Maritime Spatial Planning Framework Directive Supported by INSPIRE

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www.jrc.ec.europa.eu
Why we need Marine Spatial Planning?

Conflicts between multiple users are more frequent

*To coordinate and minimize conflicts of multiple users (energy, industry, government, conservation, recreation, ...) that utilize same area ...*
What is Marine Spatial Planning?

Process

Legislation

Methodology

Tools & Data
Where is necessary to implement MSP

Part V, Article 55 of the Convention states:

Need for legislation, methodology, tool
1. Legislation

USA - **2013 National Ocean Policy Implementation Plan** – related to the ocean, coasts, and the Great Lakes.

- Marine planning **is a science** and information based tool that can help advance local and **regional interests**
- *to improve collaboration and coordination among all coastal and ocean interests*
- **Marine planning is a voluntary regional process**...
- **Marine planning is a common sense**
- **Introduce Marine Planning Handbook 2013**
EU legislation


**Marine** Spatial Planning VS **Maritime** Spatial Planning

The term **maritime** spatial planning is favored over **marine** spatial planning to underline the holistic cross-sectorial approach of the process.
2. Methodology
UNESCO IOC Marine Spatial Planning Initiative

Operationalize ecosystem-based management by finding space for biodiversity conservation and sustainable economic development in marine environments.

- Developing a **step-by-step approach** for implementing marine spatial planning;
- **Documenting marine spatial planning initiatives** around the world;
- Analyzing good practices of marine spatial planning;
- **Collecting references and literature** on marine spatial planning;
- Enhancing understanding about marine spatial planning through publications;
- Developing capacity and training for marine spatial planning.
Step by step - Ecosystem-based management approach

1. Identifying Need and Establishing Authority
   2. Obtaining Financial Support
   4. Organizing Stakeholder Participation

3. Organizing the Process through Pre-planning
   - Forming the Team and Developing a Work Plan
   - Defining Principles, Goals and Objectives
   - Specifying Boundaries and Time Frames

5. Defining and Analyzing Existing Conditions
   - Mapping Important Biological Ecological Areas
   - Identifying Spatial Conflicts and Compatibilities
   - Mapping Existing Areas of Human Activities

6. Defining and Analyzing Future Conditions
   - Mapping Future Demands for Ocean Space
   - Identifying Alternative Spatial Scenarios
   - Selecting a Preferred Spatial Scenario

7. Preparing and Approving the Spatial Management Plan
   - Identifying Alternative Spatial Management
   - Developing & Evaluating the Spatial Management Plan
   - Approving the Spatial Management Plan

8. Implementing & Enforcing the Spatial Management Plan Measures
9. Monitoring and Evaluating Performance
10. Adapting the Spatial Management Process

Fig. 1. A Step-by-Step Approach to Marine Spatial Planning
3. Can INSPIRE be used as a tool for MSP & implementation of the framework Directive on MSP

We analyzed the framework Directive on MSP articles in relation to INSPIRE

Do MSPFD and INSPIRE share the scope & objectivities

**Article 1:** Subject matter; should be consider economic, social and environmental aspect

**Article 2:** Scope; Paragraph 1: Directive applies only on Marine waters - excluding the coastal waters

**Article 3:** Definitions; **MSP** defined as a process for the sustainable human activities within ecological, economic and social objectives

‘marine waters’ means the waters, the seabed and subsoil

**Article 5:** Objectives of maritime spatial planning; **Sustainable development** of energy sector, maritime transport, fisheries, aquaculture, preservation & protection of environment
Article 8: Setting up MSP, the elements that should be considered

a) aquaculture areas  
b) fishing areas  
c) exploration, exploitation and extraction of oil, of gas and other energy resources  
d) maritime transport routes  
e) conservation sites and protected areas  
f) raw material extraction areas  
g) military training areas  
h) scientific research  
i) submarine cable and pipeline routes  
j) tourism  
k) underwater cultural heritage
Establishing spatial data inventory within INSPIRE

**Article 10: Data use and sharing**

*Paragraph 1:* MS shall organize the use of the best available data, and decide how to organize the sharing of information, necessary for MSP.

*Paragraph 3:* MS shall use instruments and tools, including those already available under the Integrated Maritime Policy and INSPIRE.

Required data for the process of MSP should be **easily discoverable, viewable and accessible** to download into a **harmonized and interoperable** format. **Establishing data inventory should be exceptionally more efficient**, without spending large amount of time and resources.
# Sustainability evaluation analysis and conflicts management

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MSP – Malta
INSPIRE data model for providing MSP in the interoperable “format”

**Article 4:** Establishment and implementation of maritime spatial planning
Paragraph 3: **Framework legislation** - gives *free hands* to MS regarding the *design, format and content*
Advanced examples in EU

Which INSPIRE data model should be used for the MSP
INSPIRE Planned Land use data model

INSPIRE data model for spatial planning have 4 feature types:

1. **SpatialPlan**: indicates a strategic direction for the development of a given geographic area, within distribution of people and activities.

2. **ZoningElement**: Homogeneous spatial object based on zoning concept which separate one set of uses from another.

3. **OfficialDocumentation**: includes official documentation that composes the spatial plan.

4. **SupplementaryRegulation**: A spatial object (point, line or polygon) of a spatial plan that provides supplementary information and/or limitation of the use of land/water/sea necessary for spatial planning reasons or to formalise external rules defined in legal text.
HILUCS
Hierarchical INSPIRE Land Use Classification System
Develop as a classification system that can classify exiting and planned activities (land use)
Mapping HILUCS VS MSP objects:

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<th>Spatial object</th>
<th>HILUCS</th>
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<td>Reservation Area Shipping</td>
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<td>Priority Area Shipping</td>
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<td>Reservation Area for Pipelines</td>
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<td>Natural Gas pipeline</td>
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All activities that are included in Spatial Plan for the German EEZ, are covered by the HILUCS
HILUCS – for the marine/maritime activities - generic classification system

Second classification system (given by data provider) can give us more specific information on – as SpecificLandUse attribute
Ocean/marine zoning concept approach

• **More dynamical from land zoning** - zones could be changed in terms of years or even in terms of seasons
• **Support mixed-use** and exclusive-use zones
• **More effective marine conservation** (large scale zones on marine areas comparable with land areas – impacts on marine environment addressed on entire region)
• **4S Zoning**: Simple, Systematic, Strategic and Strate-foward

• The concept of zoning comprises **polygons that are mutually exclusive**;
• MSP for a difference of land planning is dealing with a **three spatial dimensions** and address activities on the seabed, subsoil and the water.
• Zoning concept do not allow that **three dimensions are used by different purposes**.
• The **spatial elements cannot be overlapped** and within zoning concept there is a difficulty to refer on the seabed, subsoil or surface
One layer for surface, seabed, subsoil

- ZoningElement feature type has related attributes hilucsLandUse and specificLandUse, have a multiplicity of 1 to many
- list of HILUCSValue as a list of LandUseClassificationValue related to the one spatial object – overlapped zone
- Most of the real objects that are located in “different dimensions” in the map presentation are overlapped in the cross sections of two or three spatial objects geometry.
- Each overlapped cross section should be treated as a single spatial object, with list of HILUCSValue and voidable list of LandUseClassificationValue
3 layers approach

Spatial plan should consist three separated zoning layers:

1. Zoning elements that refer to water - **water layer**
2. Zoning elements that refer to seabed - **seabed layer**
3. Zoning elements that refer to subsoil - **subsoil layer**

Within this approach spatial objects (features) represent entire real objects.
Using the INSPIRE Data model and network services

**Article 11: Cooperation among Member States**
Member States bordering marine waters shall cooperate with the aim of ensuring that maritime spatial plans are coherent and coordinated

**Article 12: Cooperation with third countries**

**Article 13: Competent authorities**
Each MS should designate competent authorities

**Article 14: Monitoring and reporting**
The maritime spatial plans referred to in Article 4 shall be established as soon as possible, and at the latest by 31 March 2021.
Article 6: Minimum requirements for MSP

MSP should consider and take in account land-sea interactions

Take into account environmental, economic and social aspects

Ensure involvement of stakeholders

Organize the use of best available data

Ensure trans-boundary cooperation
Maritime Spatial Planning

Organizing the MSP process
- Trans boundary data recollection (EU)

MSP process
- Defining and analyzing existing conditions
- Defining and analyzing future conditions
- MSP development/interactions stakeholders/publishing final spatial plans

INSPIRE Data
- Data not in scope of INSPIRE

Spatial data services
- Registry
- Geoportal

Network services

Metadata

INSPIRE (2007/2/EC)

Using INSPIRE network services for dissemination in the interoperable data model

Shared Environmental Information System (SEIS)
Thank you ...questions?

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