March 2011

منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Agricultura y la Alimentación

REGIONAL COMMISSION FOR FISHERIES (RECOFI)

Sixth Session

Rome, Italy, 10–12 May 2011

REGIONAL STRATEGY ON SPATIAL PLANNING FOR MARINE CAPTURE FISHERIES AND AQUACULTURE

INTRODUCTION

1. This document is a summary of RECOFI's joint Working Group on Aquaculture (WGA) and Working Group on Fisheries Management (WGFM) Regional Technical Workshop on "Spatial Planning for Marine Capture Fisheries and Aquaculture" held in Doha, Qatar, from 24 to 28 October 2010 (RECOFI/VI/2011/Inf.6).

BACKGROUND AND CONTEXT

2. During its Fifth Session, held in Dubai, the United Arab Emirates in May 2009, the Commission recommended that a joint workshop between the Working Group on Fisheries Management (WGFM) and the Working Group on Aquaculture (WGA) be convened concerning the use of spatial planning tools (i.e. Geographic Information Systems [GIS], remote sensing and mapping) to aid management and sustainable development of marine capture fisheries and aquaculture in the RECOFI region. The need for this action was based upon depletions of many fish stocks in the region and the fact that aquaculture has proven elsewhere to be a suitable method for enhancing productivity of a range of marine species. The main focuses of the workshop were on conducting an assessment of the present use of spatial planning tools, to illustrate the potential that these tools offered and to explore how these tools might be more effectively used in respect to national and regional issues and on the needs of both the marine capture fisheries and aquaculture sectors. The WGFM further identified as objectives the availability of skilled personnel and of data, GIS/remote sensing training capacity in the region and the extent to which awareness raising and knowledge of spatial analytical capacity was prevalent in the region.

3. The RECOFI Regional Technical Workshop on Spatial Planning for Marine Capture Fisheries and Aquaculture was attended by 21 delegates representing seven RECOFI Member countries (the Kingdom of Bahrain, the Islamic Republic of Iran, the State of Kuwait, the Sultanate of Oman, the State of Qatar, the Kingdom of Saudi Arabia, and the United Arab Emirates) and FAO. Specific objectives achieved during the workshop included: (i) awareness and capacity building through technical seminars given by the Secretariat on basic concepts and emerging issues concerning spatial planning for marine capture fisheries and aquaculture, as well

as feedback from each RECOFI country on the present status of the use of spatially-based planning tools, including case studies, present issues and challenges; (ii) results and analysis of the "RECOFI regional spatial planning for marine capture fisheries and aquaculture questionnaire survey" including information on the main spatial situation and challenges confronting these activities in their respective countries, and (iii) an agreed "Proposal for a Regional Programme for Implementing a Strategy on Spatial Planning for Marine Capture Fisheries and Aquaculture in RECOFI Member countries". The latter proposal was based on the survey outcomes and workshop deliberations. It is the latter "Regional Strategy" that lies at the core of attempts to improve the outlook for the future success of capture fisheries and aquaculture in the RECOFI region via the use of spatial tools.

REGIONAL STRATEGY

4. The core vision of the strategy is "*To illustrate how spatial planning tools are one essential element to achieving sustainable clean, healthy, safe, productive and biologically diverse marine seas in the RECOFI region, and how they allow for mariculture and marine fishery production activities to be maximized whilst at the same time taking into account the other users of the marine space*." To successfully achieve such a vision requires that it be based on a number of agreed principles. The main principles include: (a) that the sea waters in the RECOFI area need to be used for a variety of activities in a sustainable manner; (b) that fish stocks do not recognize anthropogenic boundaries and thus the limited spatial area of the RECOFI needs to be managed collectively and cooperatively; (c) that both an ecosystems approach to aquaculture (EAA) and an ecosystems approach to fisheries (EAF) are presently the optimum approaches to management; (d) that almost all problems in the marine space are due to a lack of spatial equilibrium among the production functions; and (e) that a range of spatial tools including GIS and remote sensing are considered effective tools to analyse and detect spatial disjunctions, allowing for progressive decision-making and subsequent remediation.

5. The Strategy itself comprises the accomplishment of a number of components, elements and activities that are set out in detail in Appendix A. Here it is necessary to briefly set out the rationale required to activate the Strategy. In order to achieve collective sustainability for all activities[1] in the RECOFI region, and recognizing that formal or exploitive access to marine waters for most States is limited by restricted EEZ zones[2], it will be essential that regional (RECOFI) Marine Spatial Planning (MSP) is instigated to support fisheries and aquaculture management. This requires that all eight RECOFI countries cooperatively develop activity zoning plus the necessary legislation to support this. For many activities this need not be done in detail and indeed it may be done at a national level where specific activities may be localized. The MSP will need to involve relevant stakeholders, backed by a formalized document and formal consultations and information on the MSP process will need to be dispensed as relevant. Once a regional MSP has been agreed then a similar exercise can be developed at a national scale.

6. Arising from the MSP there will be areas designated for fishery and aquaculture activities. These areas will also require a degree of zoning, e.g. for specific types of fishery, for having seasonal closures, for mariculture, for recreational angling, for "No-Take Zones", etc. Again this zoning may need to be formalized through legislative agreements and rules. In some cases these zoned areas may need to be flexible to accommodate temporal changes in the fishery situation. Since a guiding principle being followed is that of using ecosystem approach to aquaculture or ecosystem approach to fisheries, then in many cases there will be the need to recognize and to implement all that these require.

7. Modern spatial planning requires GIS tools and the requisite data to populate the tools. Numerous decisions will need to be made with regard to the adoption of a fully functioning GIS, e.g. what GIS software should be used; which department/persons will take the lead on this;

[1] These might comprise of access to fishing grounds, aquaculture (mariculture) locations, aggregate dredging, oil/gas production platforms and leases, wind farms, recreational angling and boating, beach-based tourism, commercial shipping lanes, conservation zones, etc.

[2] In most cases Exclusive Economic Zones (EEZ) of RECOFI Member countries extend to less than the maximum of 200 miles.

where can the GIS best be based; at what scale should it operate; can the necessary personnel/expertise be obtained; is there local back-up for soft and hardware, etc? The answers to these and other questions may be gained via a specially convened "Marine GIS Committee".
GIS projects will need to be recognized, prioritized and organized, and staff will need to be kept up-to-date with information and training.

8. Since data costs typically represent 80 percent of total GIS funding, then considerations of data needs and acquisition are of vital importance. Again there are a large number of considerations, e.g. at what resolution should data be collected; where can data best be sourced; is the required data already available or will it need to be collected; how reliable is the available data; are there sources for obtaining and processing remotely sensed data; is there the technical means to collect and process data; are there chances of sharing data, etc? It might be the case that it is sensible for RECOFI Member states to introduce data gathering systems for the on-board collection of fishery data via Vessel Monitoring System (VMS) or electronic logbooks. Not only does data need to be collected but it must be stored and kept error free and up-to-date.

9. It is clear that the spatial tools already exist to potentially assist RECOFI countries with their spatial analyses relevant to capture fisheries and aquaculture. However, it is likely that any strategy for adoption will involve a large number of decisions that are entirely new to many fishery/aquaculture managers. This means that much information will need to be dispensed to many "levels" of workers. It also means that, since the optimum working format will be to work cooperatively both with other RECOFI Members and with other marine water users, systems will need to be optimized to ensure that maximum advantage is taken for sharing data and working experiences. It is also recognized that multi-sectoral management, as in the case of the proposed Regional Strategy, needs to be part of an ecosystem based management framework which inspires and instigates planning and decision-making processes at all levels, including socio-economic and institutional aspects.

CONCLUSIONS AND FOLLOW-UP ACTIONS

10. The Workshop greatly benefitted from the interactions of delegates from the RECOFI Working Groups on Aquaculture and on Fisheries Management to better address a number of common spatial planning issues (e.g. data, models, training, experience) requiring synergies that need to be strengthened for the future implementation of the proposed regional strategy. A key regional activity and a core component of the regional strategy will be to identify RECOFI countries and appropriate government agencies that are willing to cooperate in developing regional plans (Marine Spatial Plans) to improve the environmental, social and economic conditions of the RECOFI region and to agree on cooperation. It will be up to RECOFI Members to address issues related to governance-related recommendations contained in the regional strategy at government level, including most importantly, acceptance by RECOFI states on current approaches to marine spatial planning, fishery zoning and the adoption of EAA and EAF.

11. The Workshop participants acknowledged the importance of planning and implementing national level activities, such as the identification of focal point/national coordinator/ competent authority; national review of legislation, formation of a national committee, general planning for national strategy development, and collection of more detailed information, as a first steps towards improving spatial planning issues in the region.

12. The spatial strategy as described above, if implemented, will go a long way to achieving these desires by the workshop participants. The main strength of the strategy, however, is that it will allow for the delivery of a tried and tested spatial tool that, having the capacity to perform a vast range of analyses, is certain to bring huge benefits to activities (fishery and/or aquaculture management) whose problems are rooted in spatial differentiation. GIS will not solve every marine management problem but it will give the coastal states infinitely greater possibilities than they have at present as well as a spatial framework within which to address the problems.

13. A summary of the outcomes and recommendations derived from this technical workshop was presented at the Fifth meeting of the RECOFI WGA for discussion. The following activities derived from the proposed regional strategy, were recommended for inclusion in the WGA programme of work and budget for the next biennium (05/2011–05/2013):
(i) capacity building for spatial planning and spatial management, (ii) aquaculture inventory and zoning, (iii) access to spatial data and information, and (iv) use of the RAIS Web site as a platform to disseminate spatial data and information.

SUGGESTED ACTION BY THE COMMISSION

14. The Commission is invited to adopt the FAO/RECOFI joint WGA and WGFM regional strategy on spatial planning for marine capture fisheries and aquaculture, and to provide the necessary support for follow-up actions for its implementation.

APPENDIX A

Outcomes of the Workshop deliberations on the timeframe, priority and agency with primary responsibilities for the different elements of the regional strategy programme components

PROGRAMME COMPONENT 1 - Contribution to improved marine governance through marine spatial planning[3]

Programme Elements	Activities	Timeframe (S, M, L)	Priority (H, M, L)	Responsibility
1. Regional Policy and Marine Spatial Planning	1. Identify RECOFI countries and appropriate government agencies who are willing to cooperate in developing wide-scale (regional) plans (Marine Spatial Plans) to improve the RECOFI region's environmental, social and economic condition, and to agree cooperation.	S	H	RECOFI
	2. Conduct a high level RECOFI area workshop to formulate and then draft the purposes, objectives and aims for a RECOFI Regional Marine Spatial Planning document covering all RECOFI marine space and incorporating all marine space users (see Annex 3 for higher level marine space objectives and Annex 2 for the competing sectors using marine space)[4]	S/M	H	RECOFI
	3. Organize a series of national (and regional) seminars to inform all stakeholders on the needs, purposes and functioning of a Marine Spatial Plan.	M	M	RECOFI/National
	4. Develop and then adopt the full Regional Marine Spatial Plans.	M	H	ECOFI
	5. Agree broad scale regional fishery zoning for all RECOFI waters.	M	M	RECOFI/National
2. National needs and national GIS/Remote sensing related capacities	6. Convene a national level management workshop in order to determine marine management priorities and objectives among all sector stakeholders, which integrates with the regional level Marine Spatial Plans.[5]	M	H	National/WGA/WGFM
	7. Develop and adopt national level Marine Spatial Planning documents.			
	8. Devise and adopt 'marine capture fisheries and mariculture activity zoning' to be practiced in the 'marine fishery' zones allocated under the Marine Spatial Plans.			
	9. Establish "national marine GIS committees" to oversee GIS-based spatial management project work within the country at national and/or local levels.[6] Appoint a national representative to be a member of a RECOFI "spatial planning committee" (this committee might form an additional part of the WGA or WGFM work)	M/L	H	National/WGA/WGFM
		M/L	H/M	National/WGA/WGFM
		S/	H	National/WGA/WGFM

Notes: In the table Timeframe: **S**=Short, **M**=Medium and **L**=Long. Priority: **H**=High, **M**=Medium and **L**=Low. The term **"National**" refers to national government.

[3] Although this Component is mostly about Marine Spatial Planning (MSP), it is dealing with the idea that governance is needed. Marine spatial planning is one element of ocean or sea use management; zoning plans and regulations are one of a set of management measures for implementing marine spatial planning. Zoning plans can then guide the granting or denial of individual permits for the use of marine space (see www.unesco-ioc-marinesp.be).

[4] This document might be developed from an existing MSP, e.g. see the UNESCO MSP outlines at www.unesco-ioc-marinesp.be. Depending on local regulations this document might need to go out to consultation for comments and feedback

[5] It is suggested that a RECOFI representative should attend each national workshop.

[6] This committee could be flexibly developed depending on the existing committee structure within the department hosting the marine fishery/aquaculture spatial planning/GIS team. In some cases, the existing WGA or WGFM committees may be able to take decisions.

Programme Elements	Activities	Timeframe (S, M, L)	Priority (H, M, L)	Responsibility
3. Legislation and regulation	10. If RECOFI Region-wide, part region-wide or national Marine Spatial Plans can be agreed then legislation would be developed and adopted to formalize this.	M/L	H	RECOFI/National
	11. National level legislation may need to be enhanced covering the scope of any of the 12 marine spatial activities listed in Annex 2.	M/L	H	National
	12. Put in place legislation to allow for the collection of marine capture fisheries or mariculture related data via either electronic means or from the recording of catch information at local landing sites (see Activity 21). All existing marine capture fisheries or aquaculture legislation may need updating in view of the more stringent rules that need enforcing if 'fisheries' are to be better managed.	M/L	H	National
4. Regional and national cooperation and networking	13. RECOFI level meetings involving both WGA and WGFM to agree on methods and formats for improved communications and networking in the context of 'working cooperation' across all sectors utilizing marine space.	S/M	H/M	RECOFI/National
	14. National level and local level seminars to establish IT-based communication channels and to set up desired computing networks (WAN's) in the context of Marine Spatial Planning, e.g. investigate the use of the Regional Aquaculture Information System (RAIS) (www.raisaquaculture.net) as a working communications network, and perhaps develop a similar Information System covering marine capture fisheries.	M	M	National

PROGRAMME COMPONENT 2 – Capacity building for spatial planning and management

Programme Elements	Activities	Timeframe (S, M, L)	Priority (H, M, L)	Responsibility
5. Awareness building and promotion of spatial planning to non-GIS specialists	15. Assess capacity to carry out spatial analyses for marine capture fisheries and mariculture management and development. Based on this assessment create and deliver a range of appropriate promotional 'spatial planning' based materials to regional and national personnel including those working in sectors listed in Annex 2.	S/M	H	National/WGA/WGFM
	16. Based on assessed requirements, conduct regional and/or national training workshops to explain the principles of spatial planning including the use of GIS, remote sensing and other related tools. This is aimed primarily at technical and management personnel in the fisheries field.	M/L	M	RECOFI/National
6. Regional or national basic training in GIS	17. Identify sources of GIS training at national and/or regional scales. This could vary from short "GIS Vendor-based" courses to Further Education (College) level courses or to full GIS degree courses. Training should be provided and tailored to country requirements.	S/M	H	RECOFI/National

PROGRAMME COMPONENT 3 – Spatial planning projects and their data needs

Programme Elements	Activities	Timeframe (S, M, L)	Priority (H, M, L)	Responsibility
7. GIS project management	18. The national level GIS Committee to appoint a high quality candidate who will direct overall management of GIS project work. Other personnel may also need appointing.	S/M	H	National
8. Identifying GIS-based Pilot Projects and their data needs	19. Organize regional and national seminars (or workshops) to assess priorities for GIS-based projects and what their data needs will be. Annex 5 illustrates the main potential topics on which GIS might be based, and Annex 4 shows the main range of GIS-based functions that might be deployed.	M	H	RECOFI/National
9. Continuing data collection and storage	20. Project committees (established under Activity 9) should advise on data needs and possible data sources for each GIS project. A committee might include fishery managers, fishery scientists, aquaculturists, GIS workers and external personnel who might be relative to specific projects. 21. Implement any post-collection updating or data editing as required. 22. Establish secure database management systems for the storage, security and management of all data needed for GIS projects.	M/L M/L M/L	H H/M H	National/WGA/WGFM National/WGA/WGFM National/WGA/WGFM
10. Integration of GIS related information and publications databases	23. Establish 'library' archives of useful GIS based "hardcopy" materials, e.g. books, manuals, journals, exercises, etc. 24. Establish digital archives for data and information source materials, e.g. GISFish[7], National Universities, GeoNetwork[8], etc).	L M/L	M H/M	National National

[7] GISFish is FAO's Global Gateway to Geographic Information Systems, remote sensing and mapping for fisheries and aquaculture (www.fao.org/fishery/gisfish). It is intended to assist users in locating web based data and information sources as well as to promote exchange of information and experience between users.

[8] FAO GeoNetwork: GIS Gateway – Thematic Spatial Databases and Information Systems. It provides a wide range of data sources at different scales and resolutions, plus spatial data from FAO, other UN Agencies, NGO's and other institutions (www.fao.org/geonetwork/srv/en/main.home).

PROGRAMME COMPONENT 4 – GIS implementation strategy

Programme Elements	Activities	Timeframe (S, M, L)	Priority (H, M, L)	Responsibility
11. System's requirements, design, procurement and testing	25. 'National GIS Committees' to discuss with fisheries/aquaculture authorities the location(s) for GIS activity to be based, plus any remit for each location.	S	H	National
	26. National level meetings possibly involving GIS personnel, the GIS Committee, consultants and fisheries management to develop the structural (needs) requirements for the GIS/Remote sensing system (based on Annex 6).	S/M	H	National
	27. Carry out GIS procurement and testing activities necessary to bring the system up to the needs requirement.	M	H	National
12. Continuity of GIS capacity within the strategy	28. Establish and implement all the working requirements and procedures whereby GIS operations are able to sustainably function on a day to day basis at full capacity. This will include systems maintenance and updates.	M/L	M	National
	29. Initiate a continuing sequence of GIS projects based on what is practicable in terms of skills, data needs, hardware and software.	M/L	H/M	National
	30. For all participants in the GIS projects a programme of support and training should be drawn up, budgeted for and updated by the GIS manager.[9]	M/L	H/M	National

[9] It is possible that some training may be needed with respect to "fisheries and/or aquaculture" as well as directed towards improving familiarity with GIS.