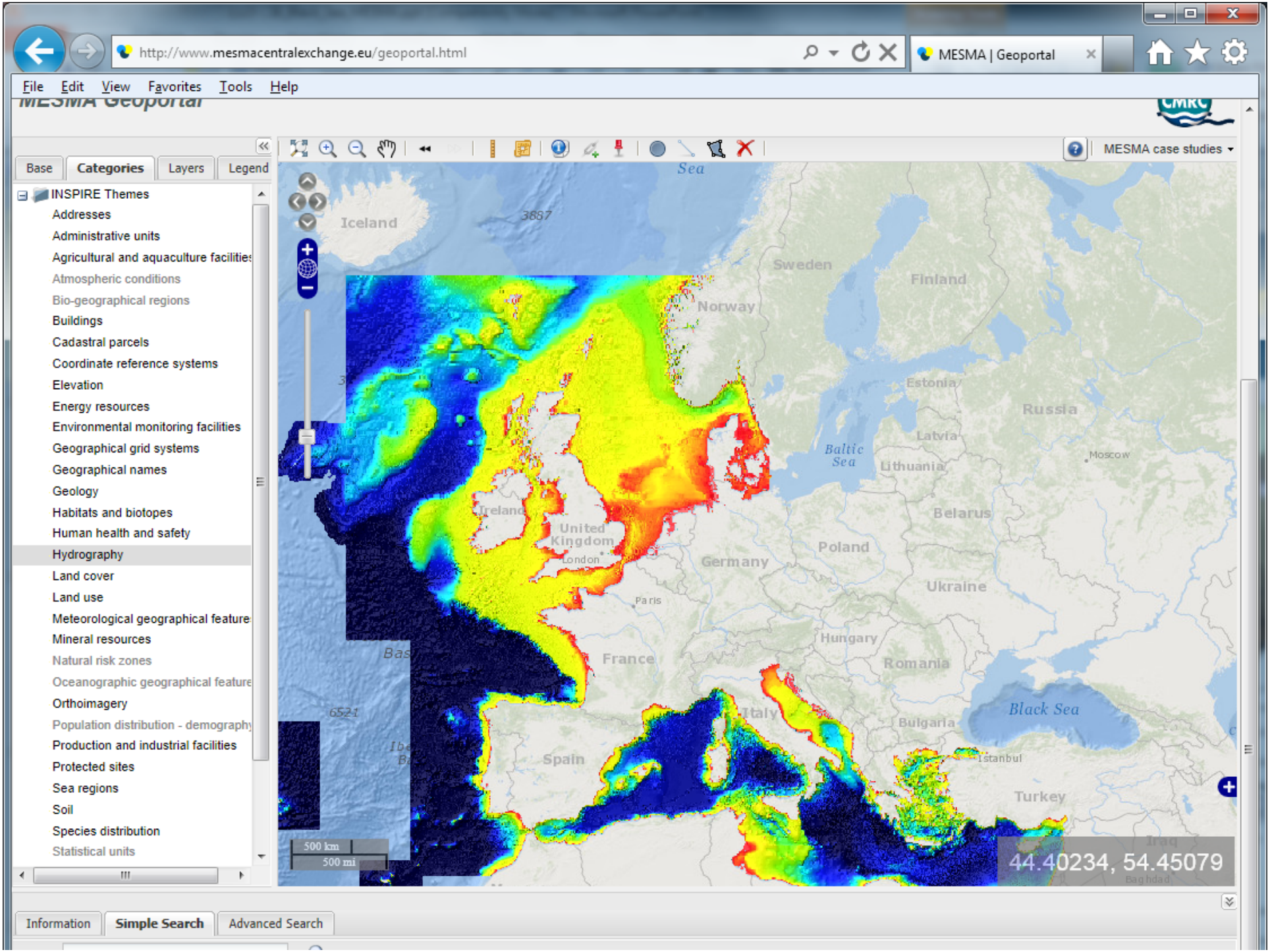
case studies

tools data geoportal

MESMA framework

Governance analysis

recommendations for marine spatial management


http://www.mesmacentralexchange.eu/geoportal.html
MESMA | Geoportal
File Edit View Favorites Tools Help
MESMA Geoportal
MESMA case studies
Base
Categories
Layers
Legend
INSPIRE Themes
Addresses
Administrative units
Agricultural and aquaculture facilities
Atmospheric conditions
Bio-geographical regions
Buildings
Cadastral parcels
Coordinate reference systems
Elevation
Energy resources
Environmental monitoring facilities
Geographical grid systems
Geographical names
Geology
Habitats and biotopes
Human health and safety
Hydrography
Land cover
Land use
Meteorological geographical feature
Mineral resources
Natural risk zones
Oceanographic geographical feature
Orthoimagery
Population distribution - demography
Production and industrial facilities
Protected sites
Sea regions
Soil
Species distribution
Statistical units
Iceland
Norway
Sweden
Finland
Estonia
Latvia
Lithuania
Russia
Moscow
Baltic Sea
Ireland
United Kingdom
London
Germany
Poland
Belarus
Ukraine
Paris
France
Hungary
Romania
Italy
Bulgaria
Black Sea
Spain
Istanbul
Turkey
Iraq
Baghdad
500 km
500 mi
44.40234, 54.45079
Information
Simple Search
Advanced Search

Geoportal results

- standardized warehousing of metadata and geodata
  - 900 metadata records (MESMA case studies)
  - INSPIRE compliant (i.e. new EU standard)
  - Interconnected web services

3. Integrated tool box for monitoring and evaluation of spatially managed areas

EBM Tools webinar 26 Feb 2014

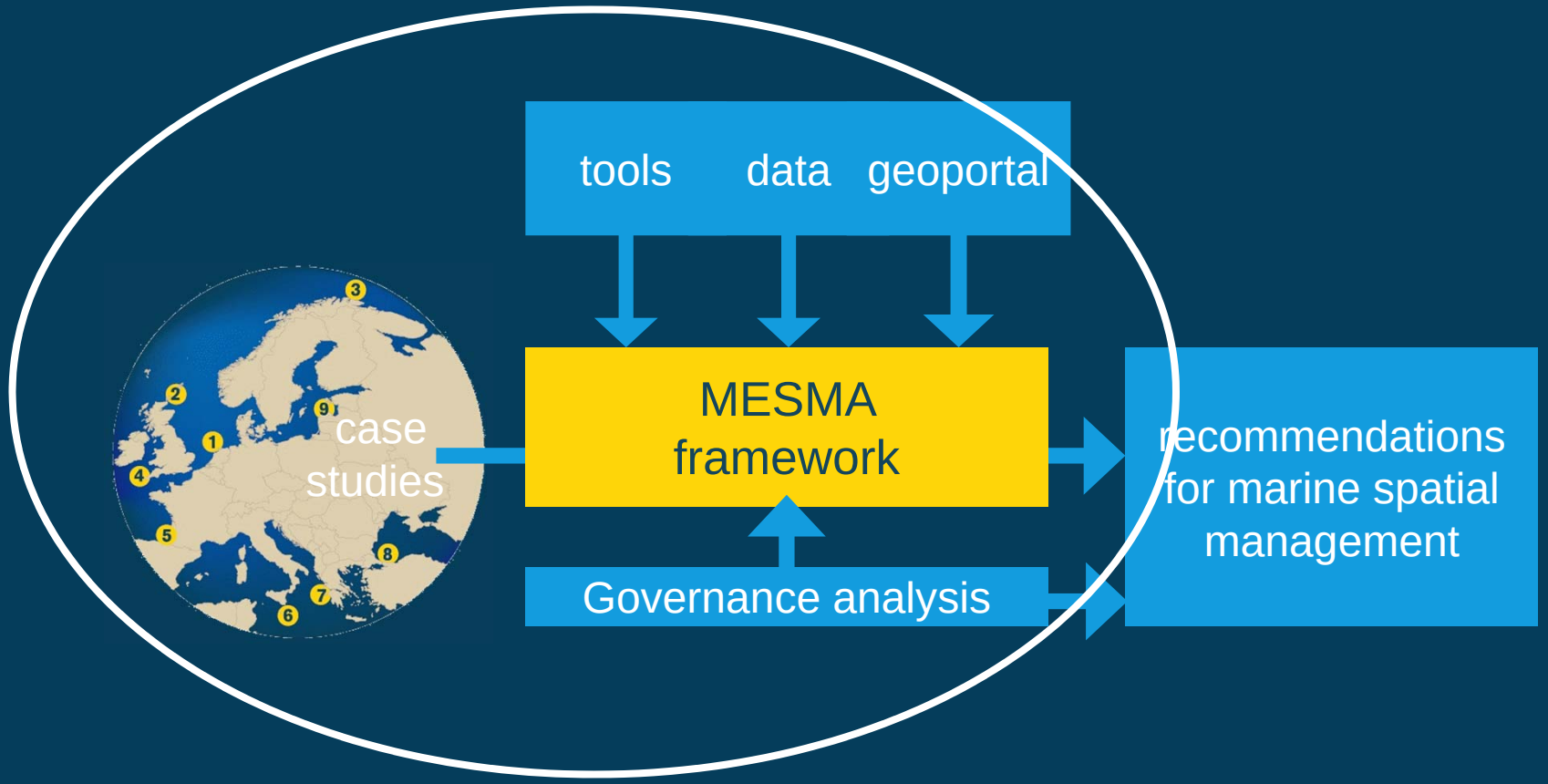
www.mesma.org

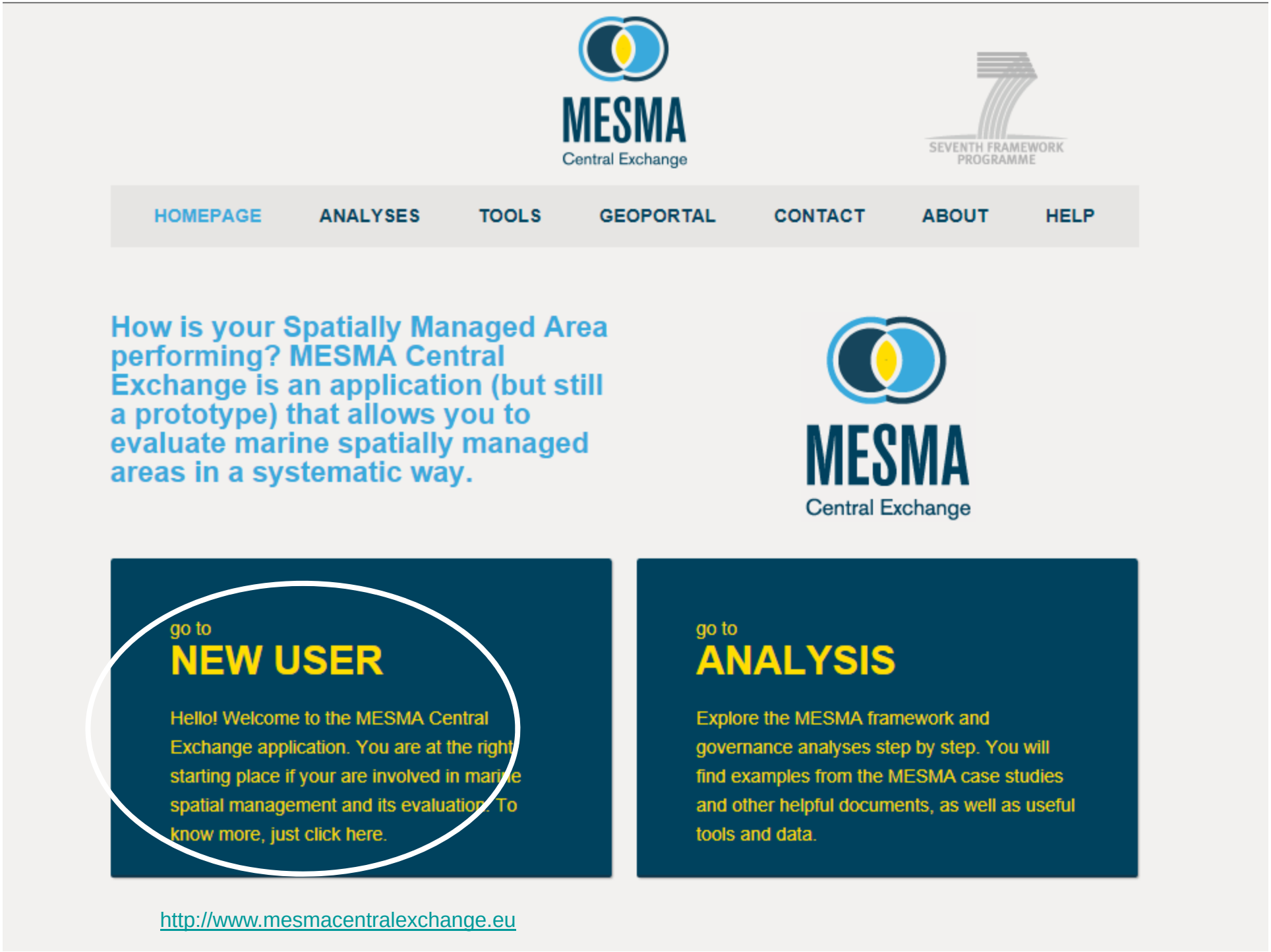
www.mesmacentralexchange.eu

MESMA

Central Exchange

Integrated tool box





http://www.mesmacentralexchange.eu

Convert Select

MESMA
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SEVENTH FRAMEWORK PROGRAMME

HOMEPAGE ANALYSES TOOLS GEOPORTAL CONTACT ABOUT HELP

NEW USER

Welcome to the MESMA Central Exchange application. This website has been developed as part of the EU-FP7 funded MESMA project (2009-2013). During our project, we developed a framework to evaluate and monitor the management of spatially managed marine areas. That is, if you want to know if the management of a certain marine area is effective, you can use the MESMA method to evaluate this. We tested this framework in a number of case studies and considered it good enough for you.

You can explore the analysis methods on this website. In addition, a number of tools, and a geodatabase with example datasets are available. If you want to perform a professional analysis, we recommend to carefully read instructions in the Help section, read examples and the read the available literature. You can find the MESMA folks on Linked-In and Facebook, if you need help on this.

MESMA Analyses

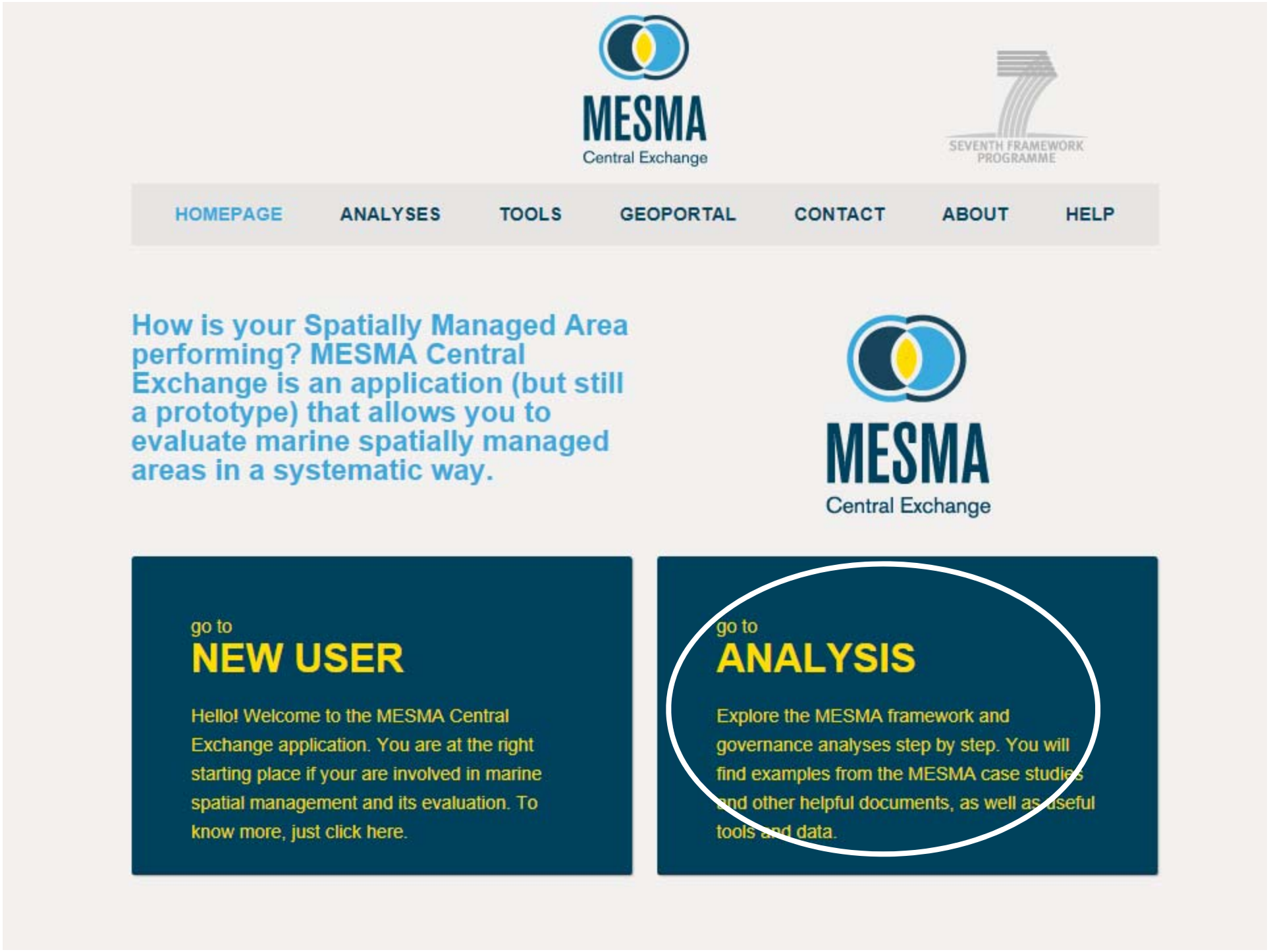
The MESMA framework is a step-wise

Tools

Over 60 tools that can be used in

Geoportal

The MESMA team has developed the

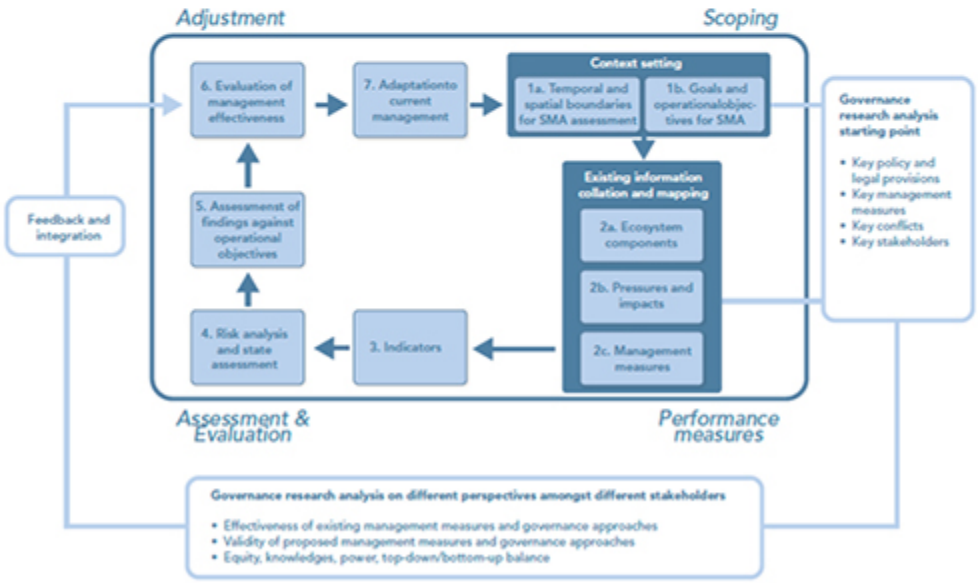

MESMA
Central Exchange
SEVENTH FRAMEWORK PROGRAMME
HOMEPAGE
ANALYSES
TOOLS
GEOPORTAL
CONTACT
ABOUT
HELP
How is your Spatially Managed Area performing? MESMA Central Exchange is an application (but still a prototype) that allows you to evaluate marine spatially managed areas in a systematic way.
MESMA
Central Exchange
go to
NEW USER
Hello! Welcome to the MESMA Central Exchange application. You are at the right starting place if your are involved in marine spatial management and its evaluation. To know more, just click here.
go to
ANALYSIS
Explore the MESMA framework and governance analyses step by step. You will find examples from the MESMA case studies and other helpful documents, as well as useful tools and data.

MESMA
Central Exchange

SEVENTH FRAMEWORK PROGRAMME

INTRODUCTION

The steps in the MESMA framework (Stelzenmüller et al. 2013) can be explored using the buttons below the picture. The left buttons are for the generic framework analysis, the right for the governance analysis.



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SEVENTH FRAMEWORK PROGRAMME

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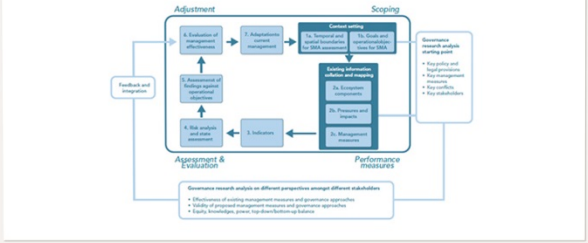

FRAMEWORK ANALYSIS | GOVERNANCE ANALYSIS

Step 1a Context setting: temporal and spatial boundaries for SMA assessment

The first step of the MESMA framework analysis focuses on context setting. For the spatially managed area (SMA) that you want to analyse, you need to define spatial and temporal boundaries (step 1a).

Such boundaries are defined in management plans. Alternatively, if no spatial management plan is in place or in preparation, potential administrative, ecological, economic or social boundaries should be considered.

START ANALYSIS
TOOLS
GEODATA
HELP & EXAMPLES

Step 1b Context setting: goals and operational objectives for SMA

Step 2a Existing information, collation and mapping: ecosystem components

Step 2b Existing information, collation and mapping: pressures and impacts

Step 2c Existing information, collation and mapping: management measures

Step 3 Indicators

Step 4 Risk analysis and state assessment

Step 5 Assessment of findings against operational objectives

Step 6 Evaluation of management effectiveness

Step 7 Adaptation to current management

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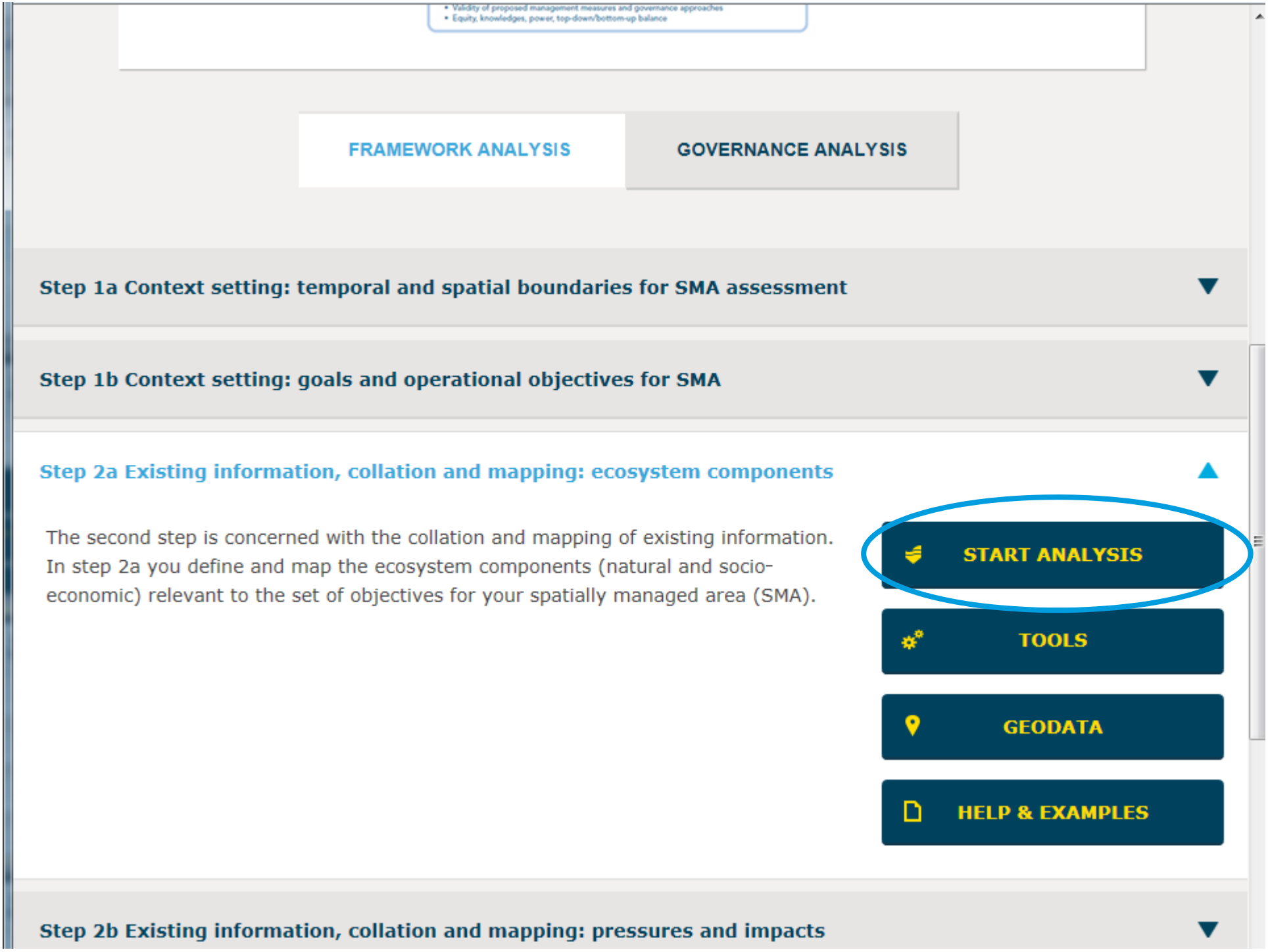
• Validity of proposed management measures and governance approaches
• Equity, knowledges, power, top-down/bottom-up balance
FRAMEWORK ANALYSIS
GOVERNANCE ANALYSIS
Step 1a Context setting: temporal and spatial boundaries for SMA assessment
Step 1b Context setting: goals and operational objectives for SMA
Step 2a Existing information, collation and mapping: ecosystem components
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START ANALYSIS
TOOLS
GEODATA
HELP & EXAMPLES
Step 2b Existing information, collation and mapping: pressures and impacts

http://mesma.ucc.ie/emanual/

emanual

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Mesma E-manual

Home Setup

Select Case Study:

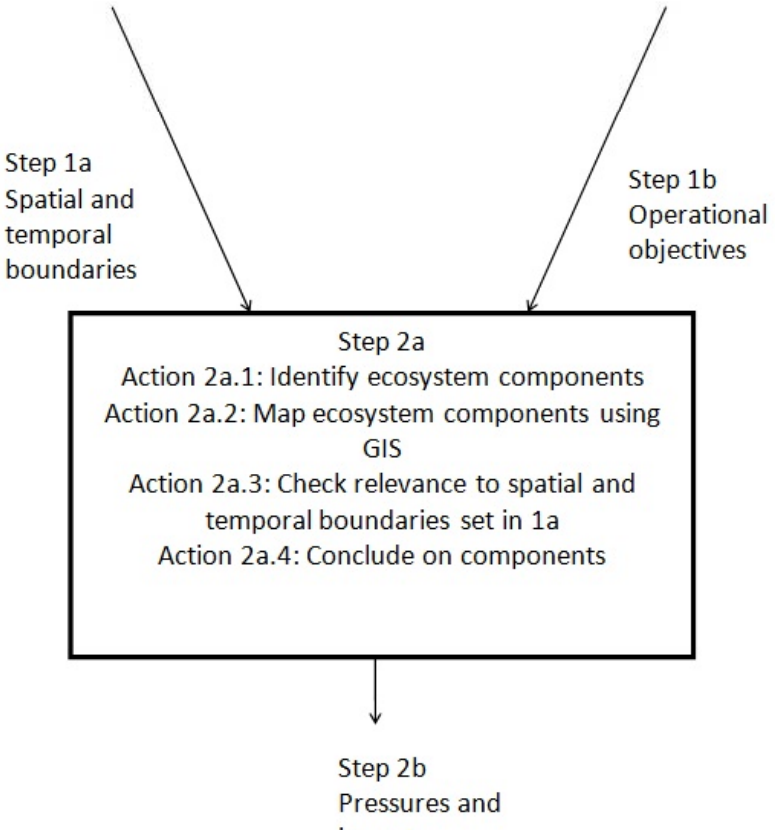
CefasTest_Barents Sea

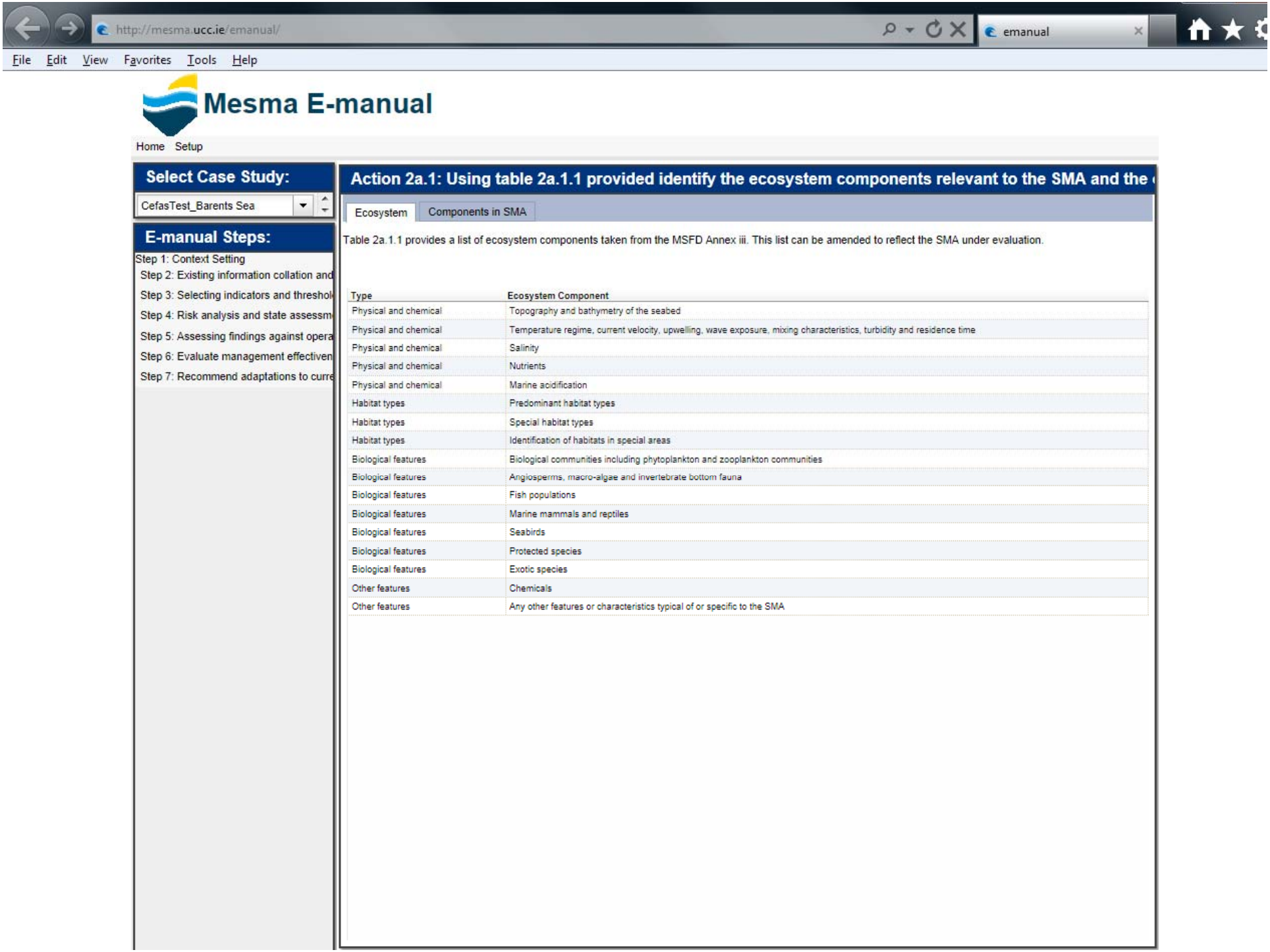
E-manual Steps:

Step 1: Context Setting
Step 2: Existing information collation and
Step 3: Selecting indicators and threshol
Step 4: Risk analysis and state assessm
Step 5: Assessing findings against opera
Step 6: Evaluate management effectiven
Step 7: Recommend adaptations to curre

Step 2a: Identify ecosystem components

The aim of step 2a is to identify the ecosystem components in the SMA which are relevant to the objectives that have been set in step 1b. Ecosystem components can be divided into natural (biophysical) (e.g. marine mammals) and socio-economic components (e.g. a wind farm). A list of natural ecosystem components taken from the MSFD Annex iii has been provided to give guidance on identifying the relevant ones. This is not an exhaustive list and it can be amended or expanded depending on the SMA that is being evaluated. Once ecosystem components are identified for the area, they should be mapped using GIS tools. Mapping should be done using the appropriate scale for each component (e.g. larger scales for marine mammals which are distributed over wide areas) and the GIS maps should aim to cover the entire SMA. The output from step 2a should be a list of relevant ecosystem components along with GIS maps of their coverage (where possible).

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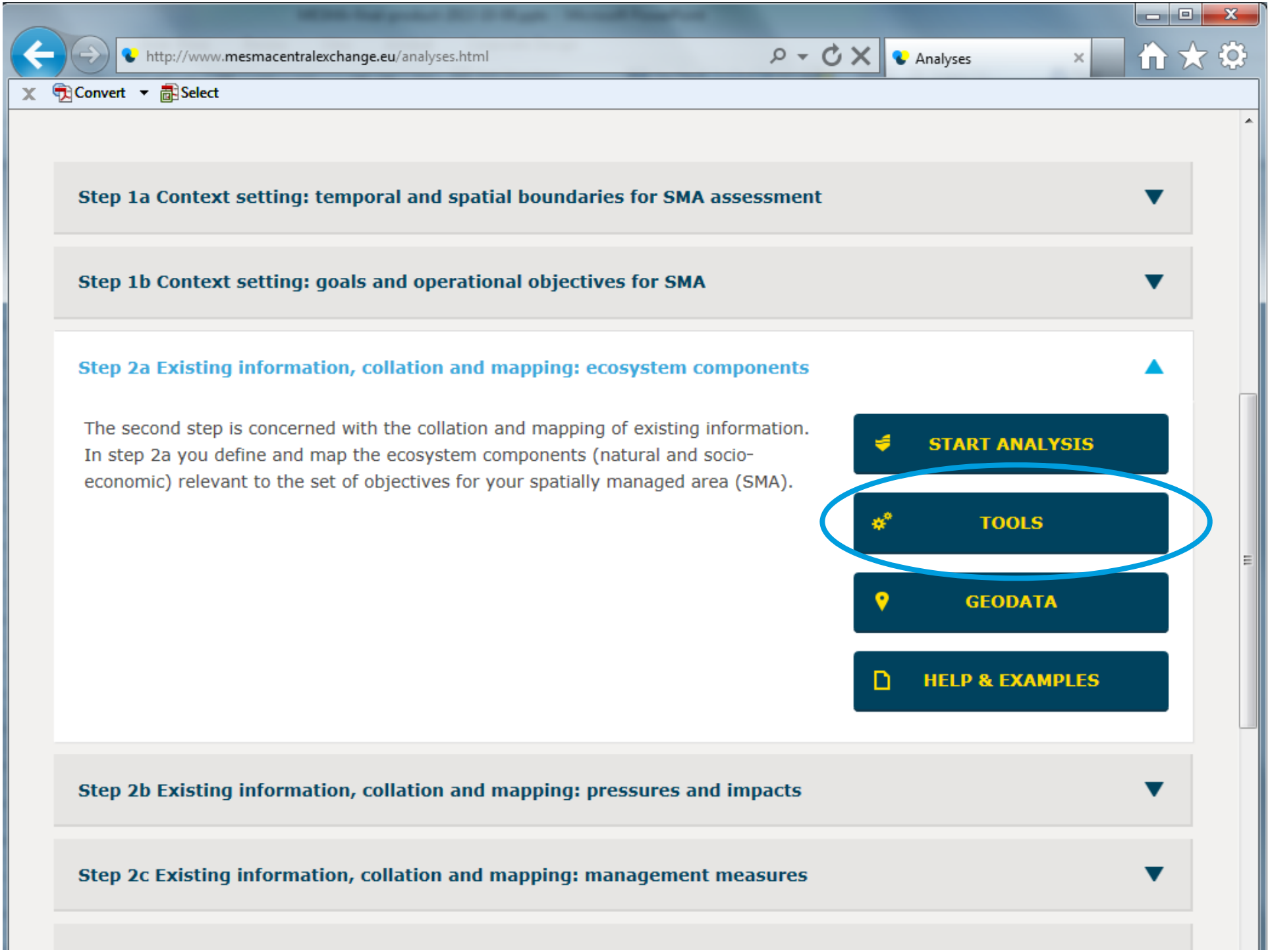
File Edit View Favorites Tools Help
Mesma E-manual
Home Setup
Select Case Study:
CefasTest_Barents Sea
E-manual Steps:
Step 1: Context Setting
Step 2: Existing information collation and
Step 3: Selecting indicators and threshol
Step 4: Risk analysis and state assessm
Step 5: Assessing findings against opera
Step 6: Evaluate management effectiven
Step 7: Recommend adaptations to curre
Action 2a.1: Using table 2a.1.1 provided identify the ecosystem components relevant to the SMA and the
Ecosystem
Components in SMA
Table 2a.1.1 provides a list of ecosystem components taken from the MSFD Annex iii. This list can be amended to reflect the SMA under evaluation.
Type
Ecosystem Component
Physical and chemical
Topography and bathymetry of the seabed
Physical and chemical
Temperature regime, current velocity, upwelling, wave exposure, mixing characteristics, turbidity and residence time
Physical and chemical
Salinity
Physical and chemical
Nutrients
Physical and chemical
Marine acidification
Habitat types
Predominant habitat types
Habitat types
Special habitat types
Habitat types
Identification of habitats in special areas
Biological features
Biological communities including phytoplankton and zooplankton communities
Biological features
Angiosperms, macro-algae and invertebrate bottom fauna
Biological features
Fish populations
Biological features
Marine mammals and reptiles
Biological features
Seabirds
Biological features
Protected species
Biological features
Exotic species
Other features
Chemicals
Other features
Any other features or characteristics typical of or specific to the SMA


http://www.mesmacentralexchange.eu/analyses.html
Analyses
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Select
Step 1a Context setting: temporal and spatial boundaries for SMA assessment
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START ANALYSIS
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Step 2b Existing information, collation and mapping: pressures and impacts
Step 2c Existing information, collation and mapping: management measures

http://www.mesmacentralexchange.eu/tools/step/2a/1/analysis.html

Analyses | MES...

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SEVENTH FRAMEWORK PROGRAMME

HOMEPAGE | ANALYSES | TOOLS | GEOPORTAL | CONTACT | ABOUT | HELP

Per step we show the tools relating to this step.

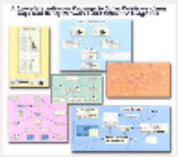
TOOLS

MARINE RESERVE AND LOCAL FISHERIES INTERACTIVE SIMULATION

This simulation-based exercise is an educational tool that allows users to explore various factors that influence fish population viability and fishery sustainability, and experiment with the use of marine reserves as tools in fisheries management…

Read more

NETICA

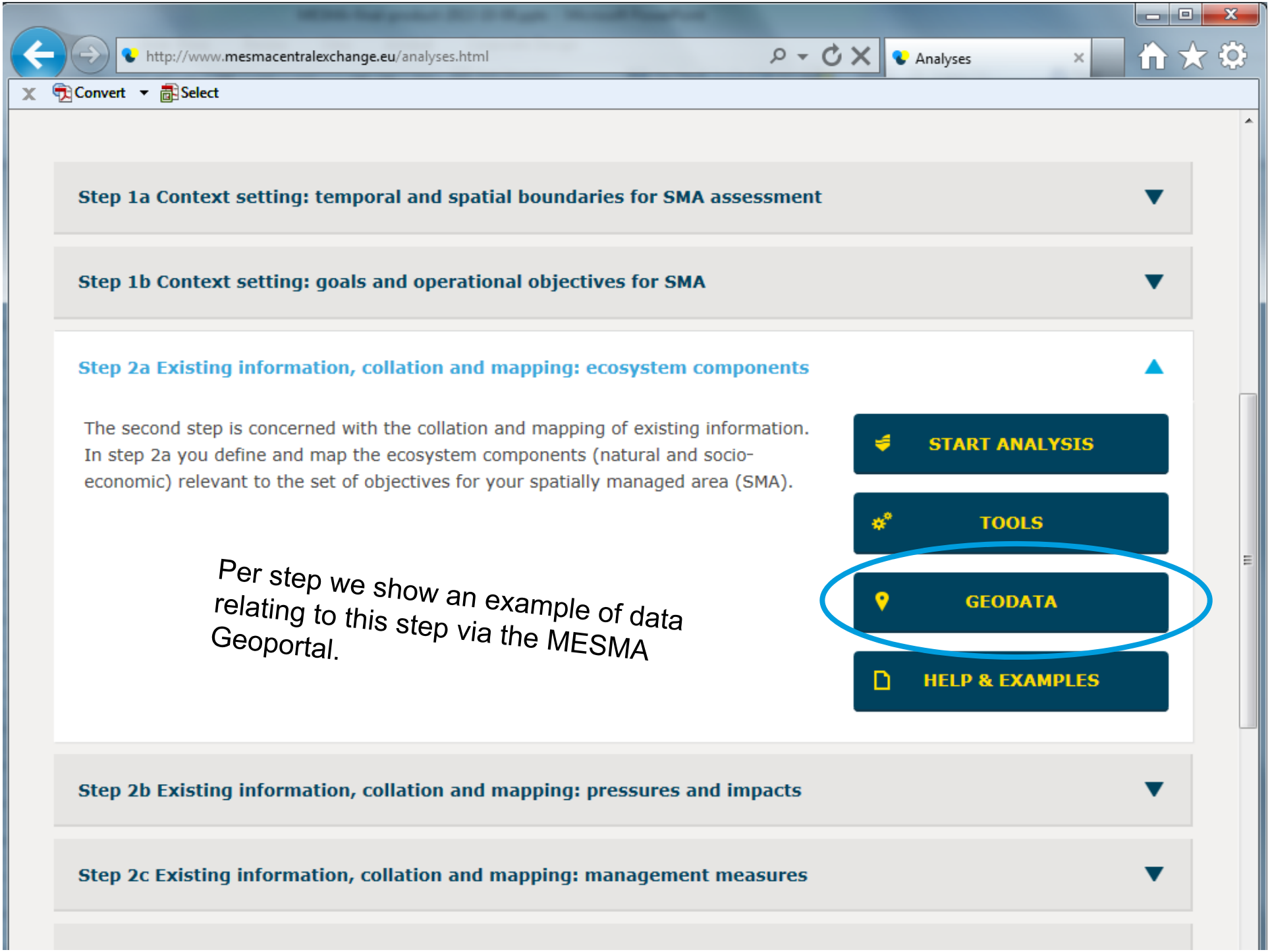


Netica is a powerful, easy-to-use, complete program for working with belief networks and influence diagrams. It has an intuitive and smooth user interface for drawing the networks, and the relationships between variables may be entered as individu…

Read more

PAT

Protected Area Tools (PAT) v. 2.0. The majority of the work that goes into a protected area gap assessment involves the spatial


http://www.mesmacentralexchange.eu/analyses.html
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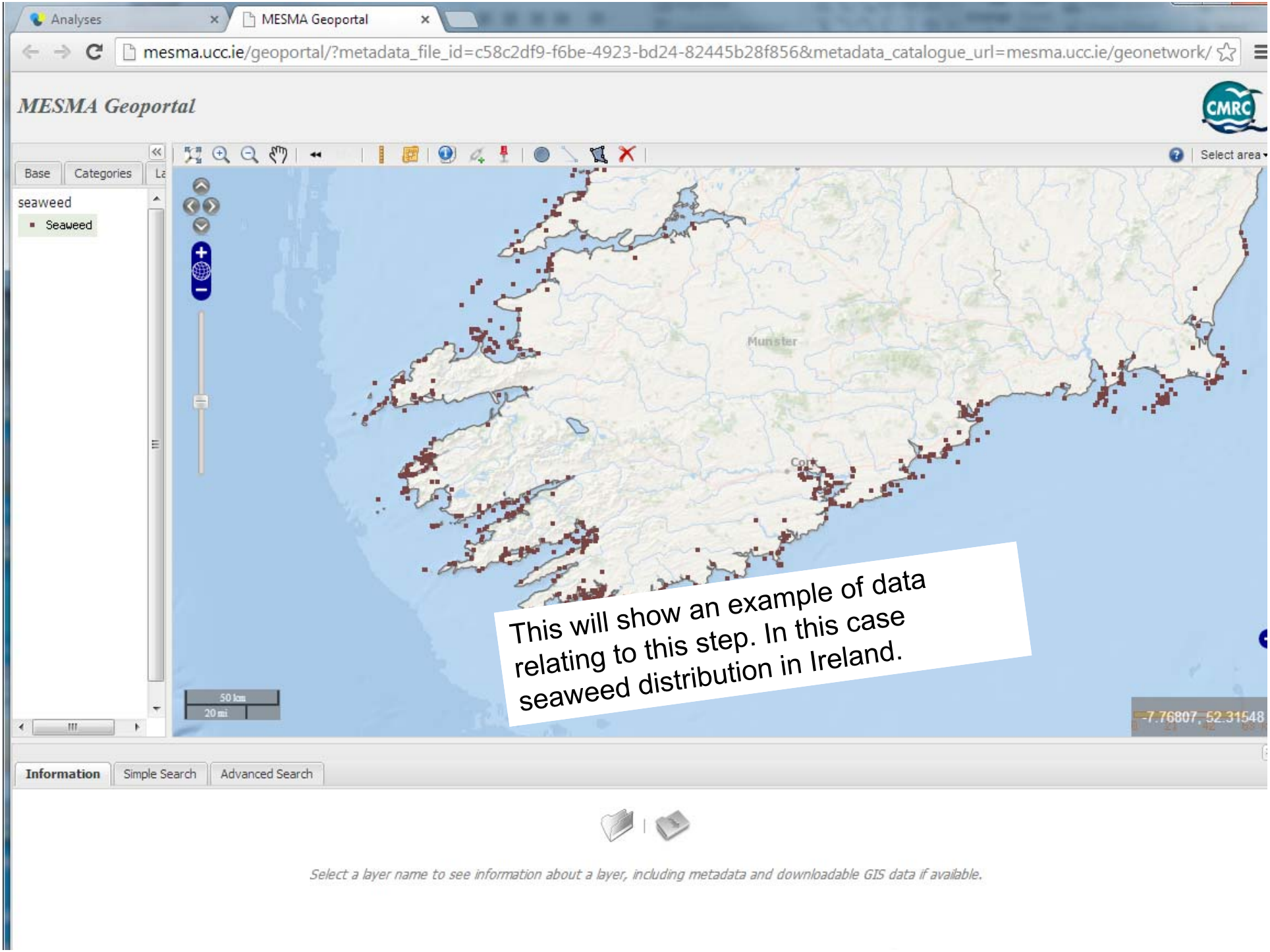
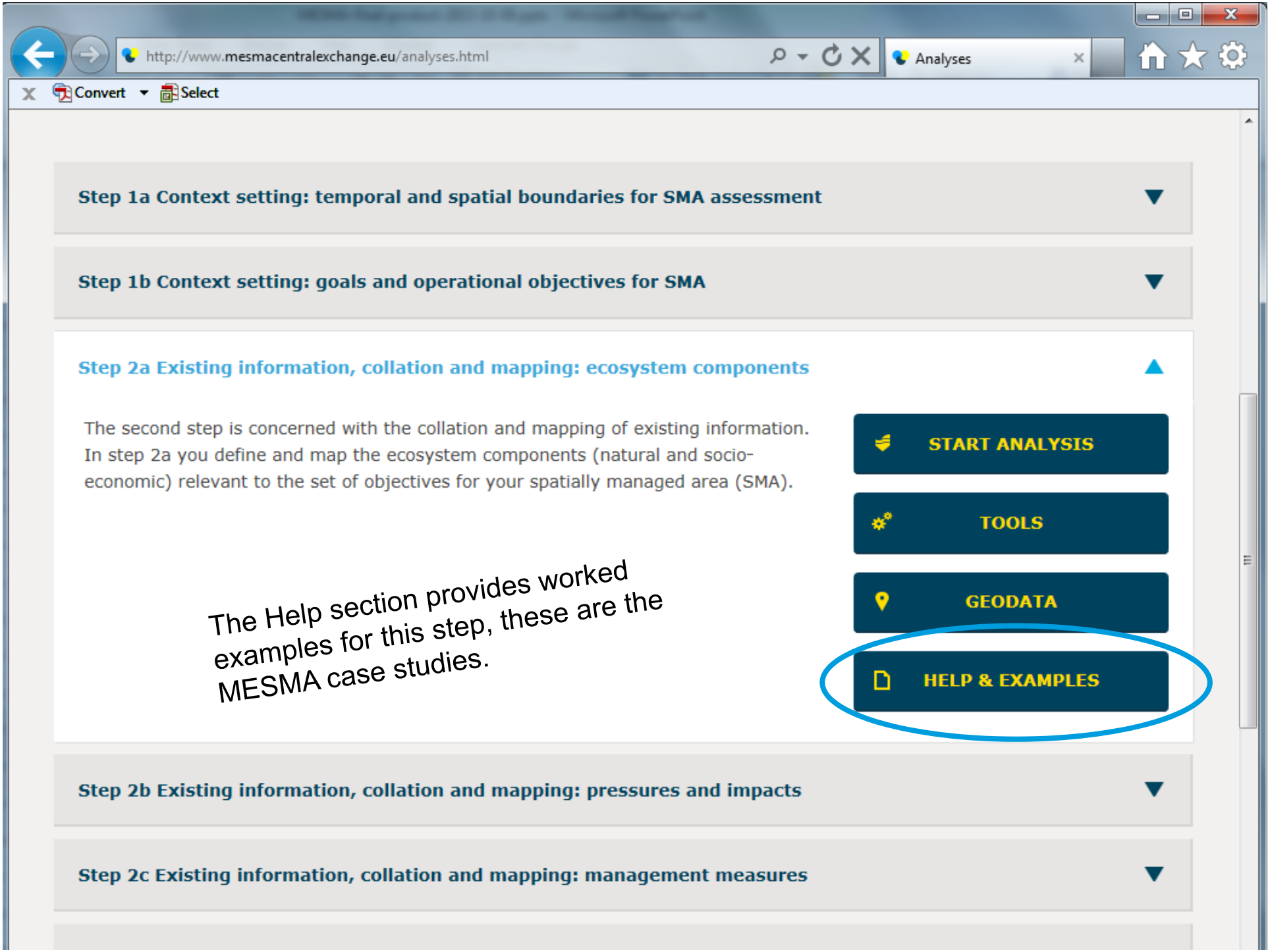
START ANALYSIS
TOOLS
GEODATA
HELP & EXAMPLES
Per step we show an example of data relating to this step via the MESMA Geoportal.
Step 2b Existing information, collation and mapping: pressures and impacts
Step 2c Existing information, collation and mapping: management measures


Analyses
MESMA Geoportal
mesma.ucc.ie/geoportal/?metadata_file_id=c58c2df9-f6be-4923-bd24-82445b28f856&metadata_catalogue_url=mesma.ucc.ie/geonetwork/
MESMA Geoportal
CMRC
Base
Categories
seaweed
Seaweed
Select area
Munster
Cork
50 km
20 mi
-7.76807, 52.31548
This will show an example of data relating to this step. In this case seaweed distribution in Ireland.
Information
Simple Search
Advanced Search
Select a layer name to see information about a layer, including metadata and downloadable GIS data if available.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Analyses
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Step 1a Context setting: temporal and spatial boundaries for SMA assessment
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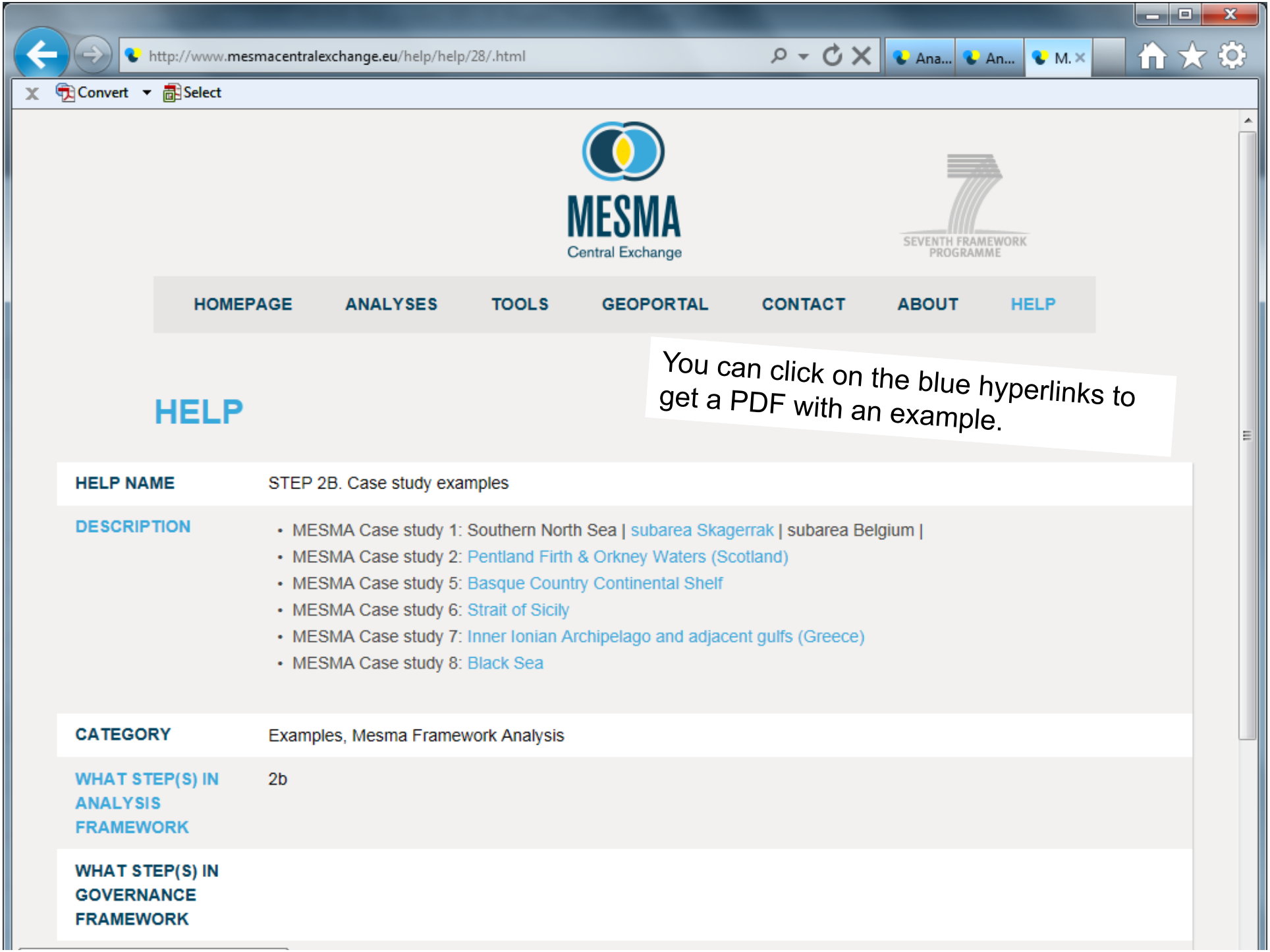
START ANALYSIS
TOOLS
GEODATA
HELP & EXAMPLES
The Help section provides worked examples for this step, these are the MESMA case studies.
Step 2b Existing information, collation and mapping: pressures and impacts
Step 2c Existing information, collation and mapping: management measures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ABOUT
HELP
You can click on the blue hyperlinks to get a PDF with an example.
HELP
HELP NAME
STEP 2B. Case study examples
DESCRIPTION
MESMA Case study 1: Southern North Sea | subarea Skagerrak | subarea Belgium |
MESMA Case study 2: Pentland Firth & Orkney Waters (Scotland)
MESMA Case study 5: Basque Country Continental Shelf
MESMA Case study 6: Strait of Sicily
MESMA Case study 7: Inner Ionian Archipelago and adjacent gulfs (Greece)
MESMA Case study 8: Black Sea
CATEGORY
Examples, Mesma Framework Analysis
WHAT STEP(S) IN ANALYSIS FRAMEWORK
2b
WHAT STEP(S) IN GOVERNANCE FRAMEWORK

FRAMEWORK ANALYSIS | GOVERNANCE ANALYSIS

Step 1 Context

In this section, you will outline the 'story' of the initiative you are analysing, including its geographical context, the socio-economic and political context of the host country, and the regional policy framework (e.g. regional sea action plans).

START ANALYSIS

TOOLS

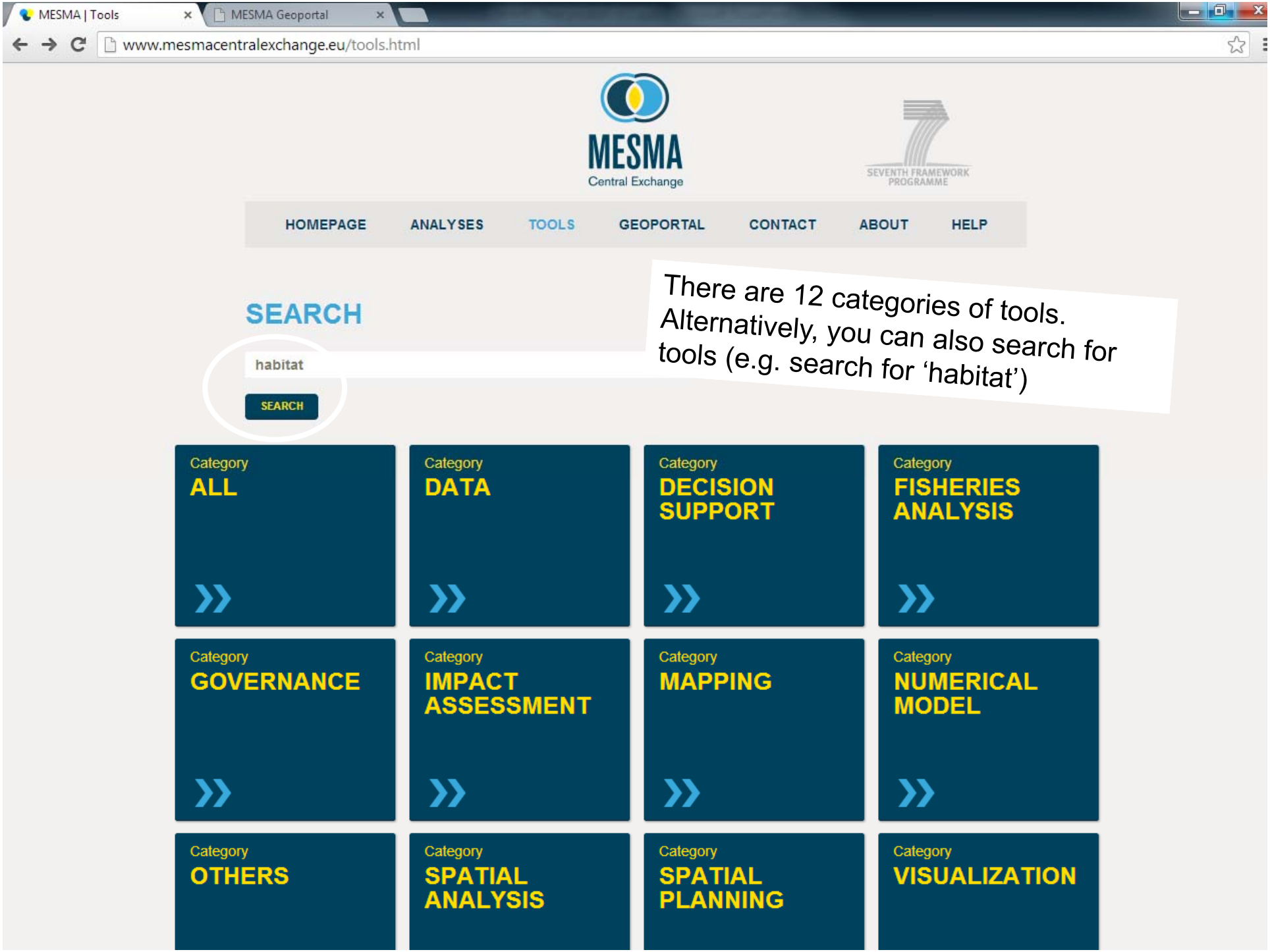
GEODATA

HELP & EXAMPLES

Step 2 Objectives and management measures

Step 3 Conflicts

Step 4 Governance approach and effectiveness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habitat
SEARCH
There are 12 categories of tools. Alternatively, you can also search for tools (e.g. search for 'habitat')
Category ALL
Category DATA
Category DECISION SUPPORT
Category FISHERIES ANALYSIS
Category GOVERNANCE
Category IMPACT ASSESSMENT
Category MAPPING
Category NUMERICAL MODEL
Category OTHERS
Category SPATIAL ANALYSIS
Category SPATIAL PLANNING
Category VISUALIZATION

MESMA | Tools

MESMA Geoportal

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TOOLS

List of tools relating to habitats

ECOGIS

The EcoGIS project is developing a set of GIS tools to better enable both fisheries scientists and managers to adopt ecosystem approaches to fisheries management. Prototype GIS tools are being developed to address fishing effort and catch analysis...

Read more

HABITAT PRIORITY PLANNER

This tool aids in making decisions about conservation, restoration, and planning. The Habitat Priority Planner takes away much of the subjective nature of the process by providing a means of obtaining critical habitat analyses that are consistent,...

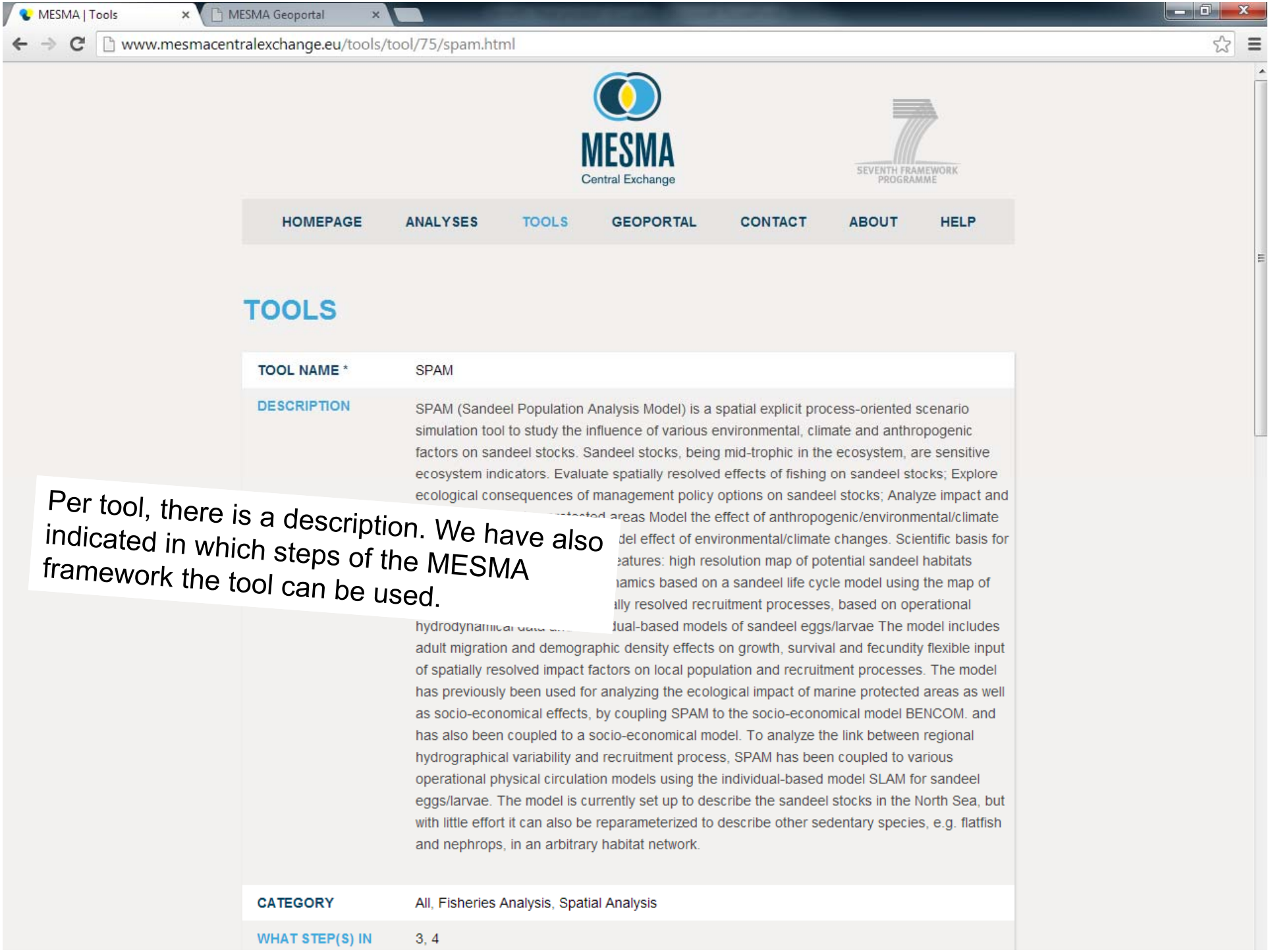
Read more

BVMTOOL

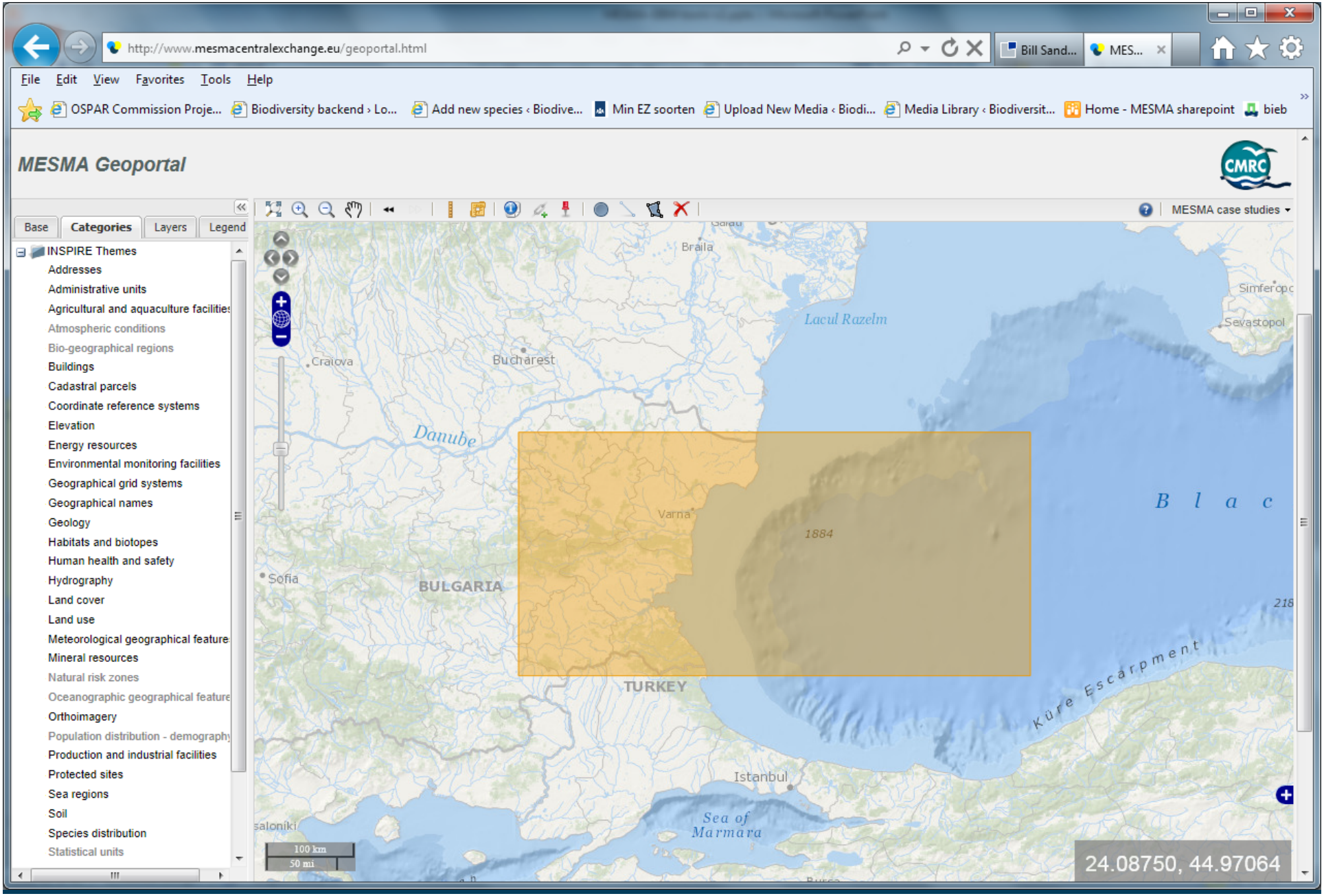
BVMtool (Tool for marine biological valuation mapping) is a set of R scripts automating marine biological valuation calculations based on the biological valuation concept as developed by Derous et al. 2007 and described by Deneudt et al. 2013. Bas...

Read more

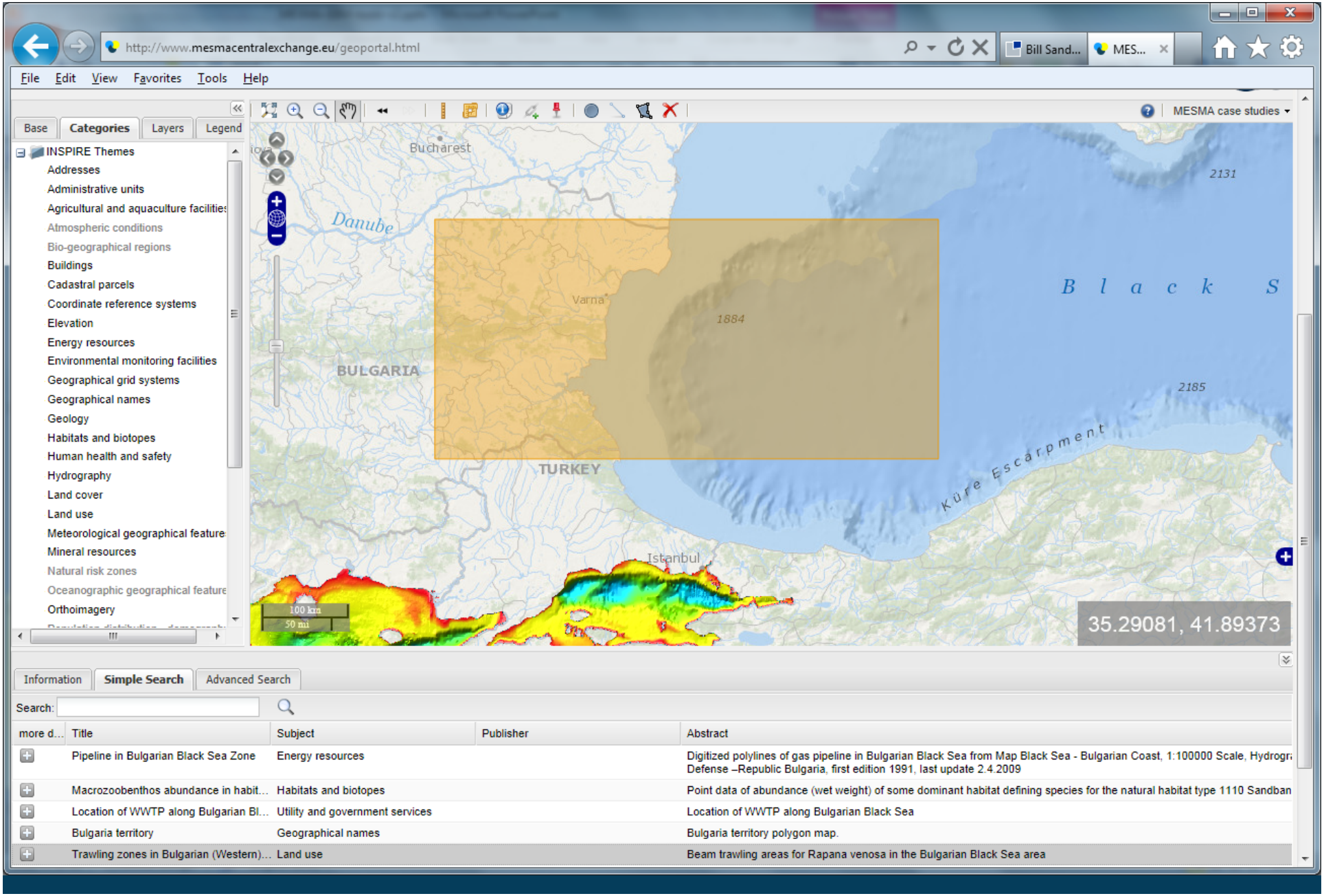
HABITAT MODELING TOOLBOX



Per tool, there is a description. We have also indicated in which steps of the MESMA framework the tool can be used.



Monitoring and Evaluation of Spatially Managed Areas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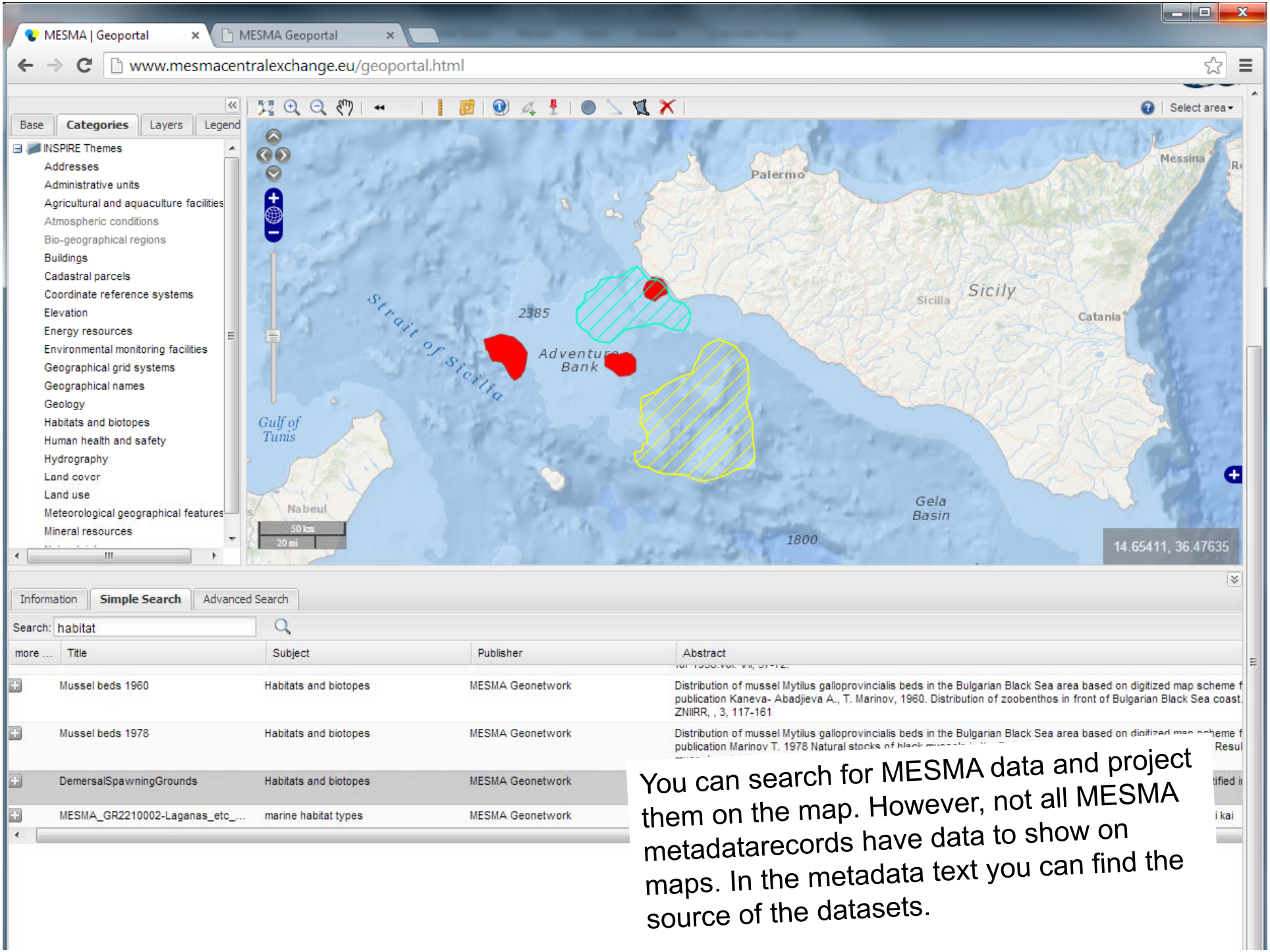
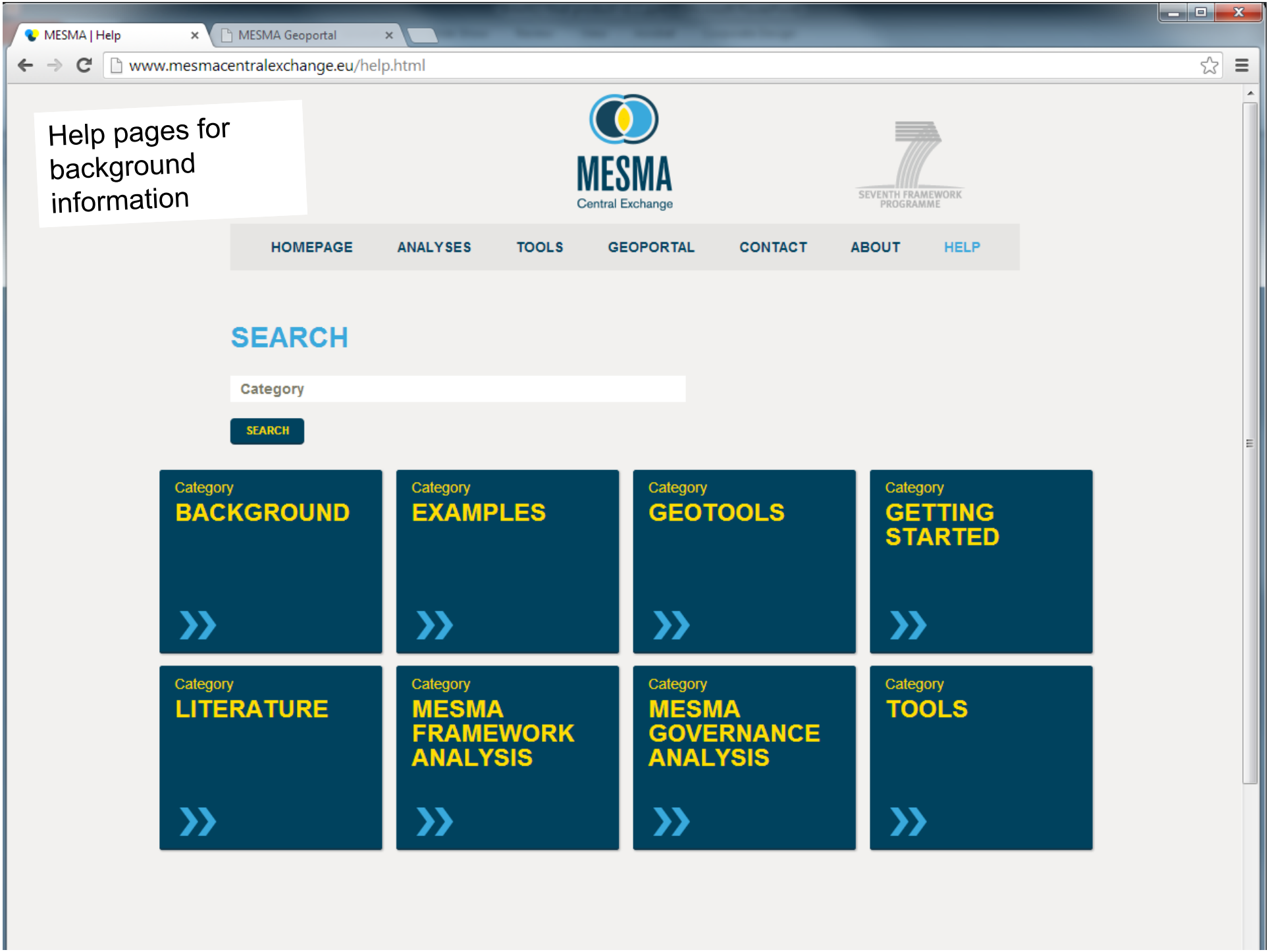
Base Categories Layers Legend
INSPIRE Themes
Addresses
Administrative units
Agricultural and aquaculture facilities
Atmospheric conditions
Bio-geographical regions
Buildings
Cadastral parcels
Coordinate reference systems
Elevation
Energy resources
Environmental monitoring facilities
Geographical grid systems
Geographical names
Geology
Habitats and biotopes
Human health and safety
Hydrography
Land cover
Land use
Meteorological geographical features
Mineral resources
Natural risk zones
Oceanographic geographical features
Orthoimagery
MESMA case studies
Bucharest
Danube
Varna
BULGARIA
TURKEY
Istanbul
Black Sea
Küre Escarpment
2131
1884
2185
100 km
50 mi
35.29081, 41.89373
Information
Simple Search
Advanced Search
Search:
more d...
Title
Subject
Publisher
Abstract
Pipeline in Bulgarian Black Sea Zone
Energy resources
Digitized polylines of gas pipeline in Bulgarian Black Sea from Map Black Sea - Bulgarian Coast, 1:100000 Scale, Hydrogr
Defense –Republic Bulgaria, first edition 1991, last update 2.4.2009
Macrozoobenthos abundance in habit...
Habitats and biotopes
Point data of abundance (wet weight) of some dominant habitat defining species for the natural habitat type 1110 Sandban
Location of WWTP along Bulgarian Bl...
Utility and government services
Location of WWTP along Bulgarian Black Sea
Bulgaria territory
Geographical names
Bulgaria territory polygon map.
Trawling zones in Bulgarian (Western)...
Land use
Beam trawling areas for Rapana venosa in the Bulgarian Black Sea area



You can search for MESMA data and project them on the map. However, not all MESMA metadatarecords have data to show on maps. In the metadata text you can find the source of the datasets.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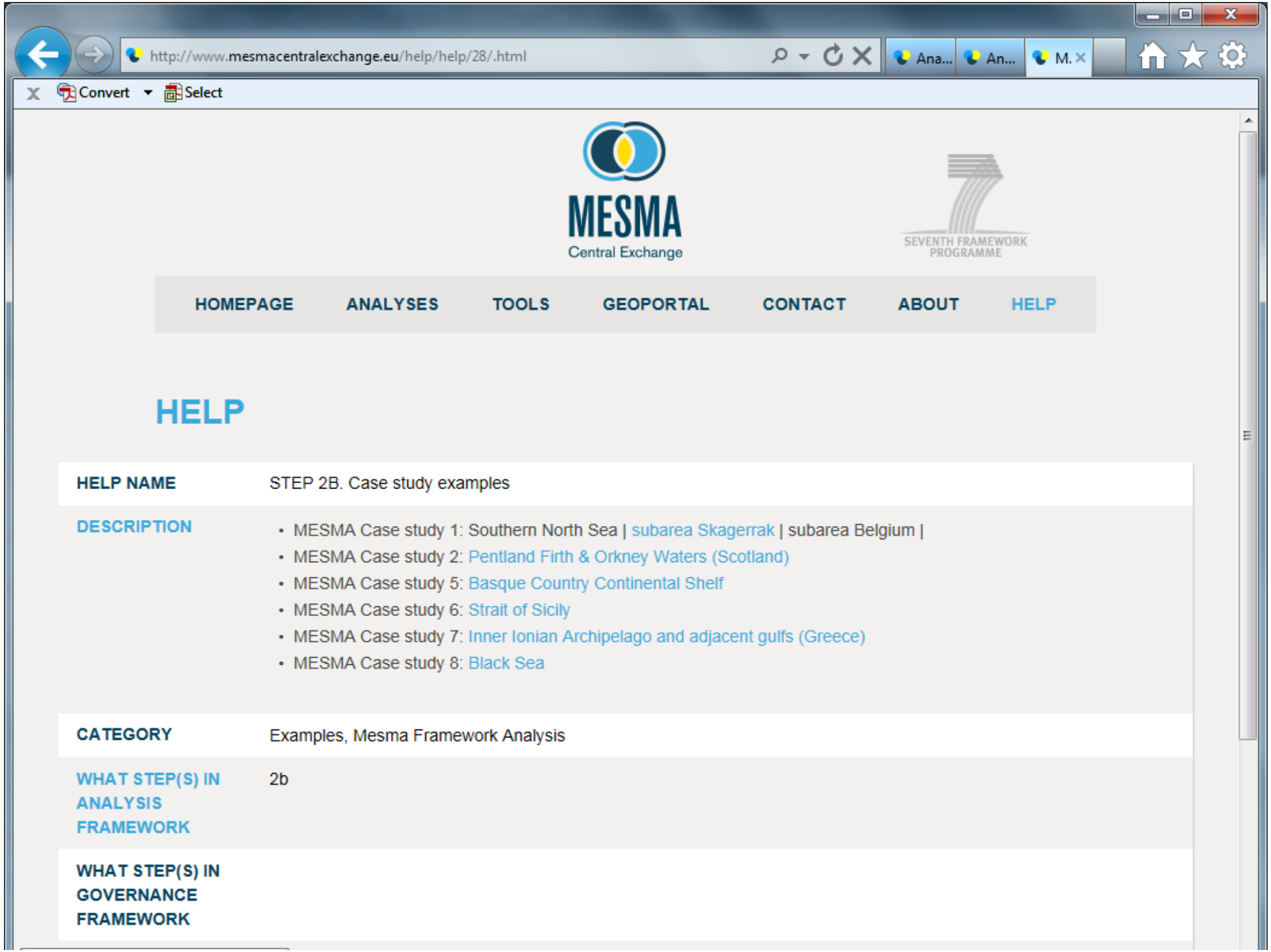
Category BACKGROUND
Category EXAMPLES
Category GEOTOOLS
Category GETTING STARTED
Category LITERATURE
Category MESMA FRAMEWORK ANALYSIS
Category MESMA GOVERNANCE ANALYSIS
Category TOOLS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HELP NAME
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MESMA Case study 8: Black Sea
CATEGORY
Examples, Mesma Framework Analysis
WHAT STEP(S) IN ANALYSIS FRAMEWORK
2b
WHAT STEP(S) IN GOVERNANCE FRAMEWORK

Lessons learned

- Framework suitable for
  - Data poor / data rich cases
  - Complex governance / simple governance
  - MSP in place/not in place

- Standard process was useful in all case studies
  - Restricted to rationale of the methodology
  - Possible to include other methodology

Strong/weak points

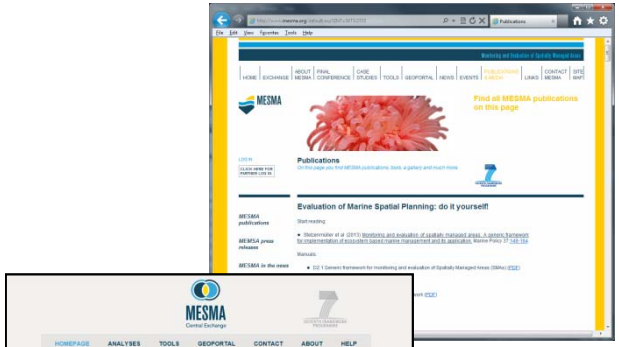
- Data retrieval can be difficult
  - Especially for cross boundary cases
- Definition of objectives can be hard
  - Especially when no clear management boundaries are present
- Framework thoroughly tested
  - Based on practical experience and improved by user feedback
  - Integrated tool (=MESMA Central Exchange website) still a prototype

EBM Tools webinar 25 Feb 2014

Evaluation of spatially managed areas do it yourself:

- go to www.mesma.org (publications) for relevant documents on the framework analysis and governance analysis
- Play around at www.mesmacentralexchange.eu
- Or contact us

oscar.bos@wur.nl
vanessa.stelzenmueller@ti.bund.de



Monitoring and Evaluation of Spatially Managed Areas

MESMA

Monitoring and Evaluation of Spatially Managed Areas

SEVENTH FRAMEWORK PROGRAMME

www.mesma.org

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