

Marine spatial planning for enhanced fisheries and aquaculture sustainability Its application in the Middle East gulf area

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OUR PLANET – Critical resource

- ❖ We live on a blue planet, more than 2/3 of the globe is covered with water
- ❖ Healthy ocean ecosystems are vital to human welfare.



TRENDS

- ❖ Oceans have long been the centre of economic activity
- ❖ People have been living near the sea feeding themselves by fishing and making their livelihoods on the coast for thousands of years.



TRENDS

- ❖ Earth population is expected to rise from 7 to 9 billion over the coming 40 years.



TRENDS

- ❖ Increasingly people will live in cities.
- ❖ 1/3 people already live near the coast, and the percentage is rising.
- ❖ Eight of the planet's 10 biggest cities are by the sea.

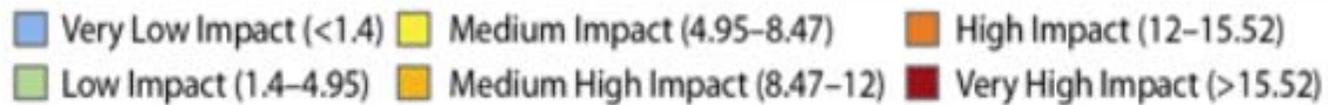
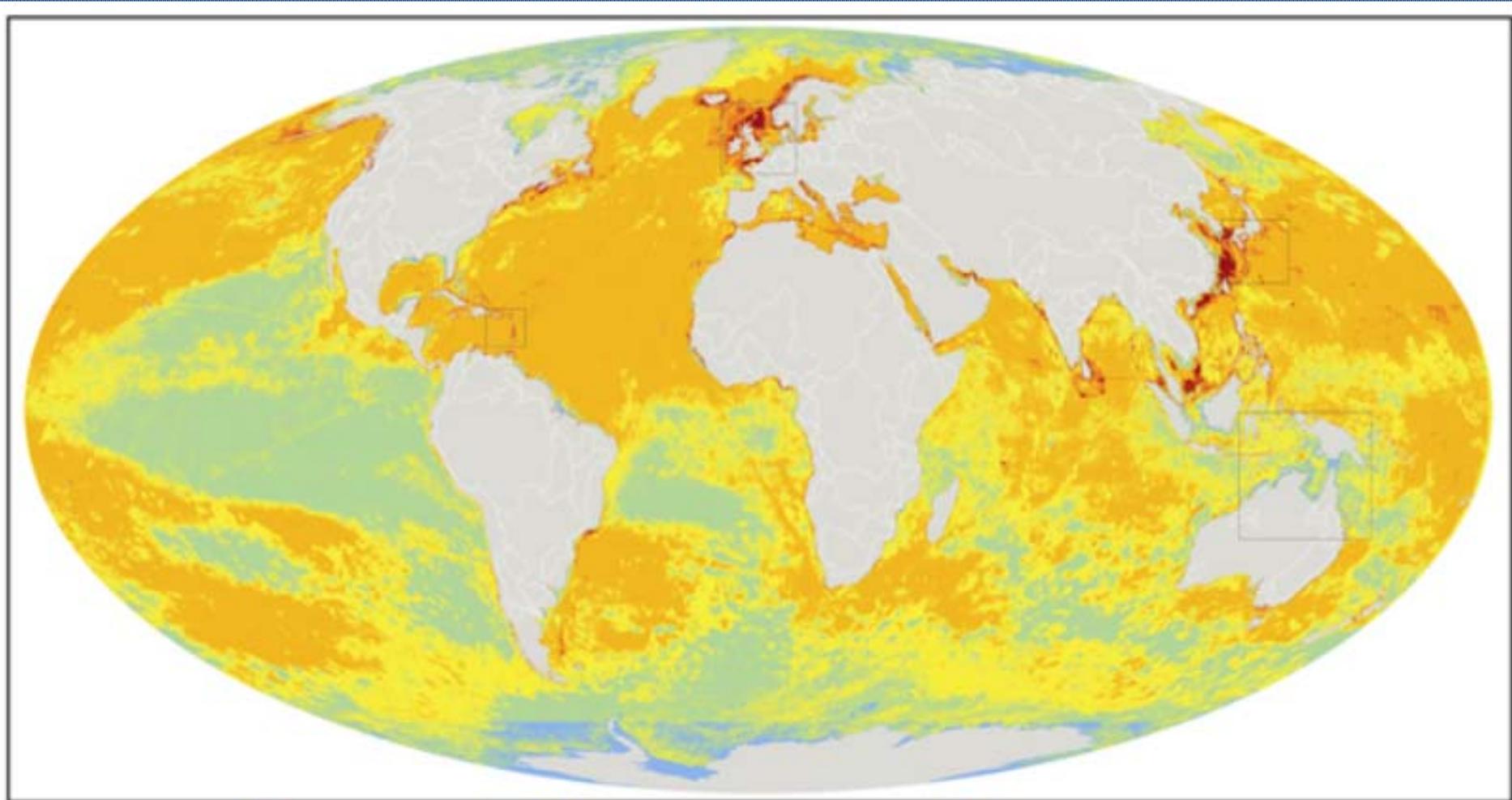


Multitude of users = Multiple Jobs



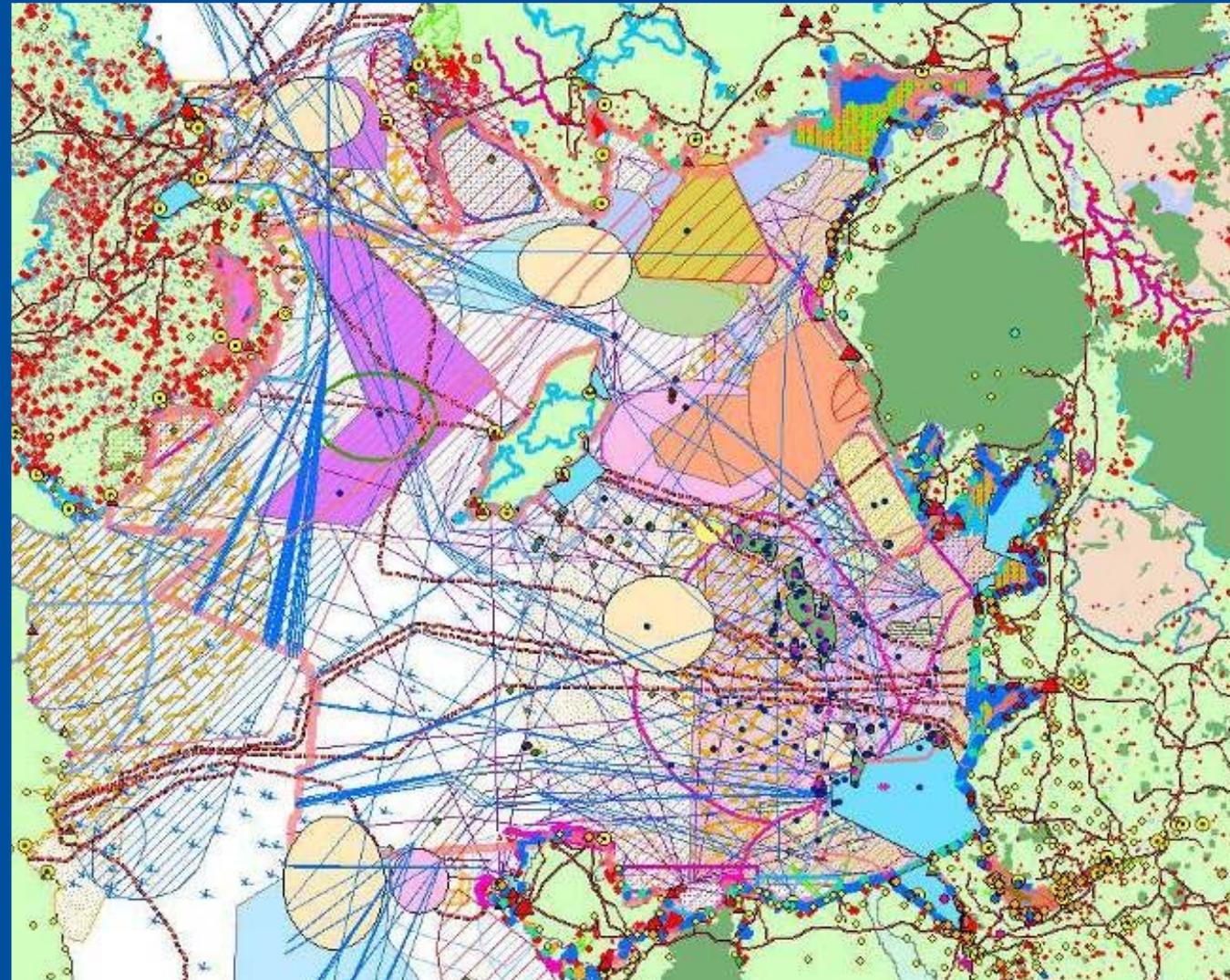
World's oceans are affected by human activities

Understanding our Ocean



Increased conflicts for marine space in the Irish Sea

- Landuse
- Tourism
- Oil & Gas
- Mariculture
- Coastal Defence
- Ports & Navigation
- Military Activities
- Culture
- Conservation
- Dredging & Disposal
- Submarine Cables



▪ Fishing

▪ Renewable Energy

▪ Marine Recreation

▪ Mineral Extraction

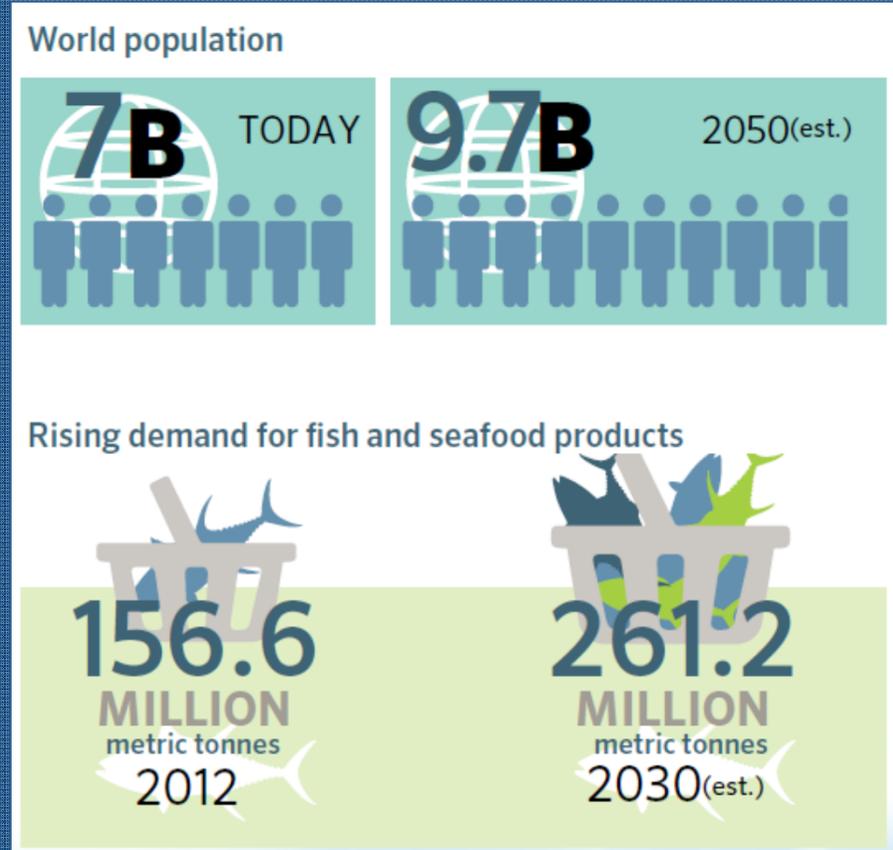
Goal 14: Conserve and sustainably use the oceans, seas and marine resources



Sustainability principles for marine areas have recently been adopted by the United Nations, as part of their post-2015 sustainable development framework



Achieving Blue Growth through implementation of the Code of Conduct for Responsible Fisheries

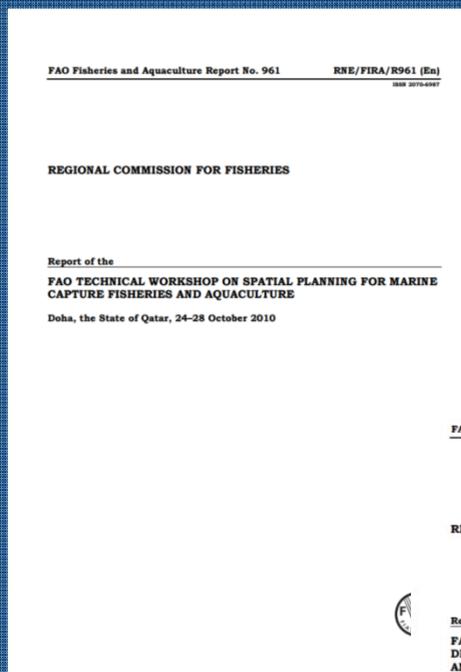


Reconciling economic growth with improved livelihoods and social equity, and strengthening transparent, reliable and more secure food systems.

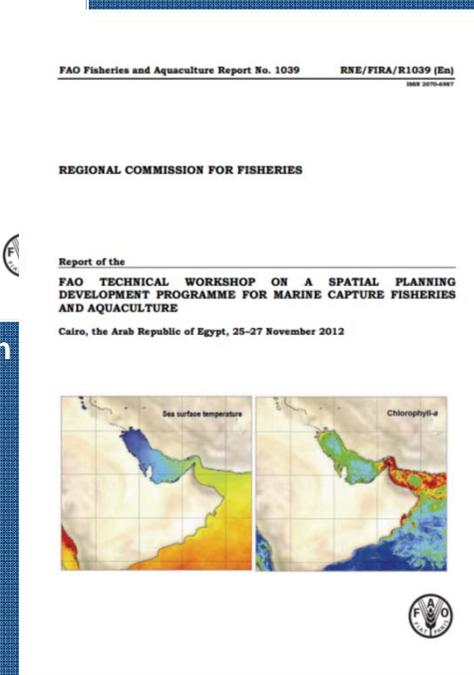


Baseline documents for MSP in RECOFI

As noted by **FAO/Regional Commission for Fisheries 2011; 2013** success for the development and expansion of the marine sector in a sustainable and equitable way can best be achieved through the adoption of a Marine Spatial Planning



FAO/Regional Commission for Fisheries. 2011.



FAO/Regional Commission for Fisheries. 2013.



What is Marine Spatial Planning?

- ❖ MSP can be considered as a **planning tool** which, through a process or a framework, enables integrated, forward-looking and consistent decision-making on the uses of the sea.
- ❖ MSP **integrates all users** of selected areas of marine space so that coordinated management can take place, but this does not preclude the individual management of the different marine activities or areas.



FAO is consulting on implementing MSP in the Gulf marine area



Opportunities for improvement through MSP within the Gulf (RECOFI) area

Social

- ❖ Reduction in social conflicts
- ❖ Increased equity
- ❖ Less complex working procedures
- ❖ Good cooperation and sharing

Economic

- ❖ Better and less risky financing
- ❖ Long-term strategy
- ❖ Improved procedures

Environmental

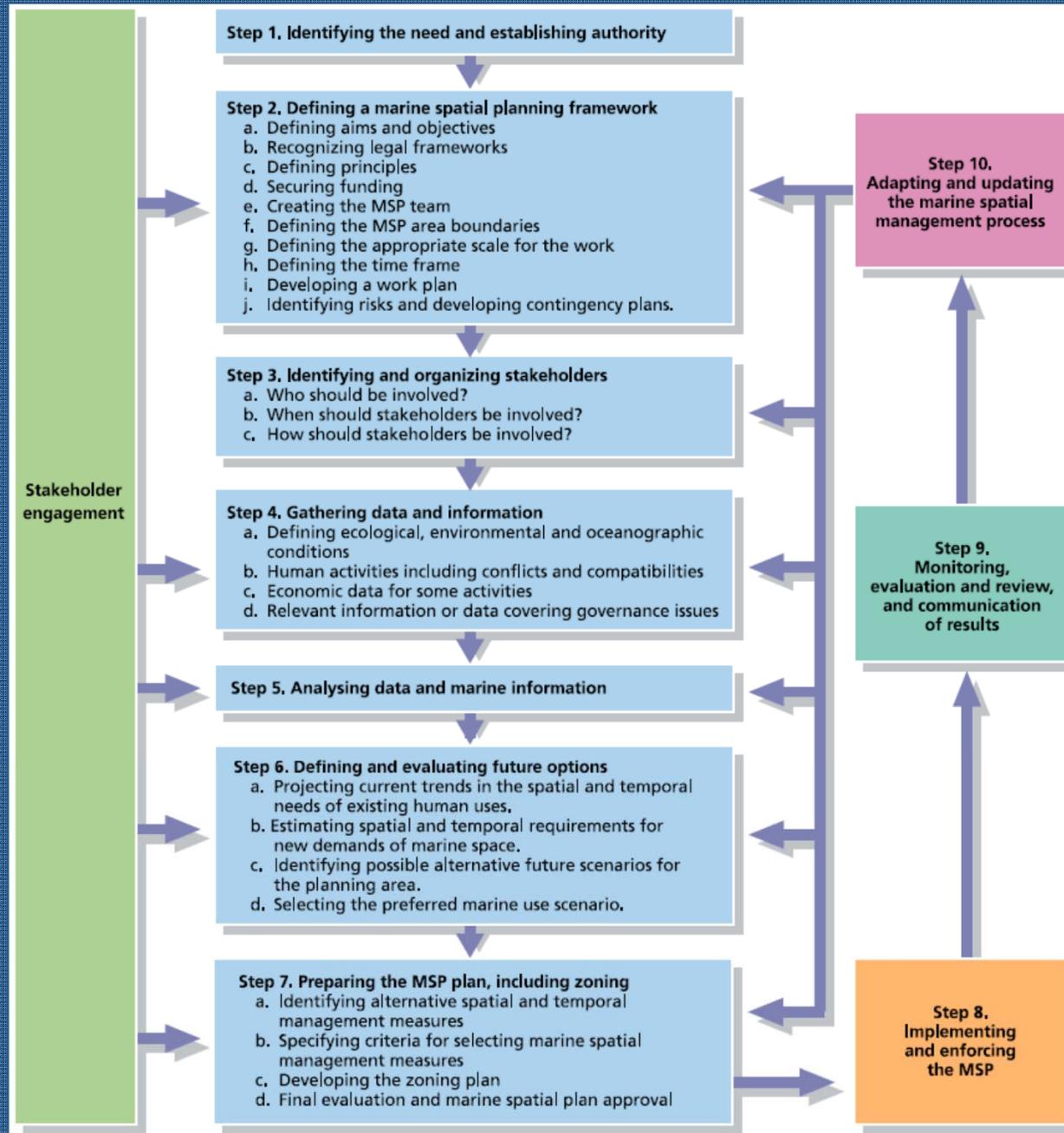
- ❖ Better protection and more sustainable ecosystems
- ❖ Reduced degradation of environments and habitats
- ❖ Reduced and managed environmental effects

Governance

- ❖ Collective governance
- ❖ International legal framework
- ❖ Lead Authority defined
- ❖ Achievement of goals and benefits
- ❖ Coordinated approach implemented
- ❖ Complexity reduced through understanding and action



Steps in the MSP process



Step 1 – Identifying the need and establishing authority

- a. Identifying the need
- b. Establishing authority



Step 2 – Defining a marine spatial planning framework

- a. Defining aims and objectives
- b. Recognizing legal frameworks
- c. Defining principles
- d. Securing funding
- e. Creating the MSP team
- f. Defining the MSP area boundaries
- g. Defining the appropriate scale for the work
- h. Defining the timeframe
- i. Developing a work plan
- j. Identifying risks and developing contingency plans.



Step 3 – Identifying and organizing stakeholders

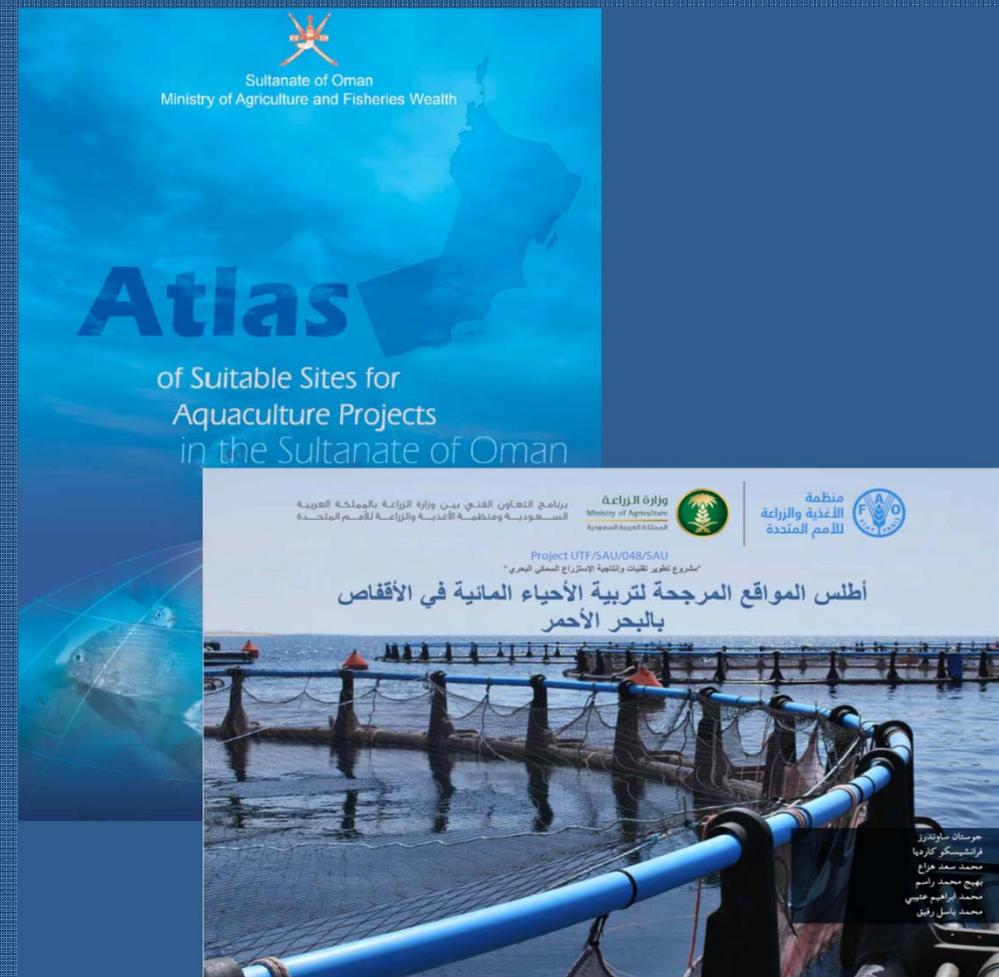
- a. Who should be involved?
- b. When should stakeholders be involved?
- c. How should stakeholders be involved?



FAO/Regional Commission for Fisheries. 2011.

Step 5 – Analyzing data and marine information

- ❖ There are a wide range of “tools” for marine spatial planning.
- ❖ GIS software is especially important for a complete range of mapping and spatial analyses for MSP.
- ❖ Remote sensing is an associated technology that can provide large quantities of data at a low cost.



Step 6 –Defining and evaluating future options

- a. Projecting current trends in the spatial and temporal needs of existing human uses.
- b. Estimating spatial and temporal requirements for new demands of marine space.
- c. Identifying possible alternative future scenarios for the planning area.
- d. Selecting the preferred marine use scenario.



Step 7 – Preparing the MSP plan including zoning

- a. Identifying alternative spatial and temporal management measures
- b. Specifying criteria for selecting marine spatial management measures
- c. Developing the zoning plan
- d. Final evaluation and marine spatial plan approval



Suggested conflict matrix for marine spatial planning

	Marine Fishing	Marine Aquaculture	Energy Production	Marine Transport	Conservation Areas	Military Zone	Recreation	Aggregate Dredging	Urban and Resort Areas
Marine Fishing		probable	moderate	minimal	strong				
Marine Aquaculture	4		minimal	strong	probable				
Energy Production	3	2		minimal	moderate				
Marine Transport	2	5	2		strong				
Conservation Areas	5	4	3	5					
Military Zone	5	5	2	4	4				
Recreation	4	4	4	4	4	5			
Aggregate Dredging	4	5	3	3	5	3	3		
Urban Areas	3	4	3	3	4	4	2	3	



Step 8 – Implementing and enforcing the MSP

- ❖ Effective implementation is critical to the success of any MSP.
- ❖ The MSP must be able to be carried forward in a sustainable manner.
- ❖ Compliance is important, i.e. all stakeholders must agree to abide by the mutually accepted rules.
- ❖ It might be necessary to publish “Codes of Conduct”.
- ❖ Enforcement is action taken to ensure that the rules are being followed or the MSP to work cooperation, transparency and trust need to be mutually respected by all stakeholders.



Step 9 – Monitoring, evaluation and review, and communication of results

- ❖ Monitoring – will include reviewing the status of each marine activity.
- ❖ Evaluation - will assess how well the whole MSP programme is performing.
- ❖ Review – will require all the project team to assess what the options might best be for making improvements to the MSP.
- ❖ Adjustments – this is the implementation of adjustments.
- ❖ Communication of results – clearly it will be necessary communicate results, often by means of reports.



Step 10 – Adapting and updating the marine spatial management process

- ❖ Effectively this step is the implementation of all the “learning” that has taken place thus far, plus the adoption of any research methods, new software tools, new data and experiences gained from other projects.
- ❖ This step is important because MSP will be an ongoing process, i.e. a new equilibrium will need to be created between the various marine users because they operate in an environment that is ever changing and evolving.



Case study of MSP – Kingdom of Saudi Arabia



Atlas of potential areas for cage aquaculture in the Red Sea



Annex 1 - Recommendations concerning the adoption of MSP taken from the RECOFI (FAO) Cairo (2012) workshop

- ❖ Identify RECOFI countries and appropriate agencies (i.e. private and public departments, or institutions that use the marine space) that are willing to cooperate in developing regional plans (MSPs) to improve the environmental, social and economic conditions of the RECOFI region
- ❖ Agree on cooperative working environments, including the need to share data.
- ❖ RECOFI members will need to address issues concerned with governance-related issues at government level, including, most importantly, acceptance by RECOFI countries on current approaches to MSP, fishery zoning and the adoption of the EAA and EAF.



Annex 2 - Main marine activities to be included in Marine Spatial Planning for the Kingdom of Saudi Arabia

- ❖ Energy exploitation
- ❖ Mariculture
- ❖ Marine conservation
- ❖ Marine fisheries
- ❖ Marine transport
- ❖ Military
- ❖ Recreation and resorts
- ❖ Urban and port development



Annex 3 - Information sources on Marine Spatial Planning

1. Recommended further reading to essential material around the world (relevant papers not cited in main document).
2. Global summary of tools for marine spatial planning and management



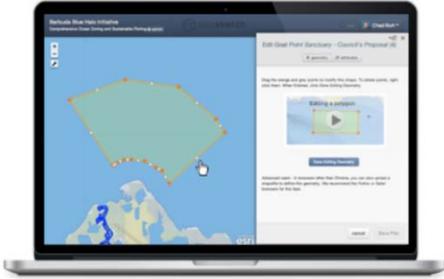
SEA CHANGE
Comprehensive Planning in the Hauraki Gulf, New Zealand [Read More](#)

SeaSketch Supports Collaborative Planning for our Oceans

SeaSketch puts powerful tools into the hands of ocean planners, stakeholders and the public that were once limited to GIS professionals, enabling participatory marine spatial planning processes that are closely tied to the relevant science and information. SeaSketch is being used around the globe in small agency teams and large community-driven initiatives to make better management decisions every day.

Fast, easy to use design tools

SeaSketch is designed first and foremost to be easy to use. Users can generate hundreds of alternative proposals representing a range of perspectives and interests in our accessible map interface. Zoning, regulatory, or management plans can now incorporate the diverse ideas of stakeholders most affected by those decisions, in addition to those of the planners and scientists involved.



Example of MSP Web based tools - SeaSketch
<http://www.seasketch.org/home.html>



Concluding remarks

- ❖ For all busy or enclosed marine areas MSP will be vital to ensure a **sustainable future**.
- ❖ MSP will help ensure that all users of the marine space will **receive rewards** from their activities.
- ❖ MSP allows everyone **to have a voice** in what is going on, i.e. it allows for fairness. It thus prevents powerful interests from dominating marine activities.
- ❖ It **does not prevent local management** schemes from taking place within participating countries or activities.
- ❖ It is a process that is **constantly evolving** in order to accommodate changing developments.



Concluding remarks

- ❖ MSP is not a static map – it is a **dynamic process** that should be, adaptable and able to incorporate change / uncertainty.
- ❖ Renewed policy and development focused on the marine area will increase pressure on that environment and its resources which could result in increased conflict.
- ❖ **Nationally there is a need to focus on the coexistence** and conflicts elements – it is difficult to see how this can be achieved if sectoral policies are developed in isolation.
- ❖ **Need a measured, integrated and transparent approach** to develop the framework with in-built mechanisms to involve all stakeholders and to convey progress of, and outcomes from, the process.



Key messages

- ❖ **Early and effective engagement** with sea users and interested parties can address a number of challenges – information gaps, potential for conflict, etc.
- ❖ **Body of work exists** that can inform future MSP effort.
- ❖ **Relationship with Transboundary MSP** and national-level MSP and how to address coastal component is critical.
- ❖ **Opportunity for growth** if implemented correctly – competitive advantage.
- ❖ Need to consider **training and capacity building**.
- ❖ **MSP is a (long-term) strategic process** and not just the production of maps or a plan – more than just zoning.



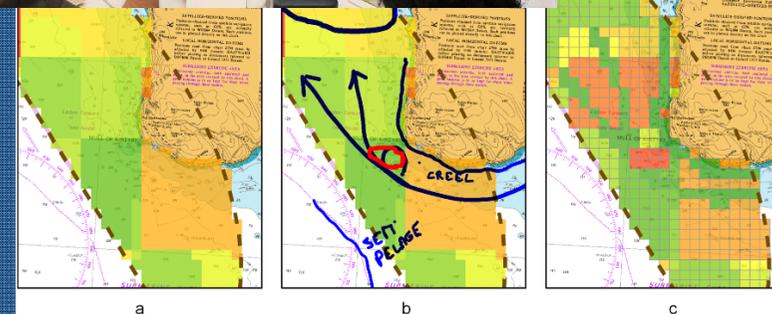
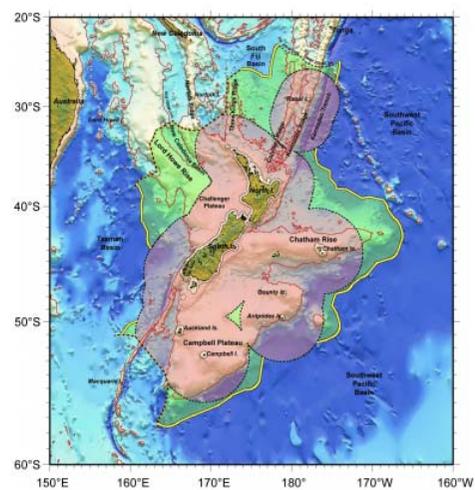
Marine Spatial Planning Initiative

Source: UNESCO

Germany (North/Baltic Seas)



New Zealand (EEZ)



Legend

Fisheries Stakeholder Input



Spatial and temporal distribution of human activities in marine areas

Public process



Multiple use of space – renewable energy Sector combinations



Marine spatial planning helps weigh options and create sustainable long term plans

