Can Maritime Spatial Planning provide the mechanism to realise the economic potential of aquaculture from our Oceans

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Coastal & Marine Research Centre
Ionad Taighde Cósta is Mara

UCC
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

Marine Institute

Coexistence
Interaction in coastal waters
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<th>Coastal Governance</th>
<th>How to plan a maritime economy in a sustainable way within a dynamic environment</th>
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<td>Increasing understanding of the physical aspects of the coastal and marine environment</td>
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Coastal Governance
How to plan a maritime economy in a sustainable way within a dynamic environment

Niche area:

- Capacity building
- Public participation
- Climate Change Adaptation
- User requirements
- Indicators
- Maritime spatial planning
**Niche area:**

- Monitoring capability
- Risk assessment
- Protocols for best practice
- Population modelling
- Biotelemetry

**Marine Ecology**

Understanding the role of key species in the marine environment and their contribution to marine ecosystems.
Niche area:

Coastal monitoring

Vegetation seasonality

Image classification

Maritime security

Tailored GIS systems

Technical Training

**Applied Remote Sensing and GIS**
Enhancing our knowledge of the environment and improving analysis and visualisation capabilities
Niche area:

Data handling
Integration
Geo-spatial analysis
Visualisation
Applications

Geomatics
How to manage and add value to existing and newly acquired marine data and information
Coastal And Marine Spatial Planning Workshop
Tuesday February 4th, 2014

**Niche area:**
- Interpretation tools
- Geomorphology
- Marine aggregates
- Geophysical analysis
- Data Acquisition
- Policy links

**Physical processes & seabed mapping**
Increasing understanding of the physical aspects of the coastal and marine environment
INTERACTION IN COASTAL WATERS: A ROADMAP TO SUSTAINABLE INTEGRATION OF AQUACULTURE AND FISHERIES

Objective: to evaluate competing activities and interactions in European coastal areas with the ultimate goal to provide a roadmap to better integration, sustainability and synergies across the diverse activities taking place in the European coastal zone

- Multidisciplinary project with thirteen partners from ten European countries, coordinated by the Norwegian Institute of Marine Research
- Funded by the European Commission Seventh Framework Programme
- Project duration: 36 months, started April 2010 (extended to June 2013)
- Test approaches and ascertain views of stakeholders at six representative case study sites
INTERACTION IN COASTAL WATERS: A ROADMAP TO SUSTAINABLE INTEGRATION OF AQUACULTURE AND FISHERIES

Characterization of relevant European coastal marine ecosystems, their current utilisation and spatial management

Evaluation of spatial management tools for combining coastal fisheries, aquaculture and other uses, both now and in the future

TOOLS FOR SUPPORTING THE DECISION-MAKERS AND OTHER STAKEHOLDERS
COEXIST: CASE STUDY AREAS

1. Hardangerfjord: Norway
2. Atlantic Sea Coast: France, Ireland & UK
3. Algarve Coast: Portugal
4. Adriatic Sea Coast: Italy
5. Coastal North Sea: Denmark, Germany & The Netherlands
6. Baltic Sea: Finland
COEXIST: WORKPACKAGES

1. Base line: identification of interactions, conflicts and management tools in coastal waters (marine ecosystem approach)

2. Legal institutional and policy frameworks

3. Integration of models and processes

4. Evaluation of spatial management tools

5. Synthesis of Coexist

6. Communication and dissemination

7. Knowledge management

8. Project management

Outputs - Series of reports / tools - Guidelines
The COEXIST Project

COEXIST is a broad, multidisciplinary project which will evaluate competing activities and interactions in European coastal areas. The ultimate goal of the COEXIST project is to provide a roadmap to better integration, sustainability and synergies across the diverse activities taking place in the coastal zones of Europe.

The purpose of this document is to identify stakeholder issues and interactions in the various study sites around Europe e.g. issues and interactions between aquaculture sectors and fisheries or aquaculture and wind parks.

The activity examined in this study site is AQUACULTURE in HÅR DANGERFJORD.  

*Note - This document is for use in C51*

### SECTION 1 - About you/your organisation or sector

**ORGANISATION DETAILS**

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<th>1.1 Name of respondent</th>
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*Other (please list)*

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### SECTION 2 - Location of your Activity/Area of Use

Please write below where your sector/activity normally takes place (e.g. C3, C4, D4).

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**Total** | 9   | 6   | 3   | 9   | 5   | 7   | 13  | 5   | 21                             | 78            |
COEXIST: CASE STUDY RESPONSES (1)

Case Study 1 - Hardangerfjord (n=9)

100% of respondents were aware of conflicts.

Conflicts

Reasons for current conflict?

Spatial conflict: fisheries, aquaculture and tourism.

Aquaculture activity impact: impact of aquaculture activities e.g. salmon escapees and genetic affect on wild stocks; salmon-lice; and eutrophication.

Other: electric cables and tourism and conservation.

How can current conflict be resolved?

ICZM: partnerships; networking; open planning processes; clear political objectives; involve stakeholders in municipality coastal zone plans; and create a common vision for ICZM.

Operational planning: plan new installations so that they are not in the conflict with other sectors e.g. shorten anchor distances of installations.

Utilise technology/science: prevent aquaculture escapees; light up fish farms; improve visual design of fish farms; and create new pharmaceuticals/vaccines for salmon-lice.
COEXIST: CASE STUDY RESPONSES (2)

Case Study 5 – North Sea - Denmark (n=5)

86% of respondents were aware of conflicts.

Conflicts

Reasons for current conflict?

Spatial conflict: co-use of areas by fishermen and shipping/transport. Ship collisions, oils spill risk and losses of gear are current issues. Fishing is not allowed in military areas when military are using it. Loss of fishing areas if new windpark is constructed and due to danger of cable damage.

Pollution/waste: old oil industry infrastructure hampers fisheries in areas.

How can current conflict be resolved?

ICZM: communication is needed before a new activity/stakeholder is starting up. Direct negotiations between stakeholders and representatives for the authorities on marine spatial management. Further development of a marine spatial planning policy on a national and EU level.

Is this an example of the Enemy or the Unknown?
• EU Integrated Maritime Policy
• Nature protection Directives and policies to halt loss of biodiversity and ecosystem services
• Water Framework Directive and Floods Directives
• Atlantic Strategy
• Marine Strategy Framework Directive
• Integrated Coastal Zone Management (EU ICZM Recommendation)
• Proposed EU MSP and ICM Directive
• EU Climate Change Adaptation Strategy
• Current / Future Funding (FP7, ESA, H2020)
• Sectoral, cross-cutting policies: energy, transport, regional policies, etc.
To develop a coordinated programme of actions across the economic, environmental, research, innovation, governance, safety and security dimensions of the Atlantic maritime region, to promote cohesive development by promoting Blue Growth objectives.

**Developing a Maritime Strategy for the Atlantic Ocean Area, November 2011**

**Five Overarching Inter-linked Themes**

1. Implementing the ecosystem approach
   - Common Fisheries Policy, Marine Strategy Framework Directive
2. Reducing Europe’s Carbon Footprint
   - Marine renewable energy
3. Exploiting the Atlantic’s seafloor natural resources
   - Materials for food, fuel and pharmaceuticals; marine knowledge
4. Responding to threats and emergencies
   - Maritime safety; maritime crisis management; maritime surveillance
5. Socially inclusive growth
   - Blue Growth initiative, Clusters – IMERC (Irish Maritime & Energy Resource Cluster)
Creating sustainable jobs and growth in the Atlantic area by bringing together the five EU countries with an Atlantic coastline (France, Ireland, Portugal, Spain, United Kingdom), regional and local authorities, business and other stakeholders to identify key investment and research priorities, as well as concrete project ideas.

Atlantic Forum, Sept 12 - March 2013

Action Plan –published in 2nd Quarter of 2013

Double the value of Ireland’s ocean wealth to 2.4% of GDP by 2030
LOMA – PLACENTA BAY / GRAND BANKS

Integrated Plan is intended to provide long-term direction and a common basis for the development and implementation of action plans for environmental, social, cultural and economic sustainability.

**Stakeholders:**
- Industry
- Provincial Government
- Federal Government
- ENGO’s
- Academic
- Associated Regulators
- NGO’s
- Aboriginal Community
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**Healthy Ecosystems**
- Conserve Coldwater Coral and Sponge Reefs
- Prevent Introduction/Distribution of Aquatic Invasive Species (AIS)
- Rebuild Atlantic Cod
- Manage Habitat for Marine Species
- Protect at Risk Species and Vulnerable Marine Habitats

**Collaborative and Effective Governance**
- Conduct a Legislative and Regulatory Gap Analysis
- Enhance Communication and Awareness
- Identify and Address Information and Data Needs/Gaps
- Mitigate and/or Prevent Conflict

**Sustainable Use**
- Improve Coastal and Marine Infrastructure
- Prevent Pollution
- Assess Linkages, Opportunities and Values to Guide Economic Development
- Foster Community Engagement
- Promote Education and Stewardship

**Thriving Maritime Economy**
- Sustainable economic growth of our marine/maritime sectors
- Increase the contribution to our national GDP
- Deliver a business friendly yet robust governance, policy and planning framework

**Healthy Ecosystems**
- Protect and conserve our rich marine biodiversity and ecosystems
- Manage our living and non-living resource in harmony with the ecosystem
- Implement and comply with environmental legislation

**Engaging with the Sea**
- Building on our maritime heritage, strengthen our maritime identity
- Increase our awareness of the value, opportunities and societal benefits
- Engagement and participation by all

Both adopting essentially an **Ecosystem Approach** - **Environment, Society, Economy**
OVER-ARCHING GOALS

### Coordinated Approach
- Coordinate policies and programs across government.

### Information and Research
- Advance research and information sharing through collaboration.

### Education and Awareness
- Promote awareness and understanding of the coastal and ocean environment/resources and the issues impacting them.
‘Good environmental status’ means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable.

<table>
<thead>
<tr>
<th>Qualitative descriptors for determining good environmental status</th>
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<tbody>
<tr>
<td>1. Biological diversity</td>
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<td>2. Non-indigenous species</td>
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<td>3. Commercially exploited fish and shellfish</td>
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<td>4. Marine food webs</td>
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<td>5. Human-induced eutrophication</td>
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<td>6. Sea-floor integrity</td>
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<td>7. Hydrographical conditions</td>
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<tr>
<td>8. Pollution (contaminants)</td>
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<td>9. Contaminants in fish and other seafood</td>
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<td>10. Marine litter</td>
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<td>11. Introduction of energy, including underwater noise</td>
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</table>
Each Member State should therefore develop a marine strategy for its marine waters which, while being specific to its own waters, reflects the overall perspective of the marine region or sub-region concerned. Marine strategies should culminate in the execution of programmes of measures designed to achieve or maintain good environmental status.

Commission Decision (2010/477/EU), 1st September 2010 on criteria and methodological standards on good environmental status of marine waters:

- “Spatial and temporal distribution controls: management measures that influence where and when an activity is allowed to occur.” This Decision (Part A, 6) adds “such as Maritime Spatial Planning”

- Part B Descriptor 7: “Tools such as Environmental Impact Assessment, Strategic Environmental Assessment and Maritime Spatial Planning may contribute to evaluate and assess the extent and the cumulative aspects of human impacts from such activities”
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Maritime Spatial Planning (MSP) is a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process - **Douvere & Ehler, UNESCO, MSP Guidelines, 2009**

<table>
<thead>
<tr>
<th>Ten Key principles for Maritime Spatial Planning (EU)</th>
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<tbody>
<tr>
<td>1. Apply MSP according to area and type of activity</td>
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<td>2. Defining objectives to guide MSP</td>
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<td>3. Developing MSP in a transparent manner</td>
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<td>4. Stakeholder participation</td>
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<td>5. Coordination within Member States – simplifying decision processes</td>
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<tr>
<td>6. Ensuring the legal effect of national MSP</td>
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<td>7. Cross-border cooperation and consultation</td>
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<td>8. Incorporating monitoring and evaluation in the planning process</td>
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<td>9. Achieving coherence between terrestrial and maritime spatial planning</td>
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<td>10. Strong data and knowledge base</td>
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Integrated coastal management can be defined as a constantly realized decision-making process with a view of sustainable use, development and protection of seaside terrestrial and coastal marine areas and their resources - Cicin-Sain and Knecht, 1998

**Eight Principles of Best Practice for ICZM (EU)**

1. Broad overall perspective
2. Long-term perspective
3. Adaptive management
4. Local specificity
5. Working with natural processes
6. Involving all parties concerned
7. Involvement of relevant administrative bodies
8. Use of combination of instruments (policy-planning-management)
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<th><strong>ICZM</strong></th>
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<tr>
<td>1. Apply MSP according to area and type of activity</td>
<td>1. Broad overall perspective</td>
</tr>
<tr>
<td>2. Defining objectives to guide MSP</td>
<td>2. Long-term perspective</td>
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<tr>
<td>3. Developing MSP in a transparent manner</td>
<td>3. Adaptive management</td>
</tr>
<tr>
<td>4. Stakeholder participation</td>
<td>4. Local specificity</td>
</tr>
<tr>
<td>5. Coordination within Member States – simplifying decision processes</td>
<td>5. Working with natural processes</td>
</tr>
<tr>
<td>6. Ensuring the legal effect of national MSP</td>
<td>6. Involving all parties concerned</td>
</tr>
<tr>
<td>7. Cross-border cooperation and consultation</td>
<td>7. Involvement of relevant administrative bodies</td>
</tr>
<tr>
<td>8. Incorporating monitoring and evaluation in the planning process</td>
<td>8. Use of combination of instruments (policy-planning-management)</td>
</tr>
<tr>
<td>9. Achieving coherence between terrestrial and maritime spatial planning</td>
<td></td>
</tr>
<tr>
<td>10. Strong data and knowledge base</td>
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</table>
Example: Spatial Plan of German North Sea EEZ

Ultimate aim is “to promote the sustainable growth of maritime and coastal economies and the sustainable use of marine and coastal resources”

- Member States will be required:
  - to develop and implement coherent processes to plan human uses of maritime space
  - to ensure the sustainable management of coastal areas, and
  - to establish appropriate cross-border cooperation among them

- Obliges Member States to carry out MSP and ICM in accordance with national and international law

Noting that the Proposal states the following:

- The ultimate aim of Maritime Spatial Planning is to “draw up plans to identify the utilisation of maritime space for different sea uses”

- “Integrated coastal management is a tool for the integrated management of all policy processes affecting the coastal zone, addressing land-sea interactions of coastal activities in a coordinated way with a view to ensuring the sustainable development of coastal and marine areas”
Directive shall apply to marine waters and coastal zones and defines:

- ‘Coastal zone’ as the geomorphologic area on both sides of the seashore area with as the seaward limit the external limit of the territorial seas of Member States and as the landward limit, the limit as defined by the Member States in their integrated coastal management strategies
- ‘Marine waters’ as the waters, the seabed and subsoil as defined in Article 3(1) of Directive 2008/56/EC [MSFD]
- ‘Sector activities’ as those activities falling under the Union policies referred to in Part Three of the Treaty on the Functioning of the European Union which have an impact on marine waters and coastal zones

Maritime Spatial Plans (Article 7) reviewed every 6 years:
- Maritime spatial plans shall contain at least a mapping of marine waters which identifies the actual (potential) spatial and temporal distribution of all relevant maritime activities

Integrated Coastal Management Strategies (Article 8) reviewed every 6 years:
- ICM strategies shall contain at least, an inventory of existing measures applied in coastal zones and an analysis of the need for additional actions
<table>
<thead>
<tr>
<th>Maritime Spatial Plans</th>
<th>Integrated Coastal Management Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) installations for the extraction of energy and the production of renewable energy;</td>
<td>(a) utilisation of specific natural resources including installations for the extraction of energy and the production of renewable energy;</td>
</tr>
<tr>
<td>(b) oil and gas extraction sites and infrastructures;</td>
<td>(b) development of infrastructure, energy facilities, transport, ports, maritime works and other structures including green infrastructure;</td>
</tr>
<tr>
<td>(c) maritime transport routes;</td>
<td>(c) agriculture and industry;</td>
</tr>
<tr>
<td>(d) submarine cable and pipeline routes;</td>
<td>(d) fishing and aquaculture;</td>
</tr>
<tr>
<td>(e) fishing areas;</td>
<td>(e) conservation, restoration and management of coastal ecosystems, ecosystem services and nature, coastal landscapes and islands;</td>
</tr>
<tr>
<td>(f) sea farming sites;</td>
<td>(f) mitigation and adaptation to climate change.</td>
</tr>
<tr>
<td>(g) nature conservation sites.</td>
<td></td>
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</tbody>
</table>
The five stages of ICZM representing the iterative and cyclical nature of the process
(Group of Experts on the Scientific Aspects of Marine Environmental Protection, GESAMP, 1996).
Coastal And Marine Spatial Planning Workshop
Tuesday February 4th, 2014

ANALYSIS OF THE OUTCOMES OF GOVERNANCE

Scale

Global
Regional
National

Local

First Order:
Enabling Conditions
• Governmental commitment: authority, funding;
• Institutional capacity to implement;
• Unambiguous goals;
• Constituencies present at local and national levels.

Intermediate Outcomes

Second Order:
Changed Behavior
• Changes in behavior of institutions and stakeholder groups;
• Changes in behaviors directly affecting resources of concern;
• Changes in investments strategies.

Third Order:
Attainment of Program Goals
• Some targets for social and/or environmental qualities maintained, restored or improved.

Fourth Order:
Sustainable Ecosystem Conditions & Uses
• A desirable and dynamic balance between social and environmental conditions is sustained.

Time

Olsen et al, 1998
To unlock economic resources we need to have investment, societal support and buy-in coupled with a progressive Government with enabling policies.
Global challenges (food / energy security) mean that pressure will grow on maritime space and resources and thus the potential for conflict will increase.

MSP can help to realise the economic benefit for aquaculture - but to succeed it needs to be implemented as part of an integrated management approach – there will have to be discussion (compromise) between (and within) sectors.

MSP is not a static map – it is a dynamic process that should be, adaptable and able to incorporate economic, societal and environmental change (uncertainty) – over time periods that do not tend to match political horizons.

Need to see an improvement in Maritime Governance as we are: – concerned citizens, customers, market competitors, competitors for space, polluters – unpredictable, but paradoxically reluctant to accept uncertainty.

Need to strengthen links between science and policy – Government Departments, local authorities, state agencies and the research community involved with stakeholders at both strategic and operational levels.

MSP Implementation requires capacity - we need to identify and train (re-train) future coastal managers to attain spatial, rather than sectoral management.
Thank you

Further Details
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