

**European Symposium on Marine Protected Areas
as a tool for Fisheries Management
and Ecosystem Conservation**

- Emerging science and interdisciplinary approaches -

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**BONIFICATION DES TRAVAUX ANTÉRIEURS SUR LES
AIRES MARINES PROTÉGÉES: APPROCHES, PROCESSUS,
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Introduction

During 4 days in September 2007, 442 scientists, managers, students, NGO directors and governments officials from 49 countries gathered in Murcia, Spain to ponder the first constituents of a bridging between fisheries management and marine protected area initiatives.

It was on behalf of a collaborative effort between a local environmental non-governmental organization (Comité ZIP des Îles-de-la-Madeleine) from the Magdalen Islands in the Gulf of Saint-Lawrence and Parks Canada that I participated in the symposium with two objectives to fulfill. The first was to bring back information for the community to use in its analysis of the possibility to implement a national marine area of conservation (NMAC) in the Magdalen Islands. The second was to update a literary review report I presented to Parks Canada in 2006 with regards to the project for the Magdalen Islands. In the current report, I present the content from the symposium and link it with information from the previous report. These links are italicized.

During the 4 days, I attended 36 sessions. In the following pages I have summarized the content of these and gathered them under the themes under which they were presented. Annexed are detailed (raw) notes from each attended session.

In the present report, I have tried to remain as faithful as possible to the talks and discussions as they occurred. The pronoun « we » does thus not refer neither to the author of this document, nor to its reader, but is directly transcribed from notes taken during sessions, cited from the speakers.

Summary

The symposium was the first official initiative to unite two traditionally opposed domains: the fishing industry and conservationists. Research has shown that the creation of MPAs is often ineffective in areas where participation from affected communities has not been achieved. The need for bridging instances and individuals involved with marine environments, resources and uses is therefore increasingly urgent if the international goal to protect 10% of the worlds oceans by 2012, set by the UNESCO in 1992, is to be reached.

Five specific categories, comprising extensive and diverse sharing of experience, were addressed during the symposium. These covered ecological effects of MPAs, impacts on fisheries and other user groups, analyses of existing MPA performances, tools for planning and design of MPAs and, finally, issues with regards to science, stakeholders and management. Top scientists in the domain offered keynote talks; a large number of reputable scientists and their students shared recent and pertinent information; representatives of the European Union participated in talks and panels and, on the last day, round-tables with distinguished panelists allowed for discussions and ultimate recommendations to emerge.

In theory, the necessity to collaborate has been present in processes of MPAs for several years, applicable all the way from the community level up to international networking. In practice, however, consultation, involvement and integrated management, as in true sharing of information and power, are yet to be clearly defined and outlined. Although fisheries management and marine protected areas (MPAs) share many aspects and priorities, there are significant distinctions between them as well. Whereas it is in the interest of both domains to preserve targeted marine resources and to collaborate with means and operational resources, the mandate of marine protected areas exceed that of fisheries management in that it also includes a variety of other aspects such as ocean mining operations, restrictions against fishing gears that may be harmful for marine habitats, creation and network building of local stakeholders and coherently protected areas in a region.

Lessons learned from unsuccessful or controversial implementation processes continue to show the often futile aspect of attempting to protect the natural environment and its resources without taking into consideration the livelihood of those who depend on them. First, it appears to be extremely difficult to have rules respected without proper enforcement, which is dependent on proper funding. Second, since proper funding is often difficult to ensure, voluntary compliance is needed, which appears impossible without proper participation and involvement in the project. To achieve such participation, according to conclusive statements from the symposium, clear objectives and transparent procedures from the outset continue to be top-criteria. Many examples show that procedures of unsuccessful or controversial MPAs were either top-down oriented or vague in terms of objectives, both of which caused local communities to resist or to be suspicious of promoters and/or proponents of the project, which ultimately led to a failure to protect what needed protection.

Conflicting agendas and lack of understanding of what in the report is called the “theory vs. reality” aspect, appears to be one of the major current problems. Whereas on an international level scientific advisors, governments and nations agree to create transboundary networks of MPAs throughout the world’s oceans, local fishermen and other users, whose existence is intrinsically linked to their activities in a specific area of such a network, may resist the idea. Mutual understanding through continued and thorough gaining and sharing of information among and between natural and social scientists, fisheries officials and MPA proponents, MPA managers and local communities, etc. thus seems to be vital.

On the last day of the symposium, the following conclusions and recommendations were salient:

1. Know before planning

Conduct proper research and incorporate the data into visual presentations to be used during the consultation process, set clear objectives for the MPA and identify potential stakeholders

2. Consult before doing

Inform and involve the local community from the outset; identify new and confirm potential stakeholders, conduct public information sessions, conduct public consultation sessions, organize meetings and working committees

3. Ensure transparency throughout the process

Avoid hidden or obscure agendas since these will undermine the trust needed to gain participants’ support and collaboration; allow local communities to appoint representative stakeholders, put in place a working group, allow the latter to draft plans and designs for the MPA and make sure decision power is shared and explicit.

4. Allow sufficient participation, funding and time to maximize chances of success

These three ‘ingredients’ seem to be the essentials of a successful process and, if adequate, implementation of a MPA. Striving to ensure balance between them is a challenge and an opportunity to establish an area that will allow, not only the natural ecosystem to become or remain healthy but the socio-economic structure as well.

Discussion (by category and theme)

Ecological effects of MPAs

Attended sessions:

1. Fish movements, essential habitat mapping and the design of MPA networks for multi-species fisheries management (Pedro Afons et.al)
2. The biodiversity and fishery benefits of spatial management in a *nephrops norvegicus* fishery in western Scotland, UK : an opportunistic study (David Donnan et. al)
3. Impacts of the implementation of the Arrabida MPA (Portugal) in local fisheries and fishing community (Marisa Batista)
4. Fisheries effects of Atlanto-mediterranean MPAs (Ruth Higgins et al)
5. Role of MPAs for conserving benthic communities and habitat features : two case studies from Icelandic waters (Stefan Ragnarsson et al)
6. Is the recent Cap Roux MPA an efficient tool to sustain professional fisheries ? (Catherine Seytre et al)

Comments in italics added by the author of this document

CHALLENGES

The initial question with regards to this symposium concerned whether or how MPAs benefit fisheries. Traditionally, the response to this question has been yes, evoking the reserve effect¹ as the main reason.

However, it appears that many MPAs lack baseline data due to the fact that no clear design existed at the moment the MPA was created and that, therefore, no or little initial data was recorded, which make comparison, other than through time on a long-term basis, difficult.

Added is the fact that much of the data, if existing, with regards to fisheries are flawed. The main reasons for this are false catching and landings information from some fishermen and the inherent nature of the science being in many cases based on limited samples and estimates. (Seytre et al; Abdulla et al; Afons et al).

¹ Increase in size and number of fish within the reserve; export of larvae and adults outside the reserve boundaries

THE ROLE OF SCIENCE

In order to answer the initial question, for which determining ecological effects of MPAs is a means, there is a need to identify habitat requisites of the different species. Using the Essential Fish Habitats (EFH) model, we thus need to identify:

- a) home-range
- b) residency
- c) dispersal (relocation)

Now, when these differ among species in the prospected area, the design of an MPA must be thought out accordingly.

In Iceland, research about sponges and their benthic habitat showed a clear difference in biomass and habitat quality inside and outside the protected areas. One reason may be that sponges are particularly sensitive to disturbance caused by fishing and since Iceland is a country of heavy fishing, effects may be particularly easy to identify. This example shows that positive ecological effects of MPAs do exist for some species and habitats and that the value of continued research in order to determine for whom an area may be particularly useful should be encouraged. Knowing this may then allow analyses of the ecological over-all effects.

Following the evolution over several years allows to see trends in captures and yields; change of and within target species; size of catch and trophic groups; by-catch and the effect of different gears. Long-term follow-ups are crucial to be able to determine ecological effects. This is especially true as certain scientists claim the effect is noticeable after 8 months, others after 25 years, depending on the gears used.

(Ragnarsson et al; Afons et al; Seytre et al; Higgins et al; Jones)

THEORY VS REALITY

In order for an MPA to create positive ecological impacts, Afons et al stress the importance of setting, not optimal, but acceptable targets.

In many cases, too idealistic targets have caused much local discordance, often due to economic constraints among the local population and no economic compensation for the ones directly touched by the restrictions in the protected area.

To avoid this, Afons et al claim, we need to increase knowledge, improve measures and estimate impacts before designing the MPA. Since reduction of fishing areas makes competition among fishermen to increase, a bridging of natural and social sciences is imperative.

Afons et al have estimated a reduction of up until 30-60% of captures in some newly protected areas. This may create an increase in biodiversity but, as Batista says based on her studies in

Portugal, social impacts of such an increase in biodiversity may be difficult to measure and efforts to document these need to be made as well.

OPTIONS

One current option proposed is to convert fishermen to tourism. Studies from around the world (cf: Tivemark 2006, Rapport, Parcs Canada) have shown that older fishermen (>40 years) are often reluctant to this option. The younger generation, however, often finds an advantage in the fact that they thus meet and exchange with individuals from elsewhere. Many of the older fishermen, again, worry that this may propel fishing Traditional Ecological Knowledge (TEK) to disappear (Tivemark 2006).

Rather than put into place irrevocable measures on the outset, some MPAs first ‘contract’ with authorities and the local population are renewable after 4 years (Seytre et al) .

JOINED EFFORTS

An example of an MPA bringing together a large variety of stakeholders comes from Scotland. In one area, a collaborative effort was needed to do a habitat survey. In the area were fishing grounds, military grounds, static gear along with sometimes big depths. In spite of these constraints, the survey could, with the help and implication of all parties, be made and further efforts are currently made to create links between the stakeholders and to develop more collaborative efforts (David Donnan et al).

TOOLS

Concrete tools to do such surveys include ROV and UVC (underwater video and photo equipment and data). (Ragnarsson et al and Seytre et al)

RECOMMENDATIONS

With regards to determining the ecological effects of an MPA, the ideas put forward are :

- ?? The smaller the reserve, the better the results (Higgins et al)
- ?? Closures can benefit, not only juveniles but also benthic habitats as a whole. This may be especially important in areas were there are draggers. (Ragnarsson et al)

- ?? There needs to be a clear goal with all studies and it is the responsibility of the team as a whole to make sure it is met. (Seytre et al)
- ?? There is no one size fits all solution or design (Afons et al)
- ?? Multispecies information is necessary to determine sites and scale. In order to achieve this, multiple approaches are needed. (Afons et al)

MPA effects on fisheries and other uses

Attended sessions:

1. Do local fishermen benefit from the presence of marine protected areas. A multi-case evaluation. (G. Cadiou et. al)
2. Natura 2000 sites and fisheries in German offshore waters (Sören Anker Pedersen et. al)
3. Using MPAs to address global scale ecological objectives in the North Sea : modeling the effects of effort displacement (Simon PR Greenstreet)
4. Seasonally rotating MPAs : Protection of marine species and habitats afforded by artisanal fisheries adapting to species biological and ecological patterns (Caja rajada, NE Mallorca, Balearic Islands) (Sandra Mallol et al)
5. Fishing effort and catches in the partially protected area of the MPA of Scandola and adjacent areas (Corsica) (Laurence Le Diréach et al)

Comments in italics added by the author of this document

CHALLENGES

Sandra Mallol et al signal that banning (in no-take areas) can be problematic in various regards, among others because the habitat, the benthic environment, is sometimes different outside the reserve. This implies that fishermen banned from the area cannot pursue their activities elsewhere without suffering important losses in catches. Thus, fishers would have to change their way of life and convert to i.e. tourism, which, for many fishers, is simply not an option.

OPPORTUNITIES

G. Cadiou et. al considered artificial reefs as potentially enhancing production for MPAs. Another participant, however, was strongly against the idea and the debate seemed to be present among participants and scientists. I have done no further research on the topic at this point.

THE ROLE OF SCIENCE

G. Cadiou et. al found that competition for catches had declined since prohibitions in the newly protected area allowed fewer boats to be present. There was no mention, however, about the situation on the borders or outside of the protected area. The authors concluded that competition for space within the area had also been reduced (same comment/question remains).

COST/BENEFIT ANALYSIS

Simon PR Greenstreet concludes that MPAs may be good for some species in an ecosystem while not so much so for others. For example, benthic invertebrates may suffer from the increased trophic pressure resulting from the protection of groundfish in an area.

He also mentions that ecological benefits can easily be counteracted by a non-compliance to the new rules by fishermen for whom no effort displacement measures have been offered.

EFFECTS

In Corsica, no loss of employment was noticed in the communities adjacent to the MPA since the number of boats had remained stable. The effort, however, had increased due to an increase in the conversion rate to motorboats. Yields per effort had decreased somewhat, all of which led Laurence Le Diréach et al to conclude that the fishery was sustainable.

The survey they conducted within the study also created links between managers and fishermen, which both groups reported as being positive.

THEORY VS REALITY

If regulations work it is because the enforcement is real, according to Laurence Le Diréach et al. To make this happen, concretely, Pedersen et al suggest fine-scale fishery mapping to begin with and to get the fishers themselves to help explain data errors and misunderstandings. A Vessel Monitoring System (VMS) was also suggested, although perhaps not among the fishers with whom a trust-relation was just undertaken, as well as the importance of creating a collaborative network among neighbouring countries (alike the case of Denmark, Netherlands and Germany).

Laurence Le Diréach et al's study also observed that fishing had not increased near the no-take zones of the MPA. The guardians of the area, however, told the researchers that fishers frequently did fish in the area. The importance of combining natural science and social science hence appear to be crucial in order to reveal what is beyond the observed at a certain place and time.

In terms of data errors and misunderstandings, Helen M. Fraser et. al discussed the problem of flawed data due to the fact that by-catch often is discarded from analysis, whereas the unaccounted quantity may sometimes be as large as what is claimed to be spared within an MPA. Another problem, she signaled, was that analysis and quotas were based on landings and not on catch, which may also contribute to sometimes significantly skewed data.

OPTIONS

Simon PR Greenstreet suggested that instead of displacing effort (which, according to the speaker, potentially cause conflicts in and around the protected area and we recall what Mallol et al identified as problematic due to different habitat characteristics), there could be a reduction in the Total Allowed Catch (TAC).

In the spirit of preventing rather than healing, he also suggested that instead of closing areas where mortality is the highest, one should do it where TAC is being approached. Reducing effort by 20% in MPAs would, according to the speaker, be more effective than having to modify adjacent areas and practices. Inevitably, if such would be the case, the question of enforcement and control upon landing would be necessary.

Mallol et al proposed that another option would be to shorten fishing season instead of banning fisheries.

BRIDGING

The fishing effort has been reduced with 28% since year 2000, since the beginning of the application of the Ecosystem based approach to fisheries management. According to several speakers, this can be seen as an opportunity for the fishing industry to get on-board the changing industry. Sandra Mallol et al cites an example of success that was much due to the sharing of responsibilities between the local and the central government.

RECOMMENDATIONS

- ?? Simon PR Greenstreet proposes that, if the gear could be adjusted to get less bycatch, that international landings divided by international efforts would give a rather accurate general catch per effort scheme.
- ?? Mallol et al signals the importance to study habitat, distribution, season (spawning time, etc.), fishing methods, hours spent, number of men, etc. Unless this is known, little attention can be given to realistic and fair options (i.e. Mallo et al above).
- ?? G. Cadiou et. al also reveal conflicts that occurred after trawling was banned from an area. However, in order to achieve the protection goal set, integrated management has been envisioned as a solution. The relocation of fishing effort would thus be realized through an integrative approach and management. Based on many case studies, this kind of measure would, however, probably gain from being a prerequisite and not a solution, especially in high-tension situations such as is often the case between conservationists and trawlers.

?? Several small MPAs is more effective than one big, with regards to questions of enforcement, cost and management. (Laurence Le Diréach et al) (notice opposite recommendations from other speakers later in this document)

A short story

Later that day, a discussion occurred between a social scientist –SS- (woman in her thirties) and a natural scientist –NS- (man in his thirties): The following example shows the need for bridging values, priorities and understandings with regards to fishermen, conservation and MPAs.

SS: Oh, I was wondering... were there any fishery going on in the protected sites you were talking about?

NS:yes....?

SS: So what happened to them? How did they react?

NS: Well, they were not designed for fishers but for conservation.

SS: Oh, of course not but... there were fishermen there you said... ?

NS: Yes

SS: So, what alternatives did you give them once you designated the sites, (hesitating, then in a slightly sarcastic tone) .. just to make sure they wouldn't continue to fish illegally ?

NS: (Impatient): None. It's for conservation issues, not for fisheries !

SS: But.... (incredulous).....ok....but aren't there conflicts in the adjacent areas now then? I mean they must be fighting each other off for the rest of the space if you didn't offer them any alternatives...

NS: (in 1.5 second: Surprised, almost embarrassed and then angry).. I don't know...

SS: (sarcastic) No follow-ups either... ?

... And if they have to go farther away to fish now, it will cost them more because of the fuel and everything...

NS: (Frowning, waiting to see where this is going)...?? ... Yeah... ?

SS: Well, my fear is they will fish until it becomes worth the extra effort and cost for them, if no alternatives have been agreed upon, even if it's illegal. I mean many of them they still have families to feed, right..?

NS: Ooh, that's ok actually, because they'll go farther and it's most sandy habitat there and that's less important, well not for the mollusks and everything but.. well for us....

SS: (judging)So you never even talked to them...

NS: No, they're trawlers...! Very destructive for the benthic habitat.. !

SS & NS: Incredulous consternation from both parts and end of conversation.

Tools for MPA planning and design

Attended sessions:

1. Current challenges towards a network of representative MPAs in the Mediterranean : a need to prioritize protection of underrepresented areas (Ameer Abdulla et. al)
2. Site selection methodologies for Mediterranean MPAs (Tundy Agardy)
3. Assessing ecological coherence of MPA networks : three approaches being developed within OSPAR (Jeff Ardron et. al)
4. Defining MPAs for cetaceans impacted by fisheries and other threats (Ana Canadas et Philip Hammond)
5. An ecosystem evaluation framework for seamount ecology, fisheries and conservation (Tony Pitcher)
6. Spatial data management in multi-objective MPA zoning (Leonardi Tunesi et al)
7. Comparative spatial scaling in cod and haddock populations; implications to MPAs (P.J. Wright et al)
8. A global best practice delivery model for achieving comprehensive MPA networks: A case study on Canada's pacific coast (Sabine Jessen et al)

Comments in italics added by the author of this document

CHALLENGES

The primary challenges for MPA planning and design are, according to Abdulla et al, of socio-economic and institutional nature. High population, competing demands and a surprisingly low cultural affinity with the resources are the main constituents of the challenges.

UK seems to be a place where MPA designation and sites are nationally coherent. However, there are, in most cases, no human activities involved in the areas assigned, which makes the challenges lesser than in many other sites and countries (Ardron et al).

OPPORTUNITIES

On the positive side, Abdulla et al note that the current primary opportunities lie in now existing legal frameworks and in the unified efforts within the EU, along with the financial contributions, and effective regional programs (WWF, IUCN, etc.).

SCALE

Agardy states that in order to help the planning procedures, one of the first things to consider and determine is scale. Beginning large and then zooming in, the question of where should guide the reflection from global to national, regional and local level and then allow to determine characteristics. She warns, however, that taking too much time to think of this may take away too much time from actual conservation. Based on conclusions from many speakers, there is nevertheless the risk to skip essential steps if planning is believed to be too time consuming. Experience show that important MPAs without proper planning and design are not as effective in reality as they could have been with it.

FEASIBILITY

Tundy Agardy points out the need to determine what it is we wish to design the MPA for; natural “pristine” areas or threatened ones? The “we” also needs to be defined and to be included in the process of reflection.

In order to increase feasibility, she also stated that there is a need to make more marketable and concretely defendable the idea of conservation (to specify species and ecoservices).

The ultimate question, nevertheless, points back to enforcement. Agardy asks the question if it is worth thinking of all this if, ultimately, there is nobody to enforce the designation.

POLITICAL WILL

Jessen et al tells of an example in western Canada: Due to slow procedures with the federal government, the local government of British Columbia had even signed agreement with the states of Washington and California in the US to work on MPAs, before Canada agreed. There are other examples in the country, however, where the federal agency is ahead of provincial ones (Magdalen Islands) and again others where a joint effort allowed an MPA to established (the marine park in Saguenay, Québec). Since 2002 there is a legal framework supporting the creation of MPA²s in Canada.

Agardy also raises the question of feasibility in terms of political will: what are the political processes like in the area, is there available funding and stakeholder support to allow for integrated management, etc.

² MPA (Marine Protected Area) is the general denotation whereas the specific denotation for AMPs under Parks Canada is NMCA (National Marine Area of Conservation)

COLLABORATION

Depending on political will and feasibility, Ardron et al stress the importance of collaboration efforts in planning and designing MPAs and put high emphasis on its need to be real and concrete. As an example he states the OSPAR alliance; how it merged with HELCOM and how, together, they defined the now existing NATURA 2000 sites. They now are now in the process of realizing a network of the sites.

DESIGN

In terms of the design itself, Ardron et al point out that ecological coherence, the ultimate goal in planning and designing MPAs networks, does not need to be synonymous with ecological connectivity. It needs to be designed, however, to be contextually coherent and resilient to change. This brings up questions of local and global reach: With regards to the percentage of representativity for example, should it always be the same or should it, too, be contextual?

TOOLS

THE EXAMPLE OF OSPAR

Ardron et al told of OSPAR's three approaches for verifying ecological coherence in the planning and the design of MPAs:

Self-assessment check—list; UK Database matrix (excluding spatial data); Spatial tests.

The spatial tests parameters include: Distribution, Bio-geographic representation, Rarity.

If a network fails these basic three tests the result is that it is not ecologically coherent.

Coherence: Likelihood of several combined ecosystem attributes along the following scheme:

V. Unlikely	Unlikely	Likely	V. likely	
Nothing 0%	Something 3%	OK 10%	success 30-40%	All 100%
	LIMIT (Set bounds for decision making)		TARGET	

DECISION SUPPORT SYSTEMS

Leonardi Tunesi et al described their tools for plan and design of MPAs :

ICRAMS methodological Approach (using GIS and DSS). Tools to define zoning alternatives :

- 1)-Collection of geo-references
- 2)-Thematic maps (uses, stakeholders, etc)
- 3)-Valence maps (classification and attributions of value)
- 4)-Intermediate maps (various scenarios)

It was unclear whether the attribution of value to various themes was based on stakeholder input, public consultations or scientific data. Enough evidence of the importance of a combination of the three had nevertheless been shown throughout various talks.

RESEARCH USING THE ECOSYSTEM APPROACH

The mean depth of the OSPAR area is 2159 meters. 85% is located in high or deep seas. 76% of the EEZ lie within the OSPAR region. 5 of 15 threatened species (and their habitats) are found there. There are also 59 seamounts (volcanoes) in the Mediterranean, 200 of which are higher than 1000 meters.

Why is this important?

Because seamounts create upwelling, which in turns create blooms of Primary Production³. This leads to an increase in food supply, an enhancement in water currents (Taylor Columns), creating activity, which, in turn once again, increase food supply. Reefs are often found at the borders of these areas, creating a «garden» of corals and other benthic communities. In these areas, there is also a higher possibility to discover new species. Within the samples taken around the 3 seamounts analyzed in Pitcher's study, 30% were new species. Furthermore, Pitcher declared, yellow tunas and sharks seem to gather around these mounts as well, showing their importance for the ensemble of the benthic and pelagic community.

ECOSYSTEM BASED MANAGEMENT (ESM/EBM)

According to the survey carried out by *MPA News* earlier in the year, John Davies, editor of the newsletter, states that ESM appears to be a promising tool but that more information on its principles is needed for it to be useful for managers.

During the speech, Davies mentioned only the natural ecosystem, but social and political functions within and around it naturally need to be addressed as well.

³ Certain microbacteria dwell around the upwellings, rich in minerals from which the bacteria feed. Plankton, feeding off the bacteria thus gather in the area, enhancing the baseline of the trophic levels in the sea.

MEDIA

Davies announced that in order to provide the required, supplementary and continuous, information, a new newsletter relating issues with regards to ESM will be sent out to subscribers to *MPA News* quarterly. This had been put in place already as of September 2007.

Jen Ashworth et. al also use a newsletter in which they announce important information, in their case, with regards to the NE Kent European marine sites management scheme 2007-201 (Thanet coast).

DELIVERY STRATEGY

Derek Fenton from the DFO in eastern Canada described how they, in order to address the concern of non-compliance in the newly created MPZ outside Nova Scotia's coast. Fenton and his team thus decided to create and follow a concrete delivery strategy. The main content of the strategy was to bring together and to use all resources already available in order to reduce costs. Hence, compiling data from logbooks, Vessel Monitoring Systems (Black boxes: 15 minutes transmission of location and movement), at sea observers and airplanes. In cases where the DFO is not the promoter of the MPA, it nevertheless appears to be extremely advantageous if a collaboration scheme could be elaborated where the knowledge and tools regarding fishers and fisheries can be compiled with data and goals of MPAs.

SPATIAL ANALYSIS

Spatial analysis was clearly the preferred tool of a great majority of speakers who by near or far worked for the planning and/or design of MPAs.

Leonardi Tunesi et al noted it to be especially relevant for multi-objective MPAs. Using this tool would be helpful in attaining their goal: create a common approach for the network of existing (and planned) 50 MPAs along Italy's coast. Due to the strong human pressure on the marine environment in the area, all MPAs will be multi-objective. Conflicts between use and conservation are thus somewhat expected and spatial analysis may, Tunesi et al believe, help determining the best areas and the best compromises.

All MPAs along the Italian Coastline, according to Tunesi et al's study, will have a common design composed by three zones:

A-zone: no entry and no-take area

B-zone: regulated entry and take area

C-zone: Buffer zone between the two

P.J. Wright et al stresses another benefit from spatial analysis, namely the ability to tag live specimens and thereby determine individual geo-locations. This, in turn, allows to determine home range of a certain species, which is a nearly prerequisite for effective design.

It also allows to track human activity in a specific area, both to identify different stakeholders and to distinguish different fishermen. The latter would allow to identify the ones who those who go, for example, haddocking rather than codding.

As previously mentioned, however, the speaker again pointed out that although spatial planning may be a most valuable tool, it will benefit the MPA and the community only if an appropriate level of enforcement is available.

In Ana Canada's et Philip Hammond's study, spatial analysis proved to be a very valuable tool for determining boundaries of proposed area and to map various human activities; trawlers, commercial shipping and recreational fishing, all of which occurred in the home range of the local bottlenose dolphins.

RECOMMENDATIONS

- ?? Spatial analysis. According to Tunesi et al, spatial analysis allow to compare socio-economic and environmental data; it increases understanding of respective approaches; provides clear information for the decision process and makers; it helps to identify areas of potential conflict and it provides a respectable, flexible and understandable procedure for everyone involved.
- ?? Guiding principles. Sabine Jessen et al, in their work on «A global best practice delivery model for achieving comprehensive MPA networks », an example taken from Canada's west coast, presented 9 guiding principles, ranging from the need of a clear time-table, a common analytical framework, the involvement of local communities to best practices drawn from Australia. Although perfectly pertinent and most definitely a wonderful tool, the guidelines lacked somewhat in concreteness to be as useful as intended. There was much of «what » was needed but unfortunately little of «how » to make it happen.
- ?? Need to rapidly identify unique habitats, representativity of habitats and biological, social and managerial feasibility. Evaluation of a site should include the following parameters:
 - Rarity, aggregation level and fitness consequence if it disappeared.
 - Naturalness (ecosystem health of the site).
 - Proportional importance (global, regional, local etc.) of the site (Tundi Agardy).
- ?? Need to concentrate on the protection of the biodiversity (Tundi Agardy).

Nevertheless, if livelihoods are disregarded for the sake of biodiversity, in many cases the rules will not be obeyed and the consequences risk in effect to be disruptive on biological, social and managerial sides.

- ?? Multiple criteria analysis. Some analyses are currently made through various existing software. If used, these should include multiple criteria, such as: Biophysical parameters, Socio-economic parameters and Socio-political parameters.

- ?? Jeff Ardron and Tundi Agardy were both in favor of the “learning by doing” principle. Agardy recalled when coastal protection began 25 years ago and stated that now was the time to do the same but with MPAs. Ardron et al even wondered if too much knowledge might not impair the willing to act. He stressed that we all need to remember the “ideal” but that in reality, we have to begin somewhere and fast.
Again, however, both these speakers are conservationists and there is naturally the need to balance conservational considerations with the costs and benefits of the impacts on the human communities from which we learn our lessons.

Science, management, stakeholders

Attended sessions:

1. Can MPAs and ecosystem-based management be effective without each other? Results from the MPA Newsletter poll (John B. Davis)
2. The politicization of scientific information in MPA processes: Lessons learned from a controversial public policy process in California (Adina Abeles)
3. Managing England's MPAs more effectively (Jen Ashworth et. al)
4. Involving scientists and managers for designing operational tools and indicators for assessing performance of coastal MPAs (D. Pelletier et.al)
5. Managing protected areas from your desk: MPAs in offshore Nova Scotia, Canada (Derek Fenton)
6. Transboundary MPAs: from theory to practice
7. Making Ecosystem-based management a reality: the role of marine spatial planning and ocean zoning for effective MPA management (Fanny Douvère et al)
8. Fishers' attitude and perceptions towards closed areas as a management tool: do perceptions change for areas created with different purposes? (Christina Pita et al)
9. Control considerations while defining a MPA (S. Monteiro et al)

Comments in italics added by the author of this document

CHALLENGES

Current weaknesses observed by several speakers, among which are Jen Ashworth et. al, are for example:

- Poor delivery
- Low enforcement
- Low stakeholder involvement
- Low educational awareness in stakeholders and others
- Lack of communication

Fanny Douvère et al, among others, are part of a potential dichotomy among planners, namely finding the balance between learning by doing and planning. While too much planning might inhibit the will to act due to the awareness of implications of every action, the lessons learned from a more experimental approach might, in effect, have severe implications on the local community at stake.

However, there seem to be a consensus regarding the fact that the only way to learn is to accept the risk to make mistakes and to refrain from criticizing too easily what has been done. One example from Ardron relates the fact that Yellowstone Park was installed in 1885 while there was still bear hunting going on in the area. We have since learned and applied our new knowledge to that context and today the park is still here for us to enjoy.

OPPORTUNITIES

Jen Ashworth et al. had noticed that there was a good collaboration from managements and immediate stakeholders as a result of integrating these in the decision process. In terms of how to reach the communities “at large”, extensive communication efforts need to be incorporated into the management plan and external communicators (i.e. non-scientists) sometimes recruited.

Fanny Douvère et al. stated that now available software to create Marine Spatial Planning (MSP) could help to overcome hurdles towards the creation of MPAs and sustainability. It may for instance help to identify what *is* to avoid conflict and to find space in a much-used area.

THEORY VS REALITY

Fanny Douvère et al. highlights the fact that “Planning” involves a temporal issue; a willingness to predict the future, which may be both realistic and unrealistic considering that long-term planning may be affected by a variety of factors, notably climate change. It is thus imperative to build this uncertainty into our planning (*i.e. erosion and the effect of warmer waters on the home range of various species in the Magdalen Islands*).

Jen Ashworth et al. noted that, in spite of all the science, management and stakeholder focus in order to create efficient and equitable MPAs, we also need to assess the effectiveness of existing MPAs. We need to learn from previous successes and failures and to take the time to analyze the reasons for both. This, according to Ashworth and other speakers, is crucial in order to avoid paper parks.

THE ROLE OF SCIENCE

D. Pelletier et al. urged MPA managers to specify what information they need so that targeted research can enable a well-functioning management scheme. The governments, on their side, need to bring the funding needed for the research to acquire the knowledge needed.

Catarina Grilo et al. agreed, suggesting that biophysical, socio-economic and environmental assessments were to be made systematically. Such information would also provide enough data from various locations to eventually facilitate the creation of fully functioning MPA networks.

ECOSYSTEM APPROACH

Ecosystem-based management (ESM/EBM) has similar goals as those of an MPA and in both cases, scale is of major importance. Determining on what level the MPA or the management will occur will allow more concrete and specific needs and schemes to be outlined.

In an EBM scheme are considered with equal importance:

Pollution, development, climate change and recreational, as well as economic, activities. Hence, in order to apply an ecosystem-based management, there is not only the natural ecosystem to consider (and respect) but social and political functions interacting in the area as well.

John B. Davis, editor of the monthly leaflet *MPA News*, presented the results from a poll among readers earlier this year, in which the question of whether or not Ecosystem based management was indispensable to a good management of an MPA. Results showed that the approach appears to be a promising tool but that more information is currently needed for it to be useful for managers.

In order to provide managers with more information with regards to the ecosystem approach, a new monthly newsletter will, as mentioned earlier, be sent out to subscribers to *MPA news* quarterly.

BRIDGING

Adina Abeles is the first of two speakers who relate the example of California's process to create a network of MPAs along its coastline⁴:

The 1st attempt to install MPA took place in 2000: It failed because the approach was too top-down and the organizing committee had to withdraw after public outbursts.

The 2nd attempt to install MPA was in 2002: This time, stakeholders were involved but the process failed because of lack of funding.

The 3rd attempt to install MPA began in 2004: A process that, through massive consultation and the creation of a (stakeholder) joint committee who had the mandate from governmental instances involved to produce a plan, achieved in September 2007.

Throughout the process, the need to communicate science to the public was identified; scientists may be good at communicating among each other but magazines and professional communicators would often be needed to better inform the public.

D. Pelletier et al also concluded that there is a flagrant lack of communication between researchers, government officials and managers and that this is often the cause of many misunderstandings and of much disinformation.

⁴ For a more detailed description, go to page 33.

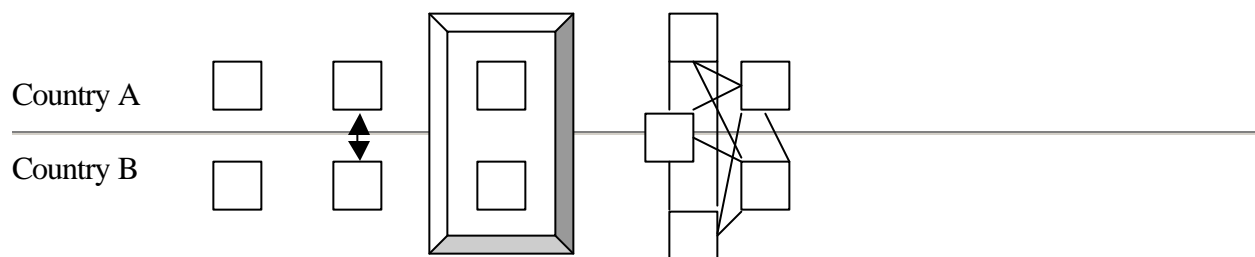
Derek Fenton, from the Canadian DFO in Halifax, suggested that existing instances, groups and departments around a protected area come together to create a “recognized fishing picture”: data from various sources, including existing species, number of boats for each, number of boats on the sea, itineraries, etc. Although fisheries data are not made for the management of a MPA, he believes they could still prove useful. If there were a suspicion of illegal activities in a protected area, for example, this multi-source fishing picture could enable managers to verify data from several sources before drawing a, perhaps hasty, conclusion or to gather proof enabling enforcement to act. He also suggests to, where possible, combine enforcement for MPAs and for DFO: the more eyes and the more combined costs there can be, the better. Furthermore, more training and sharing of information could occur with such a system in place, for all parts involved, including the fishermen.

S. Monteiro et al suggested that fisheries observers’ role could be expanded to increase awareness and to clarify legislations and their reasons to be, as well as pursuing data collection for scientific research in order to bridge gaps in understanding of mutual understandings.

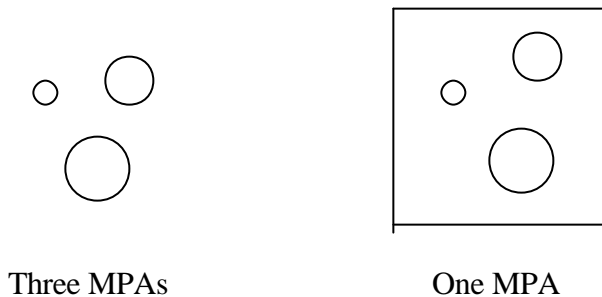
From a large-scale perspective, Catarina Grilo et al develop the concept of transmap projects. There are several already existing in the world, among which are the eastern Africa (Tanzania, Mozambique and South Africa) and the Wadden sea, west of the Netherlands, Germany and Denmark (see also under Options).

OPTIONS

Catarina grilo et al suggests various scenarios in terms of allowing science, management and stakeholders merge into coherent networks of protected areas. In the first example below, two distinct MPAs have no collaborative measures and are thus each responsible for rules, enforcement, processes and budgets. In the second example, two distinct MPAs are collaborating and possibly share several of the features above. The third is two national zones within one large protected area whose boundaries cross the national ones. Forth are several countries whose distinct MPAs still have commonalities, foremost with regards to the management scheme. Communication and shared responsibilities and means are imperative and, although complex, beneficiary to all parties.



S. Monteiro et al also discuss the various options with regards to several small or one big MPA. Invariably, the question of enforcement must guide the decision-making process, as it may be easier to control access to one big area if same restrictions apply throughout but where it may be the contrary if the different areas have different rules.



Grillo et al present necessary elements in the creation of MPA networks:

- ?? The level of commitment between stakeholders and role of legal instruments need to be agreed upon.
- ?? Joint management and joint plans for all areas need to be monitored by a commission for each area and withhold a observer status for the other ones.
- ?? The creation of incentives to put it all into place

Christina Pita et al mentioned that, although tempting because of easier procedures, it is often less interesting to make an MPA where there is no fishing since such areas will most often be less representative or interesting.

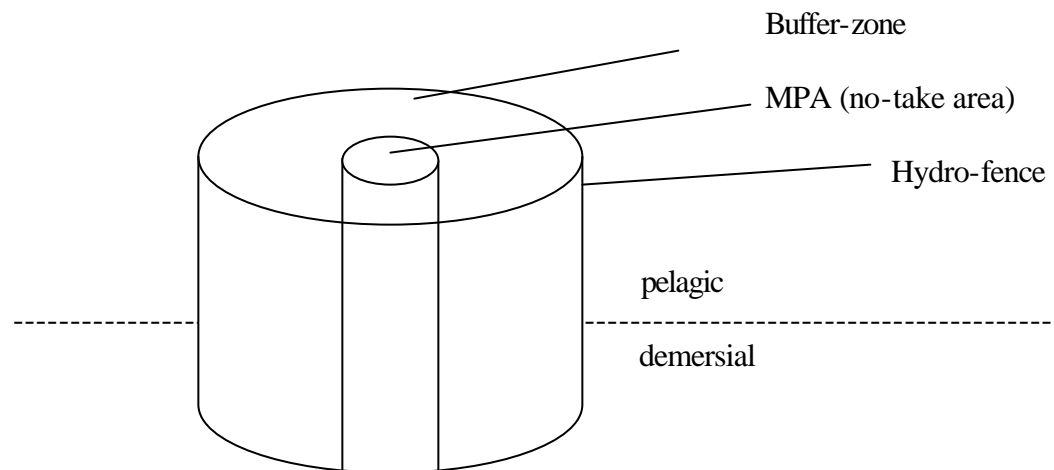
ENFORCEMENT

Now, how does one use science, management issues and stakeholder input to design a MPA so that it will be possible to control?

The first issue to consider is if the protected area is offshore or coastal. According to S. Monteiro et al. No-take areas are always the best in terms of enforcement feasibility: Ideally such a zone should even be a no-transit area since it is then much easier to control.

If the area is a restricted use area and if it lies offshore, there still need to be a limited entry for only a certain number of boats (licenses) at certain, designed, times. To ease control, Monteiro et al propose several possibilities:

First, the concept of « hydro-fencing »:



A prerequisite for this type of enforcement to work properly would be the dissemination and transparency of information: Coordinates, reason to be within the sector, etc. and to realize a stakeholder campaign, involve the media, employ on-board observers (whose mission would be to inform as well as gather information on-board).

Other/complementary measures:

?? Prohibition to carry on-board more than 1 fishing gear per fishing trip (the « one-net rule ») plus a list of allowed and forbidden gears. *This measure, however wise in theory, might encounter some problems in reality: fishers will argue that they need to bring one or a few extra gears in case of damage while on sea, especially for when they leave for several days. Although, from a protectionist perspective, this might seem like an excuse to potentially conduct illegal activities while at sea, the argument is nonetheless reasonable from the perspective of a regular day in fishing, and it needs to be dealt with from a mutually understanding standpoint.*

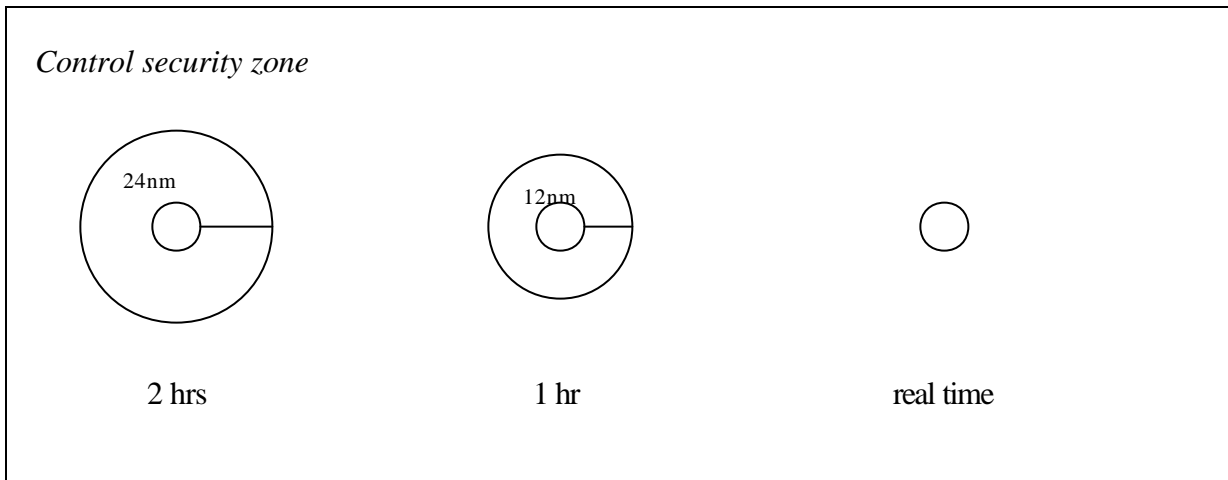
?? Monitoring systems:

VMS (Vessel Monitoring System ‘black box’). This device, under current rules, gives position, speed and course every two hours. In order to be fully effective, for the aims of an MPA, Monteiro et al ponders whether it would be possible to increase this rate to every 15 minutes to allow enforcements to react before any illegal activity was conducted.

VDS (Vessel Detection System (airplane). Advantage: Ability to detect with great detail every movement on-board a ship. Disadvantage: expensive.

Control security zone (see below):

This would allow to detect vessels in advance and to react properly. A prerequisite for this type of measure would be sufficiently large fishing grounds.



The study also showed that attitudes towards actors play a major role in their response to the management. For the moment, Pita found, it pays off to pursue illegal activities because of the small chance to get caught. In the US, less than 1% get caught and less than 1% of illegal landings need to pay a fine.

In terms of fisheries management in Scotland, fishers know 3 months in advance what the quotas for different species will be, which entails some difficulties for them to prepare and to organize themselves on a long-term basis. Buyers need to show whom they bought from and this needs to match with fishers' logbooks. There is much resistance though and little willingness for fishers, and buyers, to comply. Many fishermen even try to change species to avoid this kind of control.

On the question if they thought banning fishing from an area was good, 60 said yes, 30 no. According to responses, bans do affect quantity and biodiversity of various species but they also increase conflict when the ban is seasonal. It was suggested to the researchers by their informants that the ban should be permanent instead, in order to alleviate confusion and to increase equity. When a ban is seasonal, fishermen holding only licenses over that time span are more affected than the others.

RECOMMENDATIONS

- ?? Currently, only 50% of existing MPAs have functioning management schemes. It is therefore necessary
 - to make clear action plans
 - to monitor better and to allow feedback circulate better among management and stakeholders
 - to increase education awareness
 - to lobby for adequate staffing and budgets
 - to pressure government to deliver (Jen Ashworth et. al)

- ?? The level of commitment and the appropriate level of consultations within the political framework need to be clearly established. Based on 9 case studies by Grilo et al, the following topics were primordial:
 - identification of legal instruments and roles
 - creation of joint management plans
 - portrait of financial issues of all activities (tourism, fisheries, recreotourism, etc) in an area.

- ?? Identify special treatments for coastal versus offshore emplacements and find, in this regard, that no-take zones are far easier to control. This would be useful to have in mind from the very early stages of planning, allowing at the same time fishermen and other stake-holders to be present from the beginning of the project (S. Monteiro et al).

- ?? Use the World Bank's "scorecard" for evaluation of existing MPAs (Jen Ashworth et. al).

- ?? Study influences and impacts of MPAs on local communities and economies. A social study of two MPAs in Scotland showed that MPAs strongly influence local economy and communities. Since people do interact in many protected areas, social data is needed in order to ensure an equitable sharing of responsibilities, sacrifices and benefits. (Christina Pita et al)

Another problem revealed by several studies was that the majority of local communities had heard about the park but had never been informed about it, which created an instant «no we don't want it» reaction. Another problem, potentially serious, was that in the beginning of one project, promoters had calmed local worries by promising that impacts on the fishing industry would be minimalistic. Once the park was created, however, promoters decided they wanted to

implement regulations, which immediately created a social uproar, currently still vivid. This example is almost an exact copy of what happened initially in the state of California and, again, potentially and unfortunately compromise credibility for MPAs and their promoters.

Assessing MPA performance: Monitoring, models, indicators

Attended sessions:

1. Marine reserves: The critical element of an ecosystem approach to marine management and conservation (Paul Johnston)
2. Socio-cultural hurdles and opportunities related to no-take marine protected areas (Peter J.S. Jones)
3. Lessons learned: stakeholder involvement in the development of marine protected areas in California (Susan Ashcraft)
4. The need for integration of EU legislation towards EU meeting the target of a network of MPAs by 2012 (Indrani Lutchman)

Comments in italics added by the author of this document

CHALLENGES

- a mismatch of competences (EEZ, 12-mile limit, CFP, etc.)
- little empirical evidence for the support of MPAs
- lack of objectives for nature conservation (i.e. fisheries in the UK and the EU)
- clarity and coherence of objectives.

For example: The Natura 2000 sites aim a «Favorable Conservation Status » as opposed to no-take sites (Indrani Lutchman, EU). However, two representatives of the Natura 2000 network respectively claimed (during a Round-table discussion) that no-take zones were the sole manner species and habitat could be preserved. Although the first statement may be true in theory, evidence thus show difficulties to stay faithful to this inclusive objective in practice.

OPPORTUNITIES

Indicators show there is a public response to the idea and the importance of «saving the 'last wilderness' ».(Peter J.S. Jones)

Also, in Sweden, the department of fisheries recruits new staff members from the department of the environment or from the Green party to ensure environmental concerns are at the heart of the resource management.

With regards to fisheries, several countries have created a «plaice box», a «haddock box» and a «maquerel box» and the results appear to be very positive.

ECOSYSTEM-BASED MANAGEMENT

Paul Johnston from Greenpeace initiated this section by pledging an integrated approach to the management of all human activities, living and non-living resources in order to maintain ecological integrity. He recalled the need to base future actions on the precautionary principle and to make use of the best available scientific knowledge.

In terms of ECOSYSTEM-DYNAMICS Peter J.S. Jones pursued the topic on no-take MPAs (NTMPA), stating that it is more about changing human behavior than species'. Marine ecosystems are highly variable, complex and connected for many reasons, which make it difficult to establish cause and effect linkages (as is the case with climate change-is it human induced or not, to what level, in what regards etc.). Jones concluded that, since these are dynamic systems, even if we do base our work on the precautionary principle, we still need to establish how far back we should go to consider the state reestablished.

THEORY VS REALITY

Answering a question from the audience with regards to how they managed to avoid stake-older fatigue during the long process (3 attempts) in California, Ashcraft insisted on the importance to be clear about roles, to build credibility by transparency and by willingness to concretely share the decision-making power. She concluded by saying that top-down processes always fail and that the awareness of this fact made the promoters (US department of Fish and Games) truly honest about wanting to work with the stakeholders, even if this did not make everything perfect. However, although the stakeholder group offered three proposals for the design of the MPA, the one the promoters finally retained, was ultimately the one they themselves drafted. On September 21, 2007, 13 NTMPAs and 15 MPAs were installed along the California coast. Reactions from the public and the stakeholder group are still to await.

Jones tells us that 50% of the fish in the EU is imported from other, sometime neighbouring countries. This number may rise if we install more NTMPAs since species spillover have been low or its effects seen only after 20 years of no-take in a specific zone. NTMPAs inevitably push fishermen to go farther, which will increase their expenses and possibly incite them to practice illegal activities in order to level their costs. Furthermore, this kind of effort displacement involves economic and political hurdles on a global level. In Canada, for example, foreign ships have repeatedly been caught within Canadian waters, thus causing political tension and possibly damage political trust and will for collaboration.

In terms of global legislations and agreements, Indrani Lutchman from the EU stated that the target for networks of MPAs⁵ will perhaps be met but probably not by 2012.

EXAMPLES

Description of the processes described in the talk from Susan Ashcraft

Legal framework :

(US) : Marine Life Protection Act 1999 (ecosystem based tool, not fisheries management tool)

(California) : State jurisdiction of 3 miles (1600 km coastline)

Process 1

2000-2001 (failed). Agene and scientists developed the project. It was then proposed and presented through public meetings. The process halted when there was a public outcry because of lack of real interest in outcomes of the meetings and lack of consideration for the various interests involved.

Process 2

2002 (failed). This time, the focus was on stakeholder involvement. Lack of governmental support caused the halt of the process after 2 meetings due to a lack of funding. The following reasons were later identified :

- 1) Stakeholder involvement is expensive
- 2) There was a lack of staff and funding for the latter
- 3) The public suspected the state to be biased (already convinced to make it happen)
- 4) Lack of transparency and no clear purpose
- 5) Short timeline on state-level (stakeholder interest very diverse more time would have been needed to identify and proceed with thorough consultations etc.)

Process 3

Beginning in 2004, the process finally succeeded in 2007. The following reasons were recently identified :

- 1) There was a public-private partnership (allowed for paid staff)
- 2) Policy advice (Task force instead of political appointees. The task force was independent with own staff drawn from the stakeholders groups).
- 3) Guiding document available to the public during the whole process (Master plan)
- 4) Separate regional processes (state divided into 5 study regions)
- 5) Stakeholders fully empowered to design the MPA proposal

⁵ 10% of the world's oceans

Lessons learned from the California experience (Susan Ashcraft) :

- ?? Smaller regional stakeholder groups work better
- ?? Rigorous stakeholder selection to facilitate decision process. (However, although this may indeed ease the process, there is the risk of the stakeholder being less representative, which risk to provoke, sometimes violent, reactions, as in the case of the Iroise sea (see Annexe 4).
- ?? Increase public interaction with scientific advisors (and recruit, if necessary, trained communicators to bridge)
- ?? Educate stakeholders
- ?? Allow stakeholder group to craft proposals with regards to the MPA design. (However, if so, there need to be a true willingness to consider the proposals as valid)
- ?? Count on many volunteers, if possible.

BRIDGES

As presented by Indrani Lutchman, legislative spokesperson from the EU:

Globally (EU):

Legal instruments : Habitat and Birds (1), Common Fisheries Policy (2), Marine Strategy Directive (3)

- (1) Requires member states to establish SACs for the most threatened habitats and Birds. Proposed in 1998, given the deadline 2004, which has been extended until 2012. Now the legislation also includes the creation of SPAs and marine areas, whose deadlines are also 2012. Primary European environmental network (based on SACs): Nature 2000.
- (2) Base for national fisheries. This legislation provides general scope and does not require the creation of MPAs as such but to put in place a legal framework in which they may be established.
- (3) Created in October 2005. Based on a commission's proposals and expected to have in place a « good environmental status » by 2021.

There is also the Water framework directive, required to be put in place by all member states by 2015.

Then there is a marine policy (which is, however, not legally binding) regarding a biodiversity plan, containing directives as of how to finalize the Natura 2000 network.

Regionally :

OSPAR and HELCOM were created in 1998 based on the Helsinki Convention (Baltic sea protected areas).

In 2003, these two entities merged.

The Bern Convention nominates sites for the Emerald network (areas outside the Natura 2000 network).

The RAMSAR convention concentrates on wetlands

RECOMMENDATIONS

- ?? Greenpeace suggests setting a list of criteria with which measure sustainability for what a good environmental status with regards to European Union's Main Strategy Directive.
- ?? Based upon the talk in which M. Johnston referred to marine reserves, the audience suggested everyone use the IUCN category and nomenclature for reserves and other protected areas. .
- ?? We need to balance the ecological issues with the socio-economic ones, the latter of which are also related to social justice, making the ecological matter even more complex (Peter J.S. Jones).

Keynote sessions

1. When do protected areas help to achieve management objectives for the marine environment ? (Simon Jennings, UK)
2. Lessons from the past for marine conservation and management in Europe (Callum M. Roberts, Scotland)
3. Human dimensions of MPAs (Anthony Charles, Canada)

Comments in italics added by the author of this document

1. When do protected areas help to achieve management objectives for the marine environment ? (Simon Jennings, UK)

Opinions are based on lifestyles, worldviews and they direct management as defined by its objectives. With the venue of the Ecosystem-based approach, these objectives have been submitted to change. Difficulties in achieving these management objectives are largely due to difficulties in controlling the pressure on the environment combined with a weak government, high demands, and a lack of alternatives. So how can MPAs help ?

First, we need to determine scale:

The local level is always vulnerable to external influence. *(Locally on the Magdalen islands we experience this from pressure among fishers from neighbouring provinces and when local becomes representative of the Gulf of St Lawrence, we all may experience this from pressure from other nations coming close to our national coasts)*. Determining scale means determining to what extent we need to touch an ecosystem to be effective: do we look at the global, regional or local effects ?

Secondly, we need to negotiate and agree on processes in order to simplify decision-making. Within these processes, we must develop guiding principles to deal with trade-offs among objectives.

We also need competence to bridge scientists and governmental decision-makers *(and fishermen and other stakeholders)* and to reach transboundary measures, since many scientists are currently not necessarily in touch with the political realities. It may appear more convenient to install MPA where there are no fishermen but often these areas are less interesting from a biological/biodiversity point of view *(thus risk to create more 'paper parks')*

We are quite aware of the benefits we may draw from MPAs but not quite so about costs. We know they are immediate or short term for fishermen catches *(revenues)* and long-term for

government decisions and consequences but if we knew more it would be easier to make realistic plans.

With regards to successes and failures in terms of access to power, we know that local access rights management has proved to be successful (*in that compliance is then easier to obtain and to perpetuate*) and

That central system management often has proved to be unsuccessful (*in that local communities refused to comply, being excluded from the processes that determined much of their lives. This is especially important when a question of identity, lack of education or conscious choice creates resistance towards propositions to develop local development elsewhere than in fisheries*)

Jennings finally states that there are two sorts of scientists implicated: fisheries scientists and conservation scientists. (*One difference between the two lies perhaps in the fact that fishery scientists often base data on false information because many fishermen do not always report truthfully the number and composition of catches – often in reaction to regulations they find are incoherent or unfair probably without realizing these are based on information given to the scientists from fishermen such as themselves*).

2. Lessons from the past for marine conservation and management in Europe (Callum M. Roberts, Scotland)

HISTORICAL OVERVIEW

M. Roberts first offered a historical overview of Wick Harbour, his childhood town in Scotland. In 1970 and during his childhood years, there were only a handful of boats, lazily lingering in the harbour. He later learned that in 1865 it had been the largest fishing port in the world for herring. Today, there are no herrings left in the area.

On a world level, commercial fishing begun in 1600 BC (according to evidence from Santorini) and was common in the UK from 1050 AD. At that time, a fishing revolution is thought to have occurred, based on archeological evidence. Up to that point there had been only freshwater fish and after that time, mainly seawater fish. Why? What brought the switch?

The currently most popular theory believes the explanation lies in the facts that population increased around that time and agriculture flourished, both of which resulted in soils, lands and rivers being soiled. There was also a strong power demand at the time (brought from watermills in the rivers), which implied that migration routes for fish were blocked.

CHANGES

Much has changed again from this time. Relatively recent changes are seen through Sea bass catches in California, which in 1904 measured over 6 feet long *and whose minimal legal size for catches today is 11 inches for black Sea bass and 28 inches for white.*

1376: The beam trawl was invented. Inventions for higher efficiency pursued today (radar, sonar, etc.)

1880 : Trawlers gained power.

2000: Trawlers could go deep-sea.

From this time, a fundamental change occurred in the whole fishing sector simply because now we could go anywhere, anytime.

When aiming restoration we need to take into consideration that there has been a shift in the environmental baseline between 1910-2010.

In 1910 : captures were huge in size and abundant in numbers; In 1960 : captures were smaller in size and abundant in numbers; If the trends go on, in 2010 captures will be small in size and few in numbers.

TODAY

M. Roberts claimed there is a need to switch decision making power (regarding fisheries) away from politicians and channeled towards and through independent groups, since «The economy is too important to be left to politicians ». He also believes management needs to be transferred into this 'safer' category of groups. *(Great historical information was shared and an important message with regards to the need for prudence was emitted. I personally fear, however, that this suggestion of his may increase the existing polarization of fisheries and conservationists, and thereby leaving MPA proponents in an even more conflictual situation. I doubt there is much to gain on a long-term perspective from such quite radical position as wanting to 'get rid of' some actors and, furthermore, especially without offering concrete and constructive alternatives).*

M. Roberts also recommended that fisheries should :

- stop using quotas and limit effort with 50%.
- eliminate destructive gears (scallop dredge, etc.)
- reduce by-catch ban and the discarding of fish in the sea.
- install marine reserves

3. Human dimensions of MPAs (Anthony Charles, Canada)

EXAMPLES OF SUCCESS

1. MPA Gully (outside the coast of Halifax, Nova Scotia): Collaborators : Government (DFO), a local ENGO and Scientists. It began as a concern for deep-sea corals and the local whale population. After the decreed as whale sanctuary, the area evolved into a MPA. It is now managed by a steering committee.

2. Eastport (Nova Scotia): The process began as lobster fishers noticed that catches had begun to decrease. The fishermen had already initiated protective measures and the local community complied. As the concern was becoming known to the DFO, it started to conduct research in the area. The DFO ended up closing two areas, for all fishermen (it is unknown however if or how many fishermen for other species were active in the area) and students were hired to monitor the effects of the regulation. In 2005, a MPA was officially established at the site.

These two example show that no 'one solution fits all' is necessary (*or even possible*). The first example shows an offshore site where conservation of wildlife was the prime concern and where academic, government and ENGO input created the protected area. The second example show a coastal area, where concerns for fishermen's livelihood sparked a grass-root initiative, recognized by government only in the final stage of the process. Charles claims that in both cases, the processes and results are to be considered successes.

In order to determine the best available option for a specific site, Charles prompted participants that the **costs and benefit analysis should in all cases include considerations of :**

Benefits : Non-consumptive; direct resource; spin-off (diversification); existence; options created

Costs : Opportunity costs; management costs; operating costs

Distribution : Who gets what of benefits and costs?

Time span : Benefits often manifest on a long-term basis and costs on short-term

Space : Geographical and administrative scales : local/national/international

Whereas, for example, existing values from an MPA may be high internationally, they still imply a cost from a resource loss locally.

BENEFITS

One of the most flagrant benefits from example #2 is shared by George Feltham, one of the proponents of the MPA in Eastport. First, he noticed that organizing themselves (the fishermen) in this way has helped them gain credibility in the eyes of DFO. Since the project involved

students, benefits to the community as a whole has been gained and relations between parents and their teenagers now has subjects and knowledge in common.

OPTIONS

Now, what happened to those who used to fish in the now no-take zone?

(Although Charles provided several answers, some of them triggered other questions. These are italicized).

- alternative employment (*Such as? By choice or by imposition?*)
- compensation (*Who pays? What are the conditions?*)
- allowed to continue (*Reason? Eligibility for that? Impact on credibility of MPA?*)
- allowed to continue just outside of it (*No buffer zone around the no-take area? Enforcement effects?*)

BRIDGES

Charles points out that although links between fisheries and MPAs are necessary and invaluable, we must also acknowledge that a MPAs goal is nevertheless broader than that of fisheries and its promoters may not always properly understand the financial realities of an area. We therefore need to adapt possibly common tools to what is distinctive as much as to what is common and to consider and respect the multiple realities at hand.

RECOMMENDATIONS

Charles states that if there are no alternatives offered to fishermen whose activities will be prohibited, they will simply continue.

He continues by stating that there is much more to a MPA than closing fishing areas. There is also the follow-up, the control efforts to see to that fishermen remain outside the area; there are aquaculture whose realities and boundaries need to be respected; ocean mining operations or propositions that need to be addresses properly, and much more. Charles considers the establishment of an MPA an evolutionary process that meet the goals of protection in all these areas as well.

Contact :

Jessica Sanders at DFO for fisheries management involving the ecosystem approach.

Another short story

In the Iroise Sea⁶ outside the coast of Brittany, France, a marine national park finally came through this year after over 19 years of struggle and controversy. A law was recently amended to include a marine portion in the national park legislation. Plans to create the park were initially vague, which immediately caused local communities to be wary of the project. Nevertheless, since, politically (weak) management plans for fisheries were linked to (strong) agricultural ones, most professional local fishermen decided that it would be better to be “inside” the project than “out”. Due to the unclear objectives of the project in its initial stage, some of the fishermen feared regulations would hinder them in their, recreational albeit very lucrative, activities. Schisms between fishermen then created strong conflicting lobbying among the politically strong islands within the area, in order to convince these to reject, or abide to, the project. Earlier this year two of three accepted the project and the Park is now officially created, save the official signatures. Controversy, however, still exists and follow-up may offer valuable lessons in terms of enforcement and compliance in midst of heterogeneous interests, fears and support among stakeholders and opponents.

⁶ See annexe 4 for more information

Science-Policy Round-Table introduction

Attended from the EU commission:

Jacques Fuchs

Leticia Martinez-Aguilar

Martin Fernandez Diez-Picazo

Mrs. Martinez-Aguilar opens the talk. She presents the current three policies that favor MPAs :

- 1) Common fisheries policy (CFP)
- 2) Environmental policy
- 3) Future marine policy

She adds the EU sustainable development strategy (renewed 2006), which aims the completion of a Natura 2000⁷ network by June 2008.

Highlighted is also Article 6 of the Common Treaty: Integration of environment in common policies.

MPAs enter the CFP by its aim to protect fish stocks, habitats and Ecosystem functioning.

With regards to MPAs as a tool for fisheries, wide consultations with stakeholders is imperative (since the base of all processes need to be economic and social equity); transparency revision is needed and inclusion of social science necessary.

Up until now it has not been proven that MPAs are efficient as main tools for fisheries management but that it works well if they are combined with other management tools.

MPA initiatives can count on CFP to implement management measures when needed.

One major challenge is that 64% of the oceans are beyond national jurisdictions and that large parts of important habitats and biodiversity grounds remain unprotected.

See: EU Blue Book on Maritime Policy (to come out 10 October 2007)

Another challenge is that the present system of planning is too slow (1). There are, nevertheless, a few successful regional projects. (She cites as an example Natura 2000).

⁷ Under the Habitats directive

(1) If there is an honest will to include all stakeholders, gain local support and to assure equity, this process is, indeed, time consuming. However, if certain steps are ignored, decisions and actions may be made faster but the risk of the whole endeavor becoming another 'paperpark' increase substantially and the goal (protection), ultimately not achieved. So, how do we reach a middle ground, and who decides where that should be?

IMPORTANT EXISTING GAPS:

- ?? Socio-economic impacts of MPAs.
- ?? Links between society, economics, biodiversity and marine habitats.
- ?? Collaborative, multidisciplinary research

EU WORK PROGRAM FOR 2008:

- ?? The ecosystem approach will be central to the program (20.5 M \$)
- ?? For 2009 the main priority will be to assess relationships between urban, rural and coastal environments and data.
- ?? Spatial mapping for these areas as well as the deep-sea will then be important.
- ?? The focus will remain on a trans-disciplinary ecosystem approach.

We now have much expertise on specific areas; the next step is to build bridges between them.

Science-Policy Round-Table discussion A

Chair: Tundi Agardy

Is there a common ground between nature and fisheries?

Panelists:

Michael Andersen – Danish Fishermen’s Association, rep. Baltic RAC & North Sea RAC, Denmark
Jacques Fuchs: EU Commission, DG Fisheries and Maritime Affairs
Mireille Harmelin-Vivien: Université d’Aix-Marseille, Centre d’Océanologie de Marseille, France
Peter Jones: University College of London, Dept of Geography, UK
Indrani Lutchman: Institute for European Environmental Policy (IEEP), UK
Leticia Martínez-Aguilar: EU Commission, DG Fisheries and Maritime Affairs
Steven Murawski: National Oceanographic and Atmospheric Administration, US (ICES delegate)
Miguel Nuevo-Alarcon: EU Commission, DG Research

Resuming contents from the symposium she states that it is not yet the case. She therefore suggests four (4) ways in which to create it:

1. Create a common geography:

-Segregation, war or common pretense only occurs when objectives are not clear
-Allow diverse interest groups to work together in the MPA within a specific spatial management context.

2. Conduct interdisciplinary research

3. Allow healing between conservationists and fish industry

4. Practice the ecosystem approach

Comments on point 1:

- a) We need to consider and incorporate the governance issue in this point
- b) OSPAR and IUCN in the NE Atlantic are examples of this point.
- c) DG- already integrates fisheries and nature into its policy.
- d) Human relationships and politics are the real problem, not over fishing and no-take-zones.
- e) Conservation is an inherent part of fisheries management. Expresses doubts over the scientific hierarchy, which claims it knows what is right. Says fishers do not appreciate this attitude and that they are aware that politics are a very important part of it all. (*cf Roberts claim to rid politicians from fisheries management is not realistic*)

Comments on points 2,3 and 4:

Dr Agardy states we need to include fisheries into the environmental planning.

The example from Québec’s environmental department managing the forest industry may suggest this option not to be optimal because of the inherent conflict of interests.

Challenges:

Difficulties creating collaborative MPA policies and networks because member states need to plan both individually and commonly. This would call for a -step by step approach whereas there is a clear urgency inherent to the problems.

Opportunities:

Legal framework exists in most areas; now the marrying of deadlines is necessary.

However, it may not be because the legal framework exists and because high-level decision makers decide upon dates (especially if the urgency factor directs them) that the actual protected areas will be effective. For this, based on a number of authors and speakers, time, money and thorough participation is needed

Are the MPAs meaningful?

If it takes up to 30 years to even determine if they do have an effect, if it is too time and money consuming to go through with all the consulting and stakeholder involvement that would be necessary for it to work, is it worth all the trouble?

Studies have shown that they are meaningful as long as they are designed in accordance to the local desires, needs and context.

Social studies could be the nucleus for interdisciplinary research to move forward (including Traditional Ecological Knowledge (TEK)). *This point also stresses the need to change the perception that 'social' means 'pro-fishermen, and instead favor the social as being 'pro-dialogue'*

The Chair is reminded that Natura 2000's priority/mandate is Bird and Habitat protection and that, by definition, fisheries are not included in this priority.

However, if there are active fishermen in those areas, is it not mindless to ignore them? Let us remember Anthony Charles who said: "if there are no alternatives, they will continue fishing" and perhaps rightfully so: If someone I did not know were to tell me my work as a researcher was useless or harmful to the local fishery community and that I were to start lecturing tourists about the fishery tradition instead - I would like to have some answers and options and would probably not automatically comply.

We also need to remember that social equity and biodiversity is a continuum where the middle point is also influenced by climate change and other aspects of uncertainty.

Science-Policy Round-Table discussion B

Chair: Carl Gustaf Lundin

Panelists:

Jessica Sanders: FAO Fisheries Dept

Callum Roberts: University of York, UK

Silvia Revenga: Spanish Ministry of Agriculture and Fisheries, Spain

Christian Punch: Federal Agency for Nature Conservation, Germany

Giuseppe Notarbartolo: Tethys Research Institute, Italy

Mark A. Mellet: Commander, National Maritime College of Ireland, Ireland

Martin Fernandez Diez-Picase: EU Commission, Maritime Policy Task Force

Anthony Charles: Saint Mary's University, Halifax, Canada

Charles François Bouderesque: Université d'Aix-Marseille, Centre d'Océanologie de Marseille, France

Fabio Badalamenti: Laboratorio di Ecologia Marina e Conservazione della Natura, Univ. di Palermo, Italy

We obviously need to stop destroying our capital (*which starts with our own consumption, choices, etc.*). We also need to see an equitable distribution, not only of benefits but also of responsibilities.

People need to get heard, which means that we need to ensure revisions with a 5 year interval so that people can still be heard and become involved (dynamic and flexible management schemes).

There is no perfect MPA. What we need is enforceable rules that are also good management tools. We thus need to be very wary of creating systems we cannot enforce.

We should not “oversell the concept” of MPA because there are no ‘win-win’ solutions. We instead need to make realistic ones with real, constructive impacts.

It is also crucial not to concentrate only on biodiversity but to include livelihoods into the picture. We therefore need to look at the economic feasibility of projects before pushing them through.

We also need to consider the possibility of catastrophic events and climate change when we design MPAs. For example, the temperature change is 8 times faster in the Baltic Sea than in any other sea. We thus need to incorporate and manage resilience into our concepts, designs and reflection.

Ultimately, we need to experiment a lot. How do we integrate shifts in home range in the design of MPAs ? We need to recognize limits and utilities of research, thereby focus on useful science in management contexts.

It is important to remember that fishery ministers’ goals are to bring home the highest quotas, so diversity of the fishing industry is increasingly crucial.

Scientific advices to governments are furthermore often based on flawed or insufficient data, so we need to involve all fishermen- and not only the most lucrative species, otherwise there is a risk to marginalize the others. If or when this happens, social inequity increases and the livelihoods of the excluded ones will be harder, thus creating more tension in the community and

inciting more illegal activities. I am thus inclined to highlight the possibility that inequity in and of itself may contribute to overfishing.

We need to remember that the rules are for the citizens: hence we need to limit free-riding and avoid jealousy (*in other words to be careful when designing no-take zones or seasonal bans and to thoroughly identify who gets affected and who does not*).

Science should drive decisions; it therefore needs to be clear. We should rely simultaneously on opinions (livelihoods) and on science (state of a partial present).

To complete scientific findings, community opinions and feelings need to be heard so that scientific communicators can know what subjects to address and how to address them so they can be heard and understood, hence allowing citizens to think about options and possibilities and judge for themselves whether or how they wish to see a MPA evolve in the area.

We need to be clear about the objective(s) of each MPA and why it is important to create one. There should not be one package deal for ocean management but it should nevertheless include some robust management objectives for a multiple-use ocean.

There is a need for transparency since without trust there will not be compliance and without compliance there will be no effects. Management need to include what touches the area; pollution, oil extraction activities etc, and not avoid or ignore what is part of the reality in the area.

The main thing to remember in all this – conservation and fisheries - is that we're actually managing people, not fish. So it is not only about inclusion, involvement, participation; it is also about governance. Finding how to govern in a participatory fashion is one challenge we need to keep working on.

There is need to 'tell stories'. *We also need to share stories. To educate on a same-level, not top-down and to listen to each other as much as telling.*

There is a need for commitments and for people doing what they commit to. *So it may be better to start small and realistic than big and not effective in reality?*

Conclusions

Conflicting data – how do we bridge them ?

Comments in italics added by the author of this document

Are there ecological effects?

Positive ecological effects on, especially, benthic habitats appear to be clear. In terms of benefits to the ecosystem itself, however, some results show that lower trophic levels may suffer from the restoration of species from higher levels, which trigger value issues and potentially conflicting interest groups. Although it may be tempting, it is often less interesting to make an MPA where no fishing occurs, since such areas will most often be less representative or interesting.

Ecological effects occur from overfishing as well as from protecting an area. The question is to what extent and what options are there, or can we ponder, in both cases? Determining the effects on a credible timescale is a challenge scientists must face in the future and, in order to achieve this, baseline information and close monitoring are two *sine qua non* for future references to the question. Spatial analysis tools are some of the most effective for this in order to compile large quantities of data and to enable efficient communication with the public.

(Afons et al; Pita et al; Ragnarsson et al; Donnan et al; Higgins et al; Seytre et al).

Do fisheries benefit ?

We are quite aware of the benefits we may draw from MPAs but not quite so about the costs. We know the latter are immediate for fishermen catches (revenues) but if we knew more, this could help to make realistic plans and to design thorough follow-ups. Future generations could then more easily respond to the question above. In one recent MPA, two tests with an eight months interval concluded that abundance of targeted species had increased within the protected area, even if the increase was not yet high enough to sustain fisheries. However, based on opinions from other speakers, it can take up until 20, 25 years before being able to determine whether or not an apparent increase is due to the MPA status and not to migration, changes in home-range, climate change, etc.. It is therefore difficult to state at this point if or how much fisheries do benefit from MPAs. Conflicting data also show that results are very much context-dependent: seasonal banning seem to be the best solution in one area whereas it is quite unfit in another; positive effects on fisheries are clear in one area and undecipherable in another.

(Le Diréach et al; Seytre et al; Higgins et al; Jones; Mallol et al; Pedersen)

Most MPAs will be designed for areas where fishing activities exist, since these are more productive and interesting from a biodiversity point of view. It is thus very important to consider the local setting. Insularity, for example, is an important factor to properly consider because of

the lack of alternative employment possibilities. Simply suggesting to fishermen to begin work within the tourism sector often appears as a flagrant lack of respect, especially if coming from someone to whom such a switch appears to be simple and easy. Revenues from tourism, often praised by some MPA proponents, are furthermore often exaggerated and at times even insignificant.

Big or small ? One or many?

Some suggest that small MPAs are more effective thanks to the fact that they are easier to control and that several small, around targeted species home-range, is considered to be better than one big.

Others believe that an area is more likely to be effective when it is big. This way, a buffer area may be included to avoid crowds fishing at the boundaries of the protected zone.

(D. Pelletier et al; Laurence Le Diréach et al; S. Monteiro et al)

The question of scale presents itself as one of the first and most important ones that promoters would need to gather the local population around. This was suggested in the first report and thus remains of first priority.

No-take zone ? Multi-user?

In terms of control, no-take zones (as long as they are also no-transit zones) seem much more effective since suspicious activities may more easily be spotted. However, unless there is plenty of fishing grounds around the area, such a zone may cause social tension and inequity unless all fishers are involved in the process and unless alternatives have been elaborated to make sure not only some are being deprived of their livelihood.

A multi-user MPA is generally easier to establish. However, the goal and objectives of the area need to be clearly defined, to make sure the reasons for which one wishes to protect the area does not get lost in the process of accommodating everyone involved. In either case, we need to identify special treatments for coastal versus offshore emplacements as well as the considerations above, all of which are useful to have in mind from the very early stages of planning. As seen in several cases, many MPAs contain a combination of these options.

(S. Monteiro et al; Tunesi; Agardy; Pita et al; Ashcraft).

Common design or contextual solutions?

To the question if they thought banning fishing from an area was good, 60 fishermen in one MPA in Scotland answered yes, 30 no. According to responses, bans do positively affect quantity and biodiversity of various species but they also increase conflict among fishermen. The latter was common with seasonal bans since only some were affected, depending on the species

they had licenses to catch. It was suggested to the researchers by their informants that the ban should be permanent instead, in order to alleviate confusion and to increase equity.

This is in contrast to a case in Corsica where seasonal bans worked better for everyone since the whole territory was used by all. These examples indicate that no “one-solution-fits-all“ should be advocated internationally. However, some common criteria would prove to be useful in order to facilitate the creation of coherent networks of MPAs. In some contexts, it may also still be advantageous for MPAs to have a common design: All along Italy’s coastline, for example, all MPAs will be composed by three distinct zones (no-take and no-transit; regulated take and transit; buffer zone between the two). A nationally coherent design, allowing specificities to be respected and regulated locally, may be a solution that may fit many meanwhile creating a coherent network for all.

(Christina Pita et al; Laurence Le Diréach et al; Tunesi; Lundin; Ardron)

Plan well or learn by doing?

Some claimed that it is better to do and learn than to ‘sit around and wait to know how to do it’. Others urged precaution where parameters were unknown in order to avoid risking disruptions of ecological and/or social balances in the suggested area. Compromises and/or contextual solutions are thus needed so that neither stakeholders and local populations are to serve as guinea pigs to scientists’ hypothesis, nor essential habitats to be destroyed while decision makers try to share and gain information for a too long period.

As planning involves a temporal aspect (somewhat predicting the future), it will continue to be a challenge to combine the precautionary principle with a “learn by doing” approach.

(Ardron; Agardy; Jones; Charles)

Efficiency or transparency? Promise vs delivery.

Another problem revealed by a study in Scotland was that the majority of the local population had heard about the project to create a marine park but had never been informed about it, which had created an instant «no we don’t want it» reaction. Having been reassured, promised that it would not affect their livelihoods in any way, the population finally agreed to the plan. Once the park had officially been created, however, the managers decided they needed to implement regulations, which naturally created a social uproar, currently still existing. This example is almost an exact copy of what happened initially in the state of California. Other than disrupting links of trust on a local level, these kinds of deceptive behaviours may also compromise the credibility for MPAs and their promoters elsewhere.

(Pita et al; Abeles; Ashcraft)

On the other hand, national governments are pressured to deliver with regards to objectives set on an international level and appointed promoters to deliver to the government. It is important to remember, however, that risking to by-pass local communities and stakes will eventually risk the success of the project itself (and the area in need of protection). How can agendas be bridged?

How do we bridge?

Natural sciences, with the help of tools such as a spatial analysis, can today identify areas in need of protection with a high level of accuracy.

Social sciences, with the help of local communities' sharing of information, can today assert that compliance depends highly on the level of local involvement in the project.

Bridging of the two means protecting biodiversity without menacing livelihoods.

Several speakers pointed to important existing gaps that need to be filled and practices that need to be adopted before we can begin to work efficiently together on bridging MPAs and fisheries:

- ?? Identify socio-economic impacts of MPAs.
- ?? Create links between society, economics, biodiversity and marine habitats.
- ?? Put in place collaborative, multidisciplinary research teams
- ?? Practice the ecosystem approach
- ?? Create a common geography

(Agardy, Luchman, Lundin, Tunesi)

Scientific communicators could also be attached to processes and projects to vulgarize complex biological phenomena and needs; traditional ecological knowledge (TEK) could be used to enlighten scientists on historical trends, etc.; local ecological knowledge (LEK) could be used to bridge scientific and social concerns.

There is also a need to change the perception that 'social' means 'pro-fishermen' and instead favor the 'social' as being 'pro-dialogue'.

Final notes

Up until now it has not been proven that MPAs are efficient as a main tool for fisheries management but that it works well if they are combined with other management tools.

It appears that there is no "one size fits all" solution or design and that the determination of size and scale of a MPA is, and needs to be, largely context dependent. Multi-species information is necessary to make these decisions and multi-disciplinary research to gain understanding and support for and from affected communities.

In order for successful MPAs to be created, there is a need for transparency since without trust it is difficult to achieve compliance and without compliance it will be difficult to protect what needs protection. Compliance and cooperation is therefore considered to be essential for a MPA to succeed.

We need to incorporate an ecosystem-based perspective and the human activities with which it interacts. We also need to remember that social equity and biodiversity is a continuum where the middle point is also influenced by climate change and other aspects of uncertainty.

Finally, essential ingredients for an equitable and constructive feasibility study or implementation process are: participation, money and time.

LEXICON

BIOMEX: Biomass Export
CFP: Common Fisheries Policy (EU)
DFO: Department of Fisheries and Oceans (Canada)
DSS: Decision Support System
EEZ: Exclusive Economic Zone
EFH: Essential Fish Habitat
ENGO: Environmental Non Governmental Organization
ESM/EBM: Ecosystem-based Management
GIS: Geographical Information System
HELCOM: Helsinki Commission created in 1992 for the protection of the marine environment of the Baltic sea
IUCN: International Union for the Conservation of Nature (World Commission)
LEK: Local Ecological Knowledge
MPA: Marine Protected Area
NGO: Non Governmental Organization
NMCA: National Marine Conservation Area (of Canada)
NTMPA: No-take Marine Protected Area
OSPAR: Oslo-Paris commission created in 1992 for the protection of the marine environment of the North-East Atlantic.
PMZ: Protected Marine Zone
RAMSAR: The Convention on Wetlands, signed in Ramsar, Iran, in 1971
SAC: Special Areas of Conservation. Designated under the European 'Habitats' Directive.
SPA: Special Protected Area. Under the EU Directive on the conservation of wild birds.
TAC: Total Allowed Catch
TEK: Traditional Ecological Knowledge
VDS: Vessel Detection System
VMS: Vessel Monitoring System

ANNEXE 1. Attended sessions (in chronological order)

Murcia 2007

Attended sessions (in chronological order):

Tuesday 25th of September

- | | |
|---|---|
| Key-note session | 10 :15-11 :00 Room 1
When do protected areas help to achieve management objectives for the marine Environment (Simon Jennings) |
| Ecological effects of MPAs | 11 :30 Room 2
Fish movements, essential habitat mapping and the design of MPA networks for multi-species fisheries management (Pedro Afonso et.al) |
| MPA effects on fisheries and other uses | 11 :50 Room 3
Do local fishermen benefit from the presence of marine protected areas. A multi-case evaluation. (G. Cadiou et. al) |
| MPA effects on fisheries and other uses | 12 :10 Room 3
Natura 2000 sites and fisheries in German offshore waters (Sören Anker Pedersen et. al) |
| Ecological effects of MPAs | 12 :30 Room 2
The biodiversity and fishery benefits of spatial management in a <i>nephrops norvegicus</i> fishery in western Scotland, UK : an opportunistic study (David Donnan et. al) |
| MPA effects on fisheries and other uses | 12 :50 Room 3
Using MPAs to conserve groundfish biodiversity : the consequences of using flawed data (Helen M. Fraser et. al) |
| MPA effects on fisheries and other uses | 13 :10 Room 3
Using MPAs to address global scale ecological objectives in the North Sea : modeling the effects of effort displacement (Simon PR Greenstreet) |

Annexe 1

Attended sessions (in chronological order):

Tools for MPA planning and design	14:30 Room 1 Current challenges towards a network of representative MPAs in the Mediterranean: a need to prioritize protection of underrepresented areas (Ameer Abdulla et. al)
Tools for MPA planning and design	14 :50 Room 1 Site selection methodologies for Mediterranean MPAs (Tundy Agardy)
Tools for MPA planning and design	15 :10 Room 1 Assessing ecological coherence of MPA networks : three approaches being developed within OSPAR (Jeff Ardron et. al)
Science, management, stakeholders	15:30 Room 3 Can MPAs and ecosystem-based management be effective without each other? Results from the MPA Newsletter poll (John B. Davis)
Science, management, stakeholders	15 :50 Room 3 Managing England's MPAs more effectively (Jen Ashworth et. al)
Science, management, stakeholders	16 :10 Room 3 Involving scientists and managers for designing operational tools and indicators for assessing performance of coastal MPAs (D. Pelletier et.al)
Science, management, stakeholders	17 :00 Room 3 Managing protected areas from your desk : MPAs in offshore Nova Scotia, Canada (Derek Fenton)
Ecological effects of MPAs	17 :20 Room 2 Impacts of the implementation of the Arrabida MPA (Portugal) in local fisheries and fishing community (Marisa Batista)
Science, management, stakeholders	17 :40 Room 3 Transboundary MPAs : from theory to practice

Annexe 1

Attended sessions (in chronological order):

Wednesday 26 September

Attended sessions :

Tools for MPA planning and design

9 :45 R1

Defining MPs for cetaceans impacted by fisheries and other threats (Ana Canadas et Philip Hammond)

Tools for MPA planning and design

10 :05 R1

An ecosystem evaluation framework for seamount ecology, fisheries and conservation (Tony Pitcher)

Ecological effects of MPAs

10 :45 R2

(EMPAFISH) Fisheries effects of Atlanto-mediterranean MPAs (Ruth Higgins et al)

Assessing MPA performance :
monitoring, models, indicators

11 :30 R3

(GREENPEACE) Marine reserves : The critical element of an ecosystem approach to marine management and conservation (Paul Johnston)

Assessing MPA performance :
monitoring, models, indicators

11 :50 R3

Socio-cultural hurdles and opportunities related to no-take marine protected areas (Peter J.S. Jones) (hint : socio-economic = pro-fishers)

Assessing MPA performance :
monitoring, models, indicators

12 :30 R3

The need for integration of EU legislation towards EU meeting the target of a network of MPAs by 2012 (Indrani Lutchman)

monitoring, models, indicators

12 :50 R3

Lessons learned : stakeholder involvement in the development of marine protected areas in California (Susan Ashcraft)

Tools for MPA planning and design

12 :50 R1

A global best practice delivery model for achieving comprehensive MPA networks : A case study on Canada's pacific coast (Sabine Jessen et al)

14 :30 **Poster-sessions + group photo**

15 :30 : **Keynote : Lessons from the past for marine conservation and management in Europe** (Callum M. Roberts)

Thursday 27 September

Attended sessions :

- MPAs effects on fisheries and other uses** 9 :45 R 1
Seasonally rotating MPAs : Protection of marine species and habitats afforded by artisanal fisheries adapting to species biological and ecological patterns (Caja rajada, NE Mallorca, Balearic Islands) (Sandra Mallol et al)
- Ecological effects of MPAs** 10 :05 R 2
Role of MPAs for conserving benthic communities and habitat features : two case studies from Icelandic waters (Stefan Ragnarsson et al)
- Ecological effects of MPAs** 10 :25 R 2
Is the recent Cap Roux MPA an efficient tool to sustain professional fisheries ? (Catherine Seytre et al)
- MPAs effects on fisheries and other uses** 10 :45 R 1
Fishing effort and catches in the partially protected area of the MPA of Scandola and adjacent areas (Corsica, Med..) (Laurence Le Diréach et al)
- Science. Management and stakeholders** 11 :30 R2
Control considerations while defining a MPA (S. Monteiro et al)
- Tools for MPA planning and design** 11 :30 R1
Spatial data management in multi-objective MPA zoning (Leonardi Tunesi et al)
- Science, management, stakeholders** 12 :10 R2
Making Ecosystem-based management a reality : the role of marine spatial planning and ocean zoning for effective MPA management (Fanny Douvère et al)
- Science, management, stakeholders** 12 :30 R2
Fishers' attitude and perceptions towards closed areas as a management tool : do perceptions change for areas created with different purposes ? (Christina Pita et al)
- Tools for MPA planning and design** 13 :10 R1

Annexe 1

Attended sessions (in chronological order):

Comparative spatial scaling in cod and haddock populations;
implications to MPAs (P.J. Wright et al)

14 :30-15 :30 poster sessions

15 :30 R1

Keynote speaker : Dr Anthony Charles, Canada : Human
dimensions of MPAs

16 :45

Discussion with Carl Gustaf Lundin about A. atoll in the
Seychelles and appreciation of recent IUCN handlet about the
research in the area

ANNEXE 2. Attended sessions (by category)

A. Ecological effects of MPAs

7. Fish movements, essential habitat mapping and the design of MPA networks for multi-species fisheries management (Pedro Afons et.al)
 8. The biodiversity and fishery benefits of spatial management in a *nephrops norvegicus* fishery in western Scotland, UK : an opportunistic study (David Donnan et. al)
 9. Impacts of the implementation of the Arrabida MPA (Portugal) in local fisheries and fishing community (Marisa Batista)
 10. (EMPAFISH) Fisheries effects of Atlanto-mediterranean MPAs (Ruth Higgins et al)
 11. Role of MPAs for conserving benthic communities and habitat features : two case studies from Icelandic waters (Stefan Ragnarsson et al)
 12. Is the recent Cap Roux MPA an efficient tool to sustain professional fisheries ? (Catherine Seytre et al)
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B. MPA effects on fisheries and other uses

6. Do local fishermen benefit from the presence of marine protected areas. A multi-case evaluation. (G. Cadiou et. al)
 7. Natura 2000 sites and fisheries in German offshore waters (Sören Anker Pedersen et. al)
 8. Using MPAs to conserve groundfish biodiversity : the consequences of using flawed data (Helen M. Fraser et. al)
 9. Using MPAs to address global scale ecological objectives in the North Sea : modeling the effects of effort displacement (Simon PR Greenstreet)
 10. Seasonally rotating MPAs : Protection of marine species and habitats afforded by artisanal fisheries adapting to species biological and ecological patterns (Caja rajada, NE Mallorca, Balearic Islands) (Sandra Mallol et al)
 11. Fishing effort and catches in the partially protected area of the MPA of Scandola and adjacent areas (Corsica, Med.) (Laurence Le Diréach et al)
 12. Spatial assessment of fishing effort around European marine reserves : implications for a successful fisheries management (Vanessa Steinsmüller et al)
-

C. Tools for MPA planning and design

9. Current challenges towards a network of representative MPAs in the Mediterranean : a need to prioritize protection of underrepresented areas (Ameer Abdulla et. al)
10. Site selection methodologies for Mediterranean MPAs (Tundy Agardy)
11. Assessing ecological coherence of MPA networks : three approaches being developed within OSPAR (Jeff Ardron et. al)
12. Defining MPs for cetaceans impacted by fisheries and other threats (Ana Canadas et Philip Hammond)
13. An ecosystem evaluation framework for seamount ecology, fisheries and conservation (Tony Pitcher)
14. Spatial data management in multi-objective MPA zoning (Leonardi Tunesi et al)
15. Comparative spatial scaling in cod and haddock populations; implications to MPAs (P.J. Wright et al)
16. A global best practice delivery model for achieving comprehensive MPA networks : A case study on Canada's pacific coast (Sabine Jessen et al)

D. Science, management, stakeholders

10. Can MPAs and ecosystem-based management be effective without each other? Results from the MPA Newsletter poll (John B. Davis)
 11. The politicization of scientific information in MPA processes: Lessons learned from a controversial public policy process in California (Adina Abeles)
 12. Managing England's MPAs more effectively (Jen Ashworth et. al)
 13. Involving scientists and managers for designing operational tools and indicators for assessing performance of coastal MPAs (D.Pelletier et.al)
 14. Managing protected areas from your desk : MPAs in offshore Nova Scotia, Canada (Derek Fenton)
 15. Transboundary MPAs : from theory to practice
 16. Making Ecosystem-based management a reality : the role of marine spatial planning and ocean zoning for effective MPA management (Fanny Douvère et al)
 17. Fishers' attitude and perceptions towards closed areas as a management tool : do perceptions change for areas created with different purposes ? (Christina Pita et al)
 18. Control considerations while defining a MPA (S. Monteiro et al)
-

E Assessing MPA performance : monitoring, models, indicators

5. Marine reserves : The critical element of an ecosystem approach to marine management and conservation (Paul Johnston)
 6. Socio-cultural hurdles and opportunities related to no-take marine protected areas (Peter J.S. Jones)
 7. Lessons learned : stakeholder involvement in the development of marine protected areas in California (Susan Ashcraft)
 8. The need for integration of EU legislation towards EU meeting the target of a network of MPAs by 2012 (Indrani Lutchman)
-

F. Key-note sessions:

4. When do protected areas help to achieve management objectives for the marine environment ? (Simon Jennings, UK)
 5. Lessons from the past for marine conservation and management in Europe (Callum M. Roberts, Scotland)
 6. Human dimensions of MPAs (Anthony Charles, Canada)
-

442 persons from 49 countries attending

ANNEXE 3. Notes from attended sessions**Tuesday 25 September (notes)**

TU 10 :15-11 :00 (Key-note session)

When do protected areas help to achieve management objectives for the marine Environment (Simon Jennings)

Opinions are based on lifestyles, worldviews and they direct management as defined by its objectives. With the venue of the Ecosystem-based approach, these objectives have been submitted to change. Difficulties in achieving these management objectives are largely due to difficulties in controlling the pressure on the environment combined with a weak government, high demands, and lack of alternatives. How can MPA help ?

Need to determine scale:

Local: Vulnerable to external influence (Golfe, NB, NS, TN) – need to touch ecosystem to be effective: regional vs global effects of fisheries : Need to educate for people to be able to see outside the box.

Need also:

Pre-negotiated and pre-agreed processes to simplify decision making

Develop guidance to deal with trade-offs among objectives

Competence to bridge scientists and governmental decision-makers (*and fishermen and other stakeholders*) and to reach transboundary measures .

Scientists are currently not necessarily in touch with the political realities.

Ok to install MPA where there are no fishermen but often these areas are less interesting from a biological/biodiversity point of view (*risk for more paperparks*)

We know benefits but what about costs:

Short term for fishermen and long-term for government decisions and consequences.

Local access rights management-successful

Central system management-unsuccessful

=need to develop local development elsewhere than in fisheries but often a question of identity, lack of education, conscious choice.

Two sorts of scientists: fisheries scientists and conservation scientists (*difference: fishery scientists often base data on false information bc fishermen don't always report truthfully*).

TU 11:30

Fish movements, essential habitat mapping and the design of MPA networks for multi-species fisheries management (Pedro Afonso et.al)

From the Azores.

Based on movement and habitat use.

How does MPAs benefit fisheries?

1. Reserve effect (increase in size and number of fish (*proofs?*) + export effect outside reserves of larvae and adults).

Habitat requisites for this to happen (Essential Fish Habitats): we need to know

- d) home range
- e) residency
- f) dispersal (relocation)

Research question:

When these 3 differ, how do u design an MPA ?

Methodology:

Researchers followed three species with differences in habitat (coastal offshore, over 200m), reproduction, home range (acoustic transmitter) and residence (acoustic listening stations retrieval of data regularly) for 1 (short term)-4 (long-term) years. = Multilayer table of multispecies habitat use.

Consequences for MPA designation:

Multi-location: 20 % total for each species

Overlapping a common area for two of them

+ specific temporal spawning sites

= need to set not optimal but acceptable targets

Conclusion:

There is no one size fits all solution or design

Multispecies information is necessary to determine sites and scale

Need multiple approaches to achieve this.

TU 11 :50

Do local fishermen benefit from the presence of marine protected areas. A multi-case evaluation. (G. Cadiou et. al).

Study: biomass assessment (for ecological, management and socio-economic benefits)

Results:

Competition for catches down (since some prohibitions less boats present)

Competition for space down (same reason)

What about outside the boundaries of the MPA ??

Annexe 3

Notes from attended sessions

Trawling was banned. Conflicts have ensued. Envision integrated management as a solution. Need to relocate fishing effort through integrated inshore management.

Shouldn't be solution but a prerequisite for measures like these.

Consider artificial reefs as potentially enhancing production for MPAs. (*Christoffer is against this. As a government advisor, does this means he can get the whole country to decline projects like that? Scary power for a democracy if it does*)

Direct trade was used, allowing more liberty for the fishers.

(What about support and assurance for local buyers who may also be transformers? i.e Pêcheries Gros-Cap)

TU 12 :10

Natura 2000 sites and fisheries in German offshore waters (Sören Anker Pedersen et. al)

Fine-scale fishery mapping + info

VMS (Vessel Monitoring System) info

Get fishers to help explain data errors and misunderstandings

Get a collaborative network (DK, NL, D)

get concrete

Later that day, example of a discussion between a social scientist and a natural scientist: Exemplifies difficulties encountered on many levels and contexts with regards to fisheries, conservation and MPAs...

H: were there any fishery going on in the now NATURA 2000 sites?

J: "Natura 2000 were not designed for fishers but for conservation".

S: (curious about the social perspective but agreeing with J)

C: repeated J's comment.

H: But are there fishermen there?

C: Yes

H: so what alternatives did you give them once you designated the sites ?

C: (Impatient): None ! it's for conservation issues, not for fisheries !

H:But there were actually active fishermen in the area ..?

C: Yes.

H: (Incredulous).....ok.... and what about conflicts in the adjacent areas now, are there any ? I mean they must be fighting each other for the rest of the space now if you didn't offer them any alternatives...

C: (in 1.5 second: Surprised, almost embarrassed and then angry).. I don't know...

H: Hmm... and... if they have to go farther away to fish now, it will cost them more because of the fuel and everything ?

C: (Frowning, as if waiting to see where this is going)...?? ... yeah... ?

H: well, my fear is they will fish until it becomes worth the extra effort and cost for them, if no alternatives have been agreed upon, even if it's illegal. I mean they still have families right..?

C: Ooh, they'll go farther and it's most sandy habitat there and that's less important, well not for the mollusks and everything but.. well for us....

H:So you never talked to the fishers at all about all this ?

C: No, they are trawlers...! Very destructive for the benthic habitat.. !

H&C: Incredulous consternation from both parts and end of conversation. Sad.

TU 12 :30

Annexe 3

Notes from attended sessions

The biodiversity and fishery benefits of spatial management in a *nephrops norvegicus* fishery in western Scotland, UK : an opportunistic study (David Donnan et. al)

Needed collaborative effort to do a habitat survey because :

Fishing grounds, military grounds, static gear, big depths. In spite of these constraints still managed to do the survey and now try to make contact with stakeholders for further info and collab.

TU 12 :50

Using MPAs to conserve groundfish biodiversity : the consequences of using flawed data (Helen M. Fraser et. al)

Talked about landing (not catching!) data, and that (even) that data is biased bc by-catch is discarded in the analysis made from those data and that those by-catch are sometimes larger than what is being spared in the MPAs but as they go unaccounted for, the preventive measures and predictions are potentially highly flawed.

TU 13 :10

Using MPAs to address global (regional) scale ecological objectives in the North Sea : modeling the effects of effort displacement (Simon PR Greenstreet)

?? Effort displacement crucial

?? MPAs good for some parts of ES but not for others (eg groundfish benthic invertebrates due to increased trophic pressure)

Look at:

General catch per effort

International effort

International landings

If the gear could be adjusted to get less bycatch: $\frac{L}{E} \quad | \quad G$

Reduce TAC to avoid effort displacement (evite le pas dans ma cour et conflits autour)

Instead of closing areas where mortality is highest, do it where TAC is approached (*prevent rather than heal* ?)

MPAs: Most effective by reducing effort by 20% not to change rest of EU territory and practices not all individually cared for.

(When they talk about the overall picture with regards to the ecosystem they completely ignore that of humans and stakeholders..)

The fishing effort has been reduced with 28% since year 2000, since the beginning of the application of the ES-based approach to fisheries management. See it as an opportunity for the fishing industry to get on-board the changing industry.

Annexe 3

Notes from attended sessions

TU 14:30

Current challenges towards a network of representative MPAs in the Mediterranean : a need to prioritize protection of underrepresented areas (Ameer Abdulla et. al)

Primary challenges: socio-economic and institutional. Hi population and competing demands and low cultural affinity with the resources (!).

Primary opportunities: existing legal framework, unified efforts and financial contributions in the EU and effective regional programs (WWF, IUCN, etc.)

TU 14:30

The politicization of scientific information in MPA processes: Lessons learned from a controversial public policy process in California (Adina Abeles)

Californian coastline: 1800 km, divided in 5 sections, in which 29 mpas were inaugurated the 21/09.

Legal framework: Marine life act (1999)

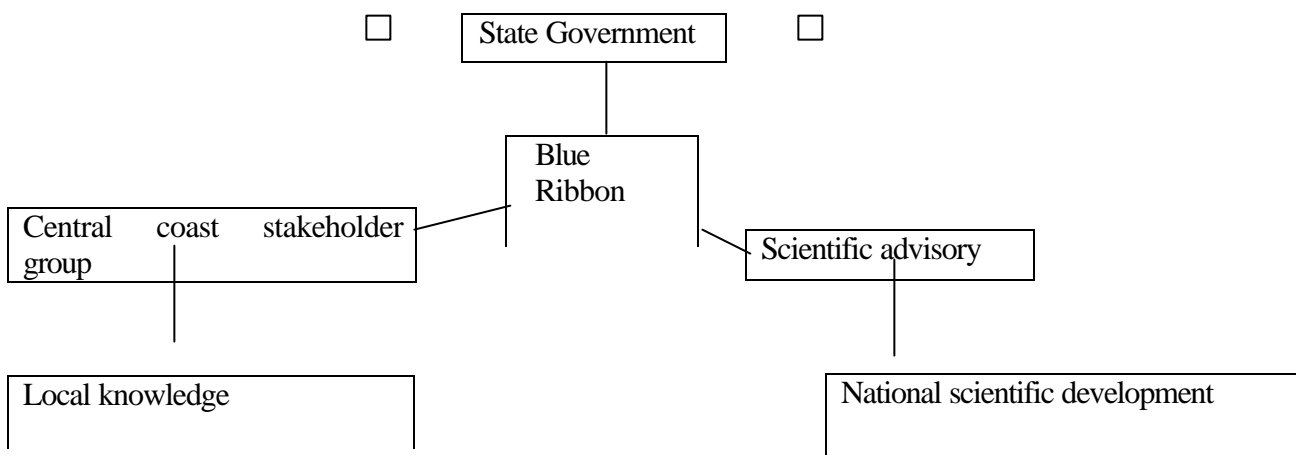
1st attempt to install MPA in 2000: failed because the approach were too top-down.

2nd attempt to install MPA in 2002 : stakeholder involvement but failed because of lack of funding.

3rd attempt to install MPA beginning in 2004: achieved in 2007.

Included 13 out of 30 stakeholders, 20 interviews. Was identified the need of communicate science to the public; scientists good at communicating among each other but magazines and professional communicators needed to better inform the public.

Current structure:



Annexe 3

Notes from attended sessions

TU 14:50

Site selection methodologies for Mediterranean MPAs (Tundy Agardy)

The question of where: Global, national, regional, local - but taking too much time to think of this will take away too much time from actual conservation. (watch out for tendency to think planning is too time consuming, bc if not proper, won't work in reality anyhow.)

The question of what: natural (pristine) or threatened ?

The question of feasibility: political processes, available funding, stakeholder support, etc.

Need to make more marketable and concretely defendable the idea of conservation (species and ecoservices)

Need to center on the protection of the biodiversity

Need to identify: unique habitats, representative habitats (and for that need to know what's out there in the first place), biological, social and managerial opportunities and considerations (feasibility). The evaluation of a site should include

Rarity, aggregation level and fitness consequence if it disappeared.

Naturalness (not pristineness) -ecosystem health- of the site.

Proportional importance (global, regional, local etc.) of the site

Coastal areas protection begun 25 years ago. Now need for marine protected areas. As with coastal, learning will come by doing.

Multiple criteria (software):

Biophysical parameters

Socio-economic parameters

Socio-political parameters

Q: What about enforcement? If all this is good, but no-one to enforce the designation, worth it?

Need to think about scaling. What's most effective on which scale? Begin large scale and then zoom in, pinpoint and define characters.

TU 15:10

Assessing ecological coherence of MPA networks : three approaches being developed within OSPAR (Jeff Ardron et. al)

OSPAR: North Atlantic alliance. Covers from Groenland to Gibraltar.

OSPAR with HELCOM defined NATURA 2000 sites.

Talk concerns ideal versus reality.

Ecological coherence not synonymous with ecological connectivity. It needs to be designed to be resilient to change. F.ex. percentage representation-should it always be the same or contextual?

Annexe 3

Notes from attended sessions

OSPAR’s three approaches for checking E.C.:

Self assessment check—list
UK Database matrix (excluding spatial data)
Spatial tests.

The spatial tests parameters include:

Distribution
Biogeographic representation
Rarity

Coherence: Likelihood of several combined ecosystem attributes along the following scheme:

V. Unlikely	Unlikely	Likely		V. likely
Nothing 0%	Something 3%	OK 10%	success 30-40%	All 100%
	LIMIT		TARGET	
	Set bunds for decision making			

If fail basic three tests: not coherent.

Now, if there is too much knowledge/test, this may impair the acting ability/will. We need to remember the ideal but deal with reality, as in : start somewhere.

UK actually only place in Europe where MPA designation and sites are coherent. However, there are, in most cases, no human activities involved in the area, which makes the challenges lesser than in many other sites and countries.

TU 15 :30

Can MPAs and ecosystem-based management be effective without each other? Results from the MPA Newsletter poll (John B. Davis)

EBM: Ecosystem based management. Got 50 answers from 20 countries but no statement as of how many were sent out.

In EBM are considered with equal importance:
Pollution, development, climate change and recreational + economic activities.

EBM has similar goals as MPA but where scale is of major importance.
Appears to be a promising tool but need more information for it to be useful for managers.
Also: only mention natural ecosystem, but social and political function as one as well and more info is needed there as well.
Newsletter (MEAM) will be sent out to subscribers to MPA news quarterly.

TU 15:50

Managing England's MPAs more effectively (Jen Ashworth et. al)

Natural England (Governmental and state advisor). UK has approximately 40 SACs/SPAs, which are all attached to the coast. Among these, there is one no-take zone and a few fisheries closures.

The pressures exerted on these include: development, fisheries, tourism and petroleum. All are submitted to habitat regulations.

The Conservation agency sets gal, aims co-management to attain them and uses advisory groups to reach this.

Tools:

NE Kent European marine sites management scheme 2007-201 (Thanet coast).

Newsletter

Warden scheme

Assessing MPA effectiveness; Important in order to avoid paper parks, learn from successes and failures linked to OSPAR. Uses World Bank's scorecard to proceed with evaluations.

(Did not mention who they ask, how they go about doing it..)

Strengths:

Good collaboration from managements and immediate stakeholders

Weaknesses:

Poor delivery

Low enforcement

Low stakeholder involvement – lack of communication

Low educational awareness in stakeholders and others

Now:

Need to make clear action plans

Need to monitor better and to allow feedback circulate better among management ad stakeholders

Need to increase education awareness

Need to lobby for adequate staffing and budgets

Need to pressure government to deliver (Risk: Bypass local communities and real stakes)

Only 50% of the MPAs has management schemes

TU 16:10

Involving scientists and managers for designing operational tools and indicators for assessing performance of coastal MPAs (D. Pelletier et.al)

There is a flagrant lack of communication between researchers, government officials and managers.

Managers need to specify what information they need (to allow for a management scheme and the government need to put up the funding to acquire the knowledge needed).

No-take areas and recreational use can work (i.e. Bonifacio, Corsica), but this is probably easier when, as in this case, the reserve is big and there are no crowds at its boundaries.

TU 17:00

Managing protected areas from your desk : MPAs in offshore Nova Scotia, Canada (Derek Fenton)

Gully MP outside Nova Scotia. Managed from MPO desk in Halifax. Closed to bottom gear on a total area of 15 km². 21: No-take 22-23: halibut, tuna, shark, with long-line.

Risks: Non compliance, non delivery.

Plan: Delivery strategy:

Logbooks, Vessel Monitoring System (Black boxes: 15 minutes transmission and its movement, can track it), At sea observer, Planes.

Most crab fishers are checked but most only loop around.

How to make it work: Use existing means (DFO, VMS, planes, data, etc.) and create collaboration (if no regulations, get one !).

Need a “recognized fishing picture” : species, number of boats, itineraries, etc. If suspicion: check with other data available before drawing conclusion /to get proof.

Also: need to know what to look for, where and when, otherwise difficult. MPA manager knows this, MPO staff perhaps not so well.

Fisheries data are not made for MPAs but they can still prove useful.

Combine enforcement for MPA and control for MPO: the more eyes, the better, more training could occur with these systems and more collaboration with the MPO and the fishermen themselves.

TU 17:20

Impacts of the implementation of the Arrabida MPA (Portugal) in local fisheries and fishing community (Marisa Batista)

2 MPAs:

1981: Berlengas

1998: Arrabida (first env. Initiative in 1965, terrestrial park in 1976, NGOs continued efforts in 1990, realized 1998)

Costa: 38 km

MPA 53 km²

100 m deep – 1 nm from the coast
approx. 1000 marine species.

3 zones:

total (passing through prohibited)

partial (traps ok)

Complementary (recreational area)

7 major goals:

Annexe 3

Notes from attended sessions

- 1 conservation
- 2 research
- 3 education
- 4 nature tourism
- 5 sustainable development
- 6 regulate fishing activities

Much local discordance – who is for, who is against ?

Economic constraints and no economic compensation (ck. With Cristopher and the NATURA 2000 sites...)

Need to increase knowledge, improve measures and estimate impacts

90% of fishers are over 40years

40% of fishers are over 60 years – need fishery bc low pensions

65% are small boats (3-9 meters), costal

reduction of fishing areas makes competition go up

loss of revenue bc of lack of compensation (which would come from whom ??)

Reduction of up til 30-60% of captures

Increase in biodiversity

Good for biodiversity but bad for fishers and social impacts are hard to measure (??)

Increase value of fish ?

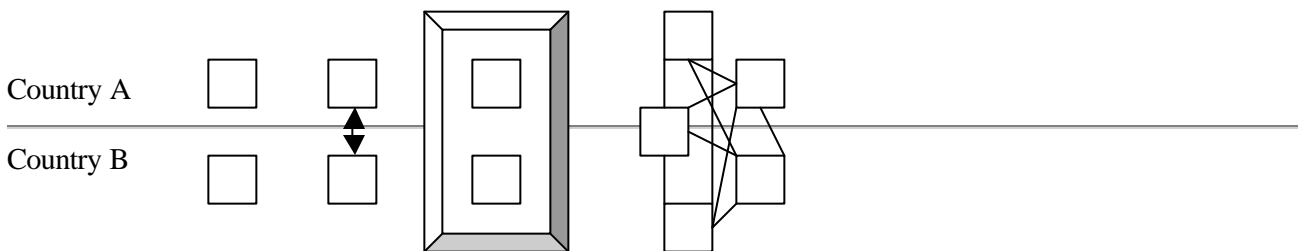
License other fishing gear ?

Convert fishers to tourism ? (cf Sabrina Doyon)

TU 17:40

Transboundary MPAs : from theory to practice

Options:



Annexe 3

Notes from attended sessions

Transmap project: east Africa (1), Wadden sea (2)

- (1) Tz, Mz, SA
- (2) NL, DK, D

Biophysical, socio-economic and environmental assessment. Need to put on N and S side to create fully functioning networks.

Political (a), legal (b), management (c) and financial (d) issues need to be addressed. 9 case studies made (all of which are networks).

- (a) Level of commitment, role of consultations
- (b) Instruments, role
- (c) Joint plans
- (d) Tourism, recreational activities, fisheries

Necessary elements:

- ?? Level of commitment btwn stakeholders and role of legal instruments need to be agreed upon.
 - ?? Joint management and joint plans for all areas need to be monitored by a commission for each area and withhold a observer status for the other ones.
 - ?? Creation of incentives to put it all into place
-
-

Wednesday 26 September (notes)

WE 9 :45

Defining MPs for cetaceans impacted by fisheries and other threats (Ana Canadas et Philip Hammond)

In and around area where there are populations of bottlenose dolphins : Trawlers and commercial shipping (both of which are habitat destructive for prey of dolphins, bearers of noise pollution and radar interference) and recreational fishing.

Spatial analysis could prove to be a very valuable tool for determining boundaries of proposed area and to map human activities.

WE 10 :05

Annexe 3

Notes from attended sessions

An ecosystem evaluation framework for seamount ecology, fisheries and conservation (Tony Pitcher)

Mean depth of OSPAR area is 2159 meters. 85% is high seas or deep seas. 76% of EEZ in the OSPAR region. 5 of 15 threatened species (habitats) are there. There are sea mounts (volcanoes). 200 of them are higher than 1000 m. There are 59 sea mounts in the Mediterranean.

Why is this important?

Because it creates upwelling, which in turns create blooms of Primary production This leads to an increase in food supply, an enhancement in water currents (Taylor Columns), creating activity which, in turn once again, increase food supply. Reefs in its border : garden of corals and other benthic communities.. Also, possibility to discover new species (!). Of the samples in the 3 sea mounts analyzed, 30% were new species. Yellow tunas and sharks seem to gather round these mounts as well.

WE 10 :45

(EMPAFISH) Fisheries effects of Atlanto-mediterranean MPAs (Ruth Higgins et al)

1974 and forward. Evolution of capture and yields, change in target species, size of catch and trophic groups.

Expected benefits : spillover, export of eggs and larvae.

Analysis : target species and by-catch; effect of gears; compared most vs least protected region; effects and age of reserve (benefits for fisheries can take up to 25 years to show depending on gear used (elsewhere say 6-10 years).. and if so, is it due to the MPA or to natural dynamics?)

The smaller the reserve, the better the results (ck w other data that worked bc reserve was big...)

Problem : many MPAs had no design when installed so data mostly present, thus difficult to compare bc of lack of base data. (+ if base data flawed from the start bc of false information from fishers with regard to by-catch, landings etc, how could we ever get it right..?)

WE 11 :30

(GREENPEACE) Marine reserves : The critical element of an ecosystem approach to marine management and conservation (Paul Johnston)

Pledge : ESA : Integrated approach to the management of all human activities, living and non-living resources in order to maintain ecological integrity. Base : precautionary principle , yet make use of the best available scientific knowledge.

In reality, information is hampered by the lack of knowledge regarding the ecosystem state, pressures and its responses to change in pressure.

Need to set a list of criteria with which measure of sustainability for what a good environmental status with regards to European Union's Main Strategy Directive.

Now : 980 MPAs (? In the Mediterranean?) means less than 1% protected. Greenpeace would like that 40% aims no-take protection.

Some erroneous data (sea grass bed protection do exist, use IUCN category and nomenclature for 'reserves', the revendicative tone is not necessarily appropriate/necessary at a conference like this.

WE 11 :50

Socio-cultural hurdles and opportunities related to no-take marine protected areas (Peter J.S. Jones) (hint : socio-economic = pro-fishers)

NTMPAs is more about changing human behaviour than about species. Marine ecosystems are highly variable, complex and connected with many reasons, which make it difficult to establish cause and effect linkages (as with climate change-is it human induced or not, to what level in what regards etc.). Even when based on the precautionary Principle, since these are dynamic systems, how far back should we go, to what state, when, do we want to reach, why and when should we stop?

This should be the beginning of the discussion, not the end, especially when balancing the ecological issues with the socio-economic ones, the latter of which are also related to social justice, making the ecological matter even more complex.

Effort displacement= No-take.

50% of the fish in the EU is imported. This number may rise if we install more NTMPAs. Species spillover have been low or effects seen only after 20 years of no-take. This pushes fishermen to go farther (will cost more so they will take more to break even?) which involves economic, political hurdles-ck Spain near Canadian waters...).

Perceptual hurdles : Out of sight out of mind (problems not seen so not that important).

Concrete hurdles : use of resources (Opportunity : save the 'last wilderness')

Social science= pro-fishers ???

WE 12 :10

Lessons learned: stakeholder involvement in the development of marine protected areas in California (Susan Ashcraft)

Legal framework;

(US) : Marine Life Protection Act 1999 (ecosystem based tool, not fisheries management tool)

(California) : State jurisdiction of 3 miles (1600 km coastline)

Process1.

2000-2001 (failed). Agency and science developed project. Proposed and presented through public meetings. Process halted when there was a public outcry bc of lack of real interest in outcomes of the meetings and lack of consideration for the various interests involved.

2002 (failed). Focus on stakeholder involvement but lack of governmental support so after 2 meetings, the lack of funding halted the process, bc stakeholder involvement is expensive and other reasons :

- 1) Lack of staff and funding for the latter
- 2) Public suspected state to be biased (already convinced to do it)
- 3) Lack of transparency and no clear purpose
- 4) Short timeline on state-level (stakeholder interest very diverse so needed more time to identify and proceed with consultation etc.)

Finally, the way it worked through (government, stakeholders and funding) :

- 1) public-private partnership (allowed for paid staff)

Annexe 3

Notes from attended sessions

- 2) Policy advice (task force instead of political appointees. Task force independent with own staff drawn from the stakeholders groups).
- 3) Guiding document available to the public during the whole process (Master plan)
- 4) Separate regional processes (state divided into 5 study regions)
- 5) Stakeholders fully empowered to design the MPA proposal

Regional stakeholder groups, always and still open for new partners (= comités de gestion intégrés mais avec le pouvoir)

Also a Central Coast Study Region Structure (the blue ribbon) :

Department (Fish and games) handed in 1 proposal

Regional study group 3 (one pro fisheries, one pro-conservation, one mixed). Ultimately the 1 was chosen, the MPAs installed (21 September 2007) but reactions from the public still to await since their work and proposal was, ultimately, not considered.

Stakeholders : 32

Multiple meetings.

Public involvement :

Stakeholder presentations, web meetings, individual conversations, posted comments

Accepted April 2007-10-14 Opened : 21 September 2007.

13 ntmpas, 15 mpas, 1 ? = total of 29 areas.

Lessons learned :

Smaller regional stakeholder groups better

Stakeholder selection more rigorous (??) easier to decide but less representative so risk of reaction as with Iroise sea...)

Increase interaction with scientific advisors (and get, if necessary trained communicators to bridge)

Educate stakeholders

Let them craft proposals

Count on many volunteers if possible

Question from audience :

How about stakeholder fatigue : Worn out by the process and MPA could get implanted bc the ones who were against had, through the rigorous stakeholder selection, less access to decision making. After how will public, and stakeholders react since after 3 proposals, the department ones still chosen and public little too say since, officially, state done everything it could.

Answer : Top down always fail and we know it. Need to be clear with roles, build credibility, be honest about wanting to work with them, even if all is not perfect.

Q : Criteria to be a stakeholder?

WE 12 :30

The need for integration of EU legislation towards EU meeting the target of a network of MPAs by 2012 (Indrani Lutchman)

Paper : Institute for European Environmental Policy

Globally (EU):

Legal instruments : Habitat and Birds (1), Common Fisheries Policy (2), Marine Strategy Directive (3)

- (1) Requires member states to establish SACs for the most threatened habitats and Birds. Proposed in 1998, given the deadline 2004, which has been extended until 2012. Now the legislation also include the creation of SPAs and marine areas, whose deadlines are also 2012. Primary European environmental network (based on SACs) : Nature 2000.
- (2) Base for national fisheries. This legislation provides general scope and does not require the creation of MPAs as such but to put in place a legal framework in which they may be established.
- (3) Created in October 2005. Based on a commission's proposals and expected to have in place a « good environmental status » by 2021.

There is also the Water framework directive, required to be put in place by all member states by 2015.

There is also a marine policy (which is, however, not legally binding) regarding a biodiversity plan, containing directives as of how to finalize the Natura 2000 network.

Regionally :

OSPAR and HELCOM were created in 1998 based on the Helsinki Convention (Baltic sea protected areas). In 2003, these two entities merged.

The Bern Convention nominates sites for the Emerald network (areas outside the Natura 2000 network).

The RAMSAR convention concentrates on wetlands

With regards to MPAs, there were, in June 2007 :

491 marine SPAs (out of 56 956 total) and 1265 SCIs (out of 79759 total) .

These are all located in inshore waters and efforts need t be deployed to create offshore and deep water sites as well.

The Natura 2000 sites aim a «Favorable Conservation Status » as opposed to no-take sites. (*Ck w info from Jeff A. And Chris for exact opposite during roundtable discussion....*)

With regards to fisheries, several countries have created a « plaice box », a « haddock box » and a « maquerel box ».

The main issues are currently :

A mismatch of competences (EEZ, 12-mile limit, CFP, etc.)

Little empirical evidence for the support of MPAs

Lack of objectives for nature conservation (i.e. fisheries in the UK and the EU –*except Sweden apparently where the department of fisheries always employ people from the department of the environment or from the Green party – M. Danish*)

Annexe 3

Notes from attended sessions

The target for MPAs will perhaps be met but probably not by 2012.

Info XX : UK entré dans EU à la condition (française) que les pêcheurs français puissent continuer à pêcher dans la Manche. De là les « common fishery grounds » jusqu'à 3 km des côtes. Alors la limite des 12 miles pas en vigueur.

WE 12 :50

A global best practice delivery model for achieving comprehensive MPA networks : A case study on Canada's pacific coast (Sabine Jessen et al)

Objectives :

1. Biodiversity
2. First nations' interests, research opportunities, birds, recreation

Guiding principles (9)for governments (based on research):

1. Clear definition of MPA and policy
2. Common information base
3. Systematic site assessment and selection
4. Socio-economic and ecological criteria
5. Broad engagement from the scientific community
6. Interim protection
7. New, collaborative governance model (1)
8. Inclusive and effective decision making (2)
9. Public outreach

Q : Sense of preliminary principles; lack of concreteness. Much 'what', little 'how'.

Q : Are MPAs working ? if yes, how? If no, why?

- (1). Federal, provincial, first nations
- (2). Stakeholder involvement

Components of model: clear time-table; common analytical framework (even when context differs?); involvement of local communities; recognition of governmental roles; partners' participation –Based on best practices from Australia. (?).

BC : Government signed agreement with states of Washington and California to work on MPAs, before Canada agreed.

WE 15 :30 :

Keynote : Lessons from the past for marine conservation and management in Europe (Callum M. Roberts)

Gave example from wick harbour, childhood, Scotland. 1970, a few boats, very clam. Learned that back in 1865 it was the largest fishing port in the world for herring. Today, there are none left.

Historical background :

Commercial fishing begun in 1600 BCC (evidence from santorini); from 1050 AD in the UK (fishing revolution; seen from archeological evidence).

Before that time, there was fresh water fish and after, sea water fish. Why ? What brought the switch ?

Theory : population increased around that time, Christianity got stronger (link?), agriculture flourished, so land river ended up being soiled. There was a strong power demand (watermills in the rivers), which implied that migration routes were blocked. Bottom trawls used at this time.

Sea bass in California from 1904 : 6 feet long.

Caviar was the first import from the new world to the old.

1376 : beam trawl invented. (Continues today : radar, sonar...)

1880 : Trawlers gained power.

2000: Trawlers could go deep-sea.

Change in whole fishing sector. Could go anywhere, anyway, anytime.

Shift in environmental baseline from 1910-2010.

1910 : captures huge and abundant; 1960 : captures small 2010 : captures small and few

Council of fishery ministers : advised by SCI, etc : weakest link in the decision power.

Need to switch decision making (fisheries) away from politicians

Stop using quotas and limit effort with 50%

Eliminate destructive gears (scallop dredge, etc.)

Reduce by-catch ban, discarding of fish in the sea.

Install marine reserves

Let independent groups manage fish, get rid of politicians

« The economy is too important to be left to politicians ».

Management as well. It therefore need to be transferred into safer groups (need safeguarding from disinvested interests. Some support for radical measures for fishers.

Referred to S. Jennings' talk often

(great historical information, important message but polarizing fisheries managers (close to politics) and MPA proponents by being radical/wanting to 'get rid of' others and those components without offering alternatives....)

Thursday 27 September

TH 9 :45

Seasonally rotating MPAs : Protection of marine species and habitats afforded by artisanal fisheries adapting to species biological and ecological patterns (Caja rajada, NE Mallorca, Balearic Islands) (Sandra Mallol et al)

Local government and control government shared responsibilities.

Goal : Allowing artisanal fisheries to pursue.

Project based on a demand from young (under 40) artisanal fishers.

Protected zone with a no-take zone in the midst.

Seasonal protection (cuttlefish, lobster)

Important aspect : habitat, distribution, season (spawning time, etc..), fishing methods, hours spent, number of men, etc.

Measures : shorten fishing season instead of banning fisheries.

The banning would be problematic in various regards, among others because the habitat, the benthic environment, is not the same outside the reserve so if they did ban the area, fishers would have to change way of life (i.e. tourism), which was not an option for the local population. Compromise.

TH 10 :05

Role of MPAs for conserving benthic communities and habitat features : two case studies from Icelandic waters (Stefan Ragnarsson et al)

Permanent fisheries closures (i.e. cod) but extension of others.

Goal : protect juveniles but also to protect benthic habitats.

Big difference on biomass of species inside and outside of protected areas. Reason : Sponges are very sensitive to the disturbance cause by fishing (Iceland : heavy fishing).

Benthic community structures are clearly higher in closed areas (*depends on species looked at and their characteristics thus*).

ROV (video/photo data) support the idea that closures are very important to habitats, thus benefiting juveniles.

Difference between the NE and the NW : Pressure higher in NE. Positive effects of closure largest in NE :

Closed area : Sediments in suspension – food for shrimps, plus a variety and size of all things.

Fishing area : desolate and desert-like habitat. Small, lone sponges.

Conclusion : Closures can benefit, not only juveniles but also bottom habitats as a whole (*especially important in areas were there are draggers*).

TH 10 :25

Annexe 3

Notes from attended sessions

Is the recent Cap Roux MPA an efficient tool to sustain professional fisheries ? (Catherine Seytre et al)

Close to St Raphaël, Côte d'Azur. Area protected : 450 ha. Began in 2003 and it is renewable every 4 years.
Aim of the area : Management tool.

Responsibility of team :

Assert effectiveness of MPA

Observe effects

Use new UVC methods (underwater video)

They gathered a fish assembly survey in 2005 to verify abundance and biomass (however, there was no data before the opening of the MPA) (????) :

6 sampling sites

Used UVC and net fishing (by experienced net fisher)

+ new technique called : Fish Ecological Index(FEI) :

define 25 target species and determine :

presence/absence; size-class; substrates; target species; professional/artisanal fishing; patrimonial value of species and activity.

Tested in October 06 and in June 07

(According to Peter Jones it takes 20 years before ability to determine results.. (but where does he take this information?)

Conclusion : inside the MPA, the abundance has increased *(based on two tests with 8 month's interval?)* but still not enough to sustain fisheries.

TH 10 :45

Fishing effort and catches in the partially protected area of the MPA of Scandola and adjacent areas (Corsica, Med..) (Laurence Le Diréach et al)

Fishery : seasonal (april-nov); small boats (max 11 m); trammel nets or gillnets; 61 species

7000 ha study (because boats from two harbours studied). Almost all coastal grounds are being fished (0-140m). they did not observe an increased fishing effort near the no-take zones but the guards said it was frequent *(recall studies can only tell partial realities and the importance of combining natural and social studies)*.

Number of boats and gear remain stable = no loss of job

Increased effort because of increased number of motorboats

Standard indicator : Catch (g)/100m net (usually 1-3 kg/100m²)

Yields have decreased but they are still higher than anywhere else near MPAs in France.

Biomass of lobster higher near the reserve.

Increased fishing within area has increased (*« si j'y vais pas qqn d'autre y va » tendency ?*)

= Management impacts on effort, impacts on biomass

2000-2002 : results were good

2003-2006 : gillnets increased. (Nigh fishing forbidden for recreational fishers but Professionals can set their nets. Boats from other ports come during summer –inequity issue?).

Other aspects : better selling circuits now ; modernization of boats

Conclusion : sustainable, even though catches are high within CPUE because there is the same number of boats and gears as before (*but if the boats and gears are much more performant now because of the modernization, isn't that a skewed conclusion?*)

Good points :

The survey conducted created links between managers and fishermen.

Regulations work because the enforcement is real.

Small MPAs effective : several small better than one big (see opposite view in xxxx)

TH 11 :30

Control considerations while defining a MPA (S. Monteiro et al)

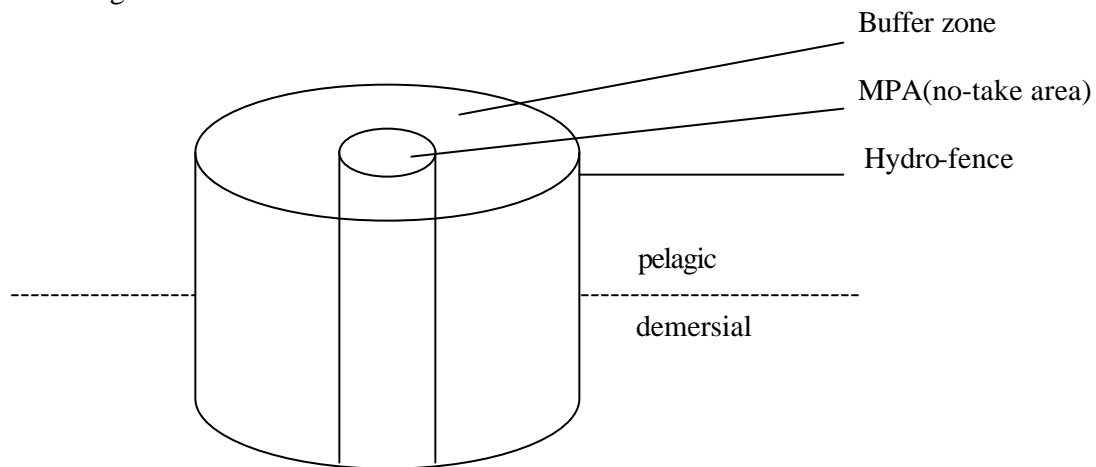
Off-shore /Coastal definition – control accordingly

How do you design an MPA to be able to control it?

No-take area : ideally a no-transit area because easier to control.

Off shore : Limited entry to a certain # of boats ((licenses) Possibly create several to ease control.

Concept of « hydro-fencing » :



Special permits : dissemination and transparency of information : Coordinates, reason, etc. ; stakeholder campaign, media, on-board observers (1 day to inform, on-board).

Other/complementary measures :

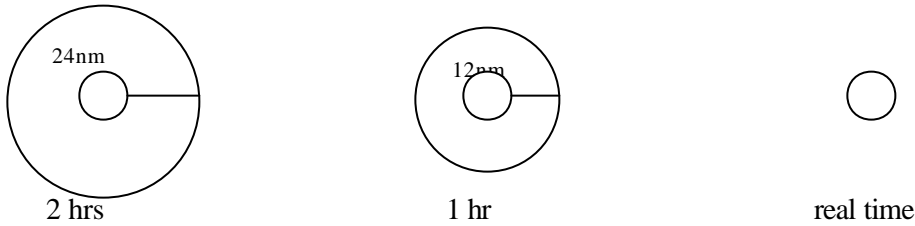
?? Prohibition to carry on-board more than 1 fishing gear/fishing trip (« one-net rule ») (*unrealistic : fishers will argue that need one or a few extra in case of damage, especially if go out for 3 or more days, which will then be a reasonable argument*), plus list of allowed and forbidden gears.

?? Monitoring systems :

VMS (Vessel Monitoring System "black box"). Current rules : give position, speed and course every two hours. Could this be increased to every 15 minutes ?

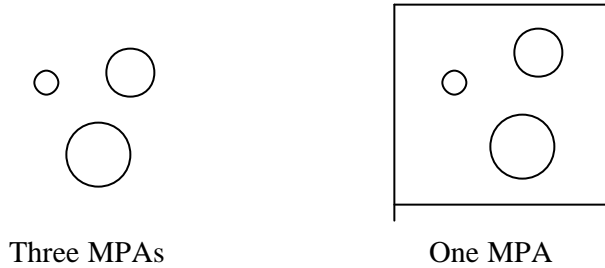
VDS (Vessel Detection System (airplane)). Disadvantage : expensive.

?? Control security zone (Vessel will be detected in advance) :



(could make it smaller but a buffer zone to detect ships before they enter area seems to be a good concept if fishing grounds big enough)

?? Different options :



?? Fisheries observers : function : data collection; Interaction (increase awareness, clarify legislations and reasons for their being)

Conclusions :

Difference between off-shore and coastal emplacement- need to identify special treatments.

No-take areas better because easier to control (*combinable with temporary closure for the sake of the species and fishers and also less expensive in terms of control measures*), and are combinable with other measures (one gear etc.).

These considerations very useful in early stages of planning (*especially if presented to fishers and other stakeholders so they can be 'in it' from the beginning*).

TH 12 :10

Spatial data management in multi-objective MPA zoning (Leonardi Tunesi et al)

Relevant for multi-objective MPAs. Goal: create a common approach for the network of existing (and planned) 50 MPAs. In Italy they will all be multi-objective MPAs because of the strong human pressure on the marine environment. Conflicts between use and conservation are thus considered.

A-zone : no entry + no-take

Annexe 3

Notes from attended sessions

B-zone : regulated entry and take

C-zone : Buffert zone

Decision support systems : ICRAMS methodological Approach (using GIS and DSS) to define zoning alternatives :

- 1)-Collection of geo-references
- 2)-Thematic maps
- 3)-Valence maps
- 4)-Intermediate maps (various scenarios)

2) resources and uses : « fishes techniques » with stakeholders info etc.

3) classifications and attributions of value (*based on stakeholder input and public consultations?*). f.ex : vulnerability to access (species habitats and assemblages, vulnerable to human presence –also useful to fisheries management)(cotage)

Allow to compare socio-economic and environmental data; increases understanding of respective approaches; clear info for decision process; help identify areas of potential conflict; respectable, flexible and understandable procedure

TH 12 :10

Making Ecosystem-based management a reality : the role of marine spatial planning and ocean zoning for effective MPA management (Fanny Douvère et al)

Extension of land-use authorities (bio-regionalisation)

China : legal requirement to develop spatial planning.

UNESCO : Visions for Sea Change considers MSP a step towards Ecosystem-based management : Know & apply and will+do.

MSP (Marine Spatial Planning) can overcome hurdles towards the creation of MPAs and sustainability; identify what is to avoid conflict; find space in used area

« Planning » involves a temporal issue; a willingness to predict the future, which may be bold and both realistic and unrealistic considering that long-term planning may be affected by climate change. We thus need to build this uncertainty into our planning (*i.e. erosion in ÎM*).

The only way to learn how to do this is to do it : We will make mistakes but will learn this way. It is easy to criticize but at least it shows a willingness to try our best instead of sitting around and criticize what others do. EX : Yellowstone park was installed in 1885 while there was still bear hunting going on. However, we've learned and applied our new knowledge to that context and today the park is still here for us to enjoy.

It's better to do and learn than sit around and wait to know how to do it (*cf : MrA : when know too much inhibits will to act bc too many parameters to consider*) .

The MSP process aim an integrated management structure.

Time span? Approx . 30 years (i.e. Great barrier reef)

May also just document the present, not necessarily make predictions or scenarios (*cf cap roux where impossible to know change since no base-line data from before MPA*) .

TH 12 :30

Fishers' attitude and perceptions towards closed areas as a management tool : do perceptions change for areas created with different purposes ? (Christina Pita et al)

Scotland (University of Aberdeen)

Scotland composes 68% of UK fleet

61% of value landing

UK catches(not fleet) is 4th in EU

111 MPAs

Findings :

MPAs strongly influence local economy and communities. Few studies have been made about this so more are needed. There is a lack of social data; most is from natural sciences. Important because people interact in areas (*John Davis : in UK most are where there is no or little fishing activity??*)

Attitudes towards actors will play major role in their response to the management. For the moment, it pays off to do illegal things because very little chance of getting caught (*problem with enforcement*). In the US, less than 1% get caught and less than 1% of illegal landings need to pay a fine.
= Compliance and cooperation essential for success.

Methods :

Stratified random sampling. 152 samples. Face-to-face interviews. Lichert scale survey technique. (?) 2 places : east (Morey Firth- Inverness). Conservation based; SAC.

west (Inner sound of Rhonna) mixed (3 zones-management tool) and seasonal closures.

Often less interesting to make an MPA where there is no fishing bc often these areas will be less representative/interesting.

(*isolation very important to consider bc (lack) of employment possibilities issue.*)

Catch : Sold directly to processor (no auction – different from other EU countries (??))

Fisheries management : Fishers know 3 months in advance what the quota will be, therefore ca plan accordingly and organize themselves. Buyers need to show who they bought from and this needs to match with fishers logbooks. Little willingness for this and many fishers try to change species to avoid this kind of control.

Though officially government support fisheries : nationally : more; local: less. (*laws ??power on local level?*)

To the question if they thought ban were good, 60 said yes, 30 no. Affect fisheries : yes but also increase conflict bc seasonal ban (suggests it should be permanent bc too confusing and also difficult to make equal for all fishers bc of licenses and species etc..) (*cf corsica who said it worked better seasonally : No -one fits all-solution : definite need for proper research to make fit in the locally unique context*)

The majority had heard about the park but had never been informed about it, which created an instant « no we don't want it » reaction. Big problem : All were convinced it would greatly impact fishing industry but the promoters said it wouldn't. Now want to implement regulations once the park has been officially created : social uproar (*cf California*) and credibility compromised (*and thus compliance and collaboration so even if*

regulations there is little chance the fishers respect it. Could enhance enforcement but very expensive and still hard to make it work if not truly collaborative).

TH 13 :10

Comparative spatial scaling in cod and haddock populations; implications to MPAs (P.J. Wright et al)

Help distinguish presence (can control those who go haddocking rather than codding).

-depends on level and methods of enforcement in the first place

-can we use (*at least include*) fisheries knowledge to map this?

Cod : tag+capture data storage-individual geolocation

Sort home range. Difference between sites, ex) west of Shetlands : residence; east of Shetlands : mingles.

Scale of connection varies between species

Cod population finely structured, which means that local depletion is easily reached. However, closing inshore fisheries has only little impact because there is only little spillover.

TH 15 :30

Keynote speaker : Dr Anthony Charles, Canada : Human dimensions of MPAs

5 elements :

1) Example of 2 MPAs (NS Gully and NF Eastport)

2) Benefits and Costs

3) Bioeconomics and Distribution impacts

4) MPAs and Fisheries Management

5) A Top 10-list people and MPAs

3. Gully : process and collaborators : Government+ENGO+Science (Whale – Sanctuary- MPA).
Origin : deep-sea corals and whales. Off-shore. Steering committee.

Eastport : lobster fishers notice catches decrease. Own measures and community compliance. DFO starts research areas. Closed two, for all fishers (*were there other species in the area as well?*)
Students involved for monitoring, etc. 2005, MPA established.

Conclusion : There are more to MPA than closing fishing areas. Keep out other fishers, aquaculture, ocean mining operations, etc. Saw it as an evolutionary process that met their goals as well.

Participant : George Feltham : Gives the fishers credibility with MPO. Student involvement beneficial to society : 14 year-old son has now something in common with parents.

Comparison of the two :

Off-shore : Conservation; academics and ENGOs; federal; advisory committee –successful

Coastal : Fisheries livelihood; fishers; fishers; grassroots-diverse- successful

Annexe 3

Notes from attended sessions

4. Benefits and Costs.

Value : Non-consumptive; direct resource; spin-off (diversification); existence; option

Costs : Opportunity costs; management costs; operating costs

Distribution : Who gets what of benefits and costs?

Over time? (benefits long-term, costs short-term as well)

Spatially? (geographically, administrative scales : local/national/international)

i.e. existing value= international gain , resource loss local

5. Bioeconomic and distribution impacts of setting up a MPA

Coastal : Because people prefer fishing close-by. (convenience, cost, safety, time)

What happened to those who used to fish in the now no-take zone?

-alternative employment (*Such as? By choice?*)

-compensation (*who pays? What are the conditions?*)

-allowed to continue (*Reason? Eligibility for that? Impact on credibility of MPA?*)

-alllowed to continue just outside of it

If there are no alternatives, they will just continue (*CF Christian and MrA*)

6. Fisheries and MPAs

Assumptions :

population dynamics, recruitment, harvesting, stock-size, time available, etc. + exre costs for trading, crowding outside MPA, etc.

Presents different scenarios; no MPA, MPA,, and influence on stock. See charts in paper.

Use empirical ways with Ecospace, etc.

Contact Jessica Sanders at FDFO for fisheries management; ES—approach, etc.

Fisheries and MPA : links but only seen as tool for management, because it is not the same thing so need distinctiveness as well. MPA's goals are broader than fisheries'. Need to consider multiple realities (*so does fisheries management in a certain way but in a tighter realm*).

7. Top 10 list :

Suitability, Effective governance, Participatory management, Support from local community, Knowledge has a people side,

Friday 28 September

Roundtable discussion A

From the EU commission :
Jacques Fuchs
Leticia Martinez-Aguilar
Martin frenandez diez-Picazo

Leticia begins talk :
Three policies favoring MPAs :

Common fisheries policy
Environmental policy
Future marine policy
+ EU sustainable development strategy (renewed 2006) in which it aims the completion of a Natura 2000⁸ network by June 2008.
Article 6 of common treaty: Integration of environment in common policies.

MPAs go under the CFP. (protect fish stocks, habitats and ES functioning)

MPAs as a tool:
Wide consultations with stakeholders (see economic and social equity as a base); transparency revision; inclusion of social science etc..)

Conclusion: Until now it hasn't been proven that MPAs are efficient as main tools for fisheries management but that it works best if they're combined with other management tools.

MPA initiatives can count on CFP to implement management measures when needed.
64% of the oceans are beyond national jurisdictions.
See: EU Blue Book on Maritime Policy (to come out 10 October 2007)

Present system of planning is too slow(1). Some successful regional projects. (Natura 2000 etc).
*(1): Always the question: if want to include everybody and make sure of equitability and support: time consuming.
If not: decisions and actions faster but higher risks of it being only 'paperwork', since little or no compliance in real life. = Good for egos perhaps but is it really for the goals we want to achieve? How do we reach a middle ground, and who decides where that should be?)*

BIOMEX: Biomass Export

Pertinent programs for MPAs:
HERMES, ELME, VALFEZ

IMPORTANT GAPS:
Socio-economic impacts of MPAs.

⁸ Under the Habitats directive

Annexe 3

Notes from attended sessions

Links between society, economics, biodiversity and marine habitats. Collaborative, multidisciplinary research needed.

EU work program for 2008:

Ecosystem approach central to the program (20.5 M \$)

For 2009: Assess relationships between urban, rural, coastal environments and data.

Spatial mapping for these areas as well as the deep-sea will be important as well.

Focus: trans-disciplinary ecosystem approach. (we now have much expertise on specific areas, next step is to build bridges between them).

Chair: Tundi Agardy

Is there a common ground between nature and fisheries ?

Not yet. How can we reach it?

4 ways to approach:

common geography:

-segregation or war or common pretense (only when objectives are not clear)

-work together in MPA

-Interests work together within spatial management context

Letitia: Natura 2000 with DG: common ground opportunity

Peter Jones: Governance

Jeff: OSPAR and consult. MPA to German Gov. IUCN NE Atlantic

Jaques: DG- integration of fisheries and nature

Michael DK: can we afford it or not?

Tore Jacobsen: Bergen, ICES, fishers projects

Mireille: ecologist: Human relationships and politics are the real problem

Needed: Interdisciplinary research

Healing between conservationists and fish industry

Conservation inherent part of fisheries management

Michael: Doubt scientific hierarchy which claims it's always right. Fishers not glad to hear this and they know politics are a very important part of it all. (*cf Collum not realistic*)

From 12-200mm- EU (??)::

ES-approach

Include fisheries and environmental planning (*comme env+foresterie au Québec: realiste??*)

Difficult because member states need to plan individually and commonly-step by step while everything is urgent

High seas (OSPAR): work in progress

Legal framework exists; now the marrying of deadlines is necessary (*what about the real life matters such as time to inform, consult etc. if we want compliance ? can perhaps fill deadlines but if no real support, why waste time, money and energy?*)

Are the MPAs meaningful?

Annexe 3

Notes from attended sessions

If it takes up to 30 years to even determine if they do have an effect, if it is too time and money consuming to go through with all the consulting and stakeholder involvement that would be necessary for it to work, is it worth all the trouble?

Studies have shown that they are meaningful as long as they are designed in accordance to the local desires, needs and context.

Social studies could be the nucleus for interdisciplinary research to move forward (including Traditional Ecological Knowledge (TEK). (*Need to change the perception, gotten from Peter Jones' speech, that social means 'pro-fisher', instead of 'pro-dialogue'...*)

Jeff: Natura 2000 priority/mandate: Bird and habitat protection. Not fisheries. (*But if there are fishers in those areas, is it not mindless to ignore them? CF: Anthony: "if there are no alternatives, they will continue fishing" and rightfully so: If someone told Jeff his work was useless or harmful to the local fishery community and that he should start lecturing tourists about the fishery tradition instead - would he comply? (On the other hand: adapt too much is not better: if the wish to create an MPA no matter what, perhaps some of the reasons why there ought to be one in the first place get compromised just to please and to get support from the community and in that case, why go through with it if it to become only another paper park? - might compromise reputation of MPAs and the creation of future ones where really needed?)*

Social equity and biodiversity is a continuum where the middle point is also influenced by climate change and other aspects of uncertainty.

Roundtable discussion B

Chair: Carl Gustaf Lundin

We obviously need to stop destroying our capital (*which starts with our own consumption, choices, etc.*). Also need to see an equitable distribution, not only of benefits but also of responsibilities.

People need to get heard, which means that we need to instaurate 5 years revisions so people can still be heard and get involved (dynamic and flexible management schemes).

There is no perfect MPA. What we need is enforceable rules that are also good management tools. We thus need to be very wary of create systems we cannot enforce.

We should not "oversell the concept" of MPA because there are no 'win-win' solutions but we need to make realistic ones with real, constructive impacts.

It is also crucial not to concentrate only on biodiversity but need to include livelihoods into the picture (*cf natura 2000...*) so we need to look at the economic feasibility of projects before pushing them through.

We also need to consider the possibility of catastrophic events and climate change when we design MPAs. The temperature change is 8 X faster in the Baltic sea than in any other sea. We thus need to incorporate and manage resilience into our concepts, designs and reflections.

So, we need to experiment a lot. Shifts in home range, how to integrate those in the design of MPAs . recognize limits and utilities of research: need to focus on useful science in management contexts.

(Fishery ministers' goal: Bring home the highest quotas. So, diversity of fishing industry crucial. Scientific advice to governments, often based on flawed data, so need to involve fishermen (not only the most lucrative species otherwise not socially equal and the livelihoods of the excluded ones will be harder, thus creating more tension in the community, thus inciting more illegal activities. = INEQUITY CAUSES OVERFISHING?).

Need to remember that the rules are for the citizens: limit free-riding and avoid jealousy (careful when designing no-take zone—who gets affected and who does not).

Science should drive decisions, thus it needs to be clear *(is it ever ? Can it ever really be more than partial ?)*

We should rely simultaneously on opinions (livelihoods) and on science (state: part of present)

We need to be clear about the objective(s) of each MPA and why it is important to create one. There should not be one package-deal for ocean management but should include some robust management objectives for a multiple-use ocean.

There is a need for transparency since without trust there will not be compliance and without compliance there will be no effects. Management need to include what touches the area; pollution, oil extraction activities etc, and not avoid or ignore what is part of the reality in the area.

(Now, for maritime policy, there is no “individual point of view” but this is really what it ultimately comes down to. Problem in Canada: federal laws (not provincial, regional and local).)

Rights-based management? Is it enforceable (if not, forget it) ? Dutch: quota and effort limits as in Canada: ‘rights’/ privilege).

The whole thing is that we’re actually managing people, not fish. Same thing with marine conservation.

It is not only about include, involve, participate; it is also about governance. In the Mediterranean, there is a lack of that *(said by a man who was slightly accused at one time of being chummy with the fascist government in Italia...)*

Need for commitments and people doing it *(so better start small and realistic than big and not working in reality ?)*

Need to ‘tell stories’ *(educate on a same-level, not top-down)*

ANNEXE 4. Mer l'Iroise**Projet de Parc National en Mer l'Iroise****Mise en contexte du projet (2006)****Géographie et pluriactivité dans la zone**

Située à l'extérieur de la côte de Bretagne en France, la mer l'Iroise couvre une superficie d'environ 255 hectares (or, celle étudié pour le parc national est de 135 km²), sur laquelle sont parsemées de nombreuses petites îles dont trois sont habitées. Les ressources marines sont exploitées par environ 500 pêcheurs professionnels, dont la majorité utilise des bateaux ne dépassant pas 16 mètres. Les équipements principalement utilisés (filets, lignes et casiers) visent surtout la pêche du crabe, de la perche (ainsi que *anglerfish* et *pollack*). D'octobre à mai, il y a aussi la pêche de pétoncle, ainsi que, durant les mois d'été, une cinquantaine de bateaux se spécialisant sur la récolte d'algues vertes. Outre les pêcheurs professionnels, il y a 2500 bateaux récréatifs, dont 40% pratiquent la pêche sportive. De plus, environ 5000 plongeurs d'apnée s'y rendent chaque année et 18 centres de plongée sous-marine y offrent leurs services. Le nombre de touristes annuels est d'environ 100 000⁹.

Origine du projet

Dans les années 1980, plusieurs problématiques concernant la gestion des activités et des ressources liées à la pluriactivité dans la zone ont commencé à se manifester. Le grand nombre de touristes a soulevé un problème de pollution et le nombre d'acteurs se partageant les lieux a engendré des tensions qui ont abouti à des conflits entre les usagers. C'est ainsi que, en 1988, un projet d'y créer un parc national à été proposé afin de tenter de réunir les divers groupes d'intérêt, offrant par la même occasion une opportunité de mieux protéger les ressources et les habitats locaux. L'initiative s'inscrivait également dans le processus qu'avait entrepris l'UNESCO pour désigner l'endroit comme biosphère mondiale (ce qui a été officiellement décrété en 1989).

L'aspect commercial (relatif à la pêche et au tourisme) a néanmoins constitué un volet prioritaire, depuis les débuts, dans la gestion du parc. Ce double mandat de protection et d'exploitation (sans parler de la gestion de conflits entre ces groupes d'intérêt) a fait en sorte que plusieurs des enjeux locaux sont aujourd'hui d'actualité pour quiconque s'intéresse au processus d'instauration d'une aire marine protégée. Nous avons, à ce propos, identifié quelques éléments que nous estimons contributeurs à une réflexion éclairée sur le sujet. Nous ferons, dans les pages suivantes, une brève présentation de ces éléments.

⁹ Ce nombre pourrait être substantiellement plus élevé, compte tenu que le nombre de touristes qui ont visité la côte de la Bretagne dans son ensemble durant l'année 1998 monte à 2.4. millions de personnes (Alban et Boncoeur, 2003).

Historique du projet

1989-1994 : Lancement du projet

1995-1998 : Débuts de la « mission pour un parc national en mer d'Iroise

1999-2001 : Consultations et prises en considération des intérêts locaux

2002-2005 : Préparation d'enquête publique et identification d'enjeux actuels

Acteurs locaux impliqués

Pêcheurs professionnels

Les pêcheurs professionnels se montraient initialement très enthousiastes envers le projet en raison de l'opportunité qu'ils y voyaient d'améliorer la gestion des ressources marines¹⁰. Cependant, ils ont tôt fait de signaler s'être senti exclus des négociations concernant les mesures à prendre, dû à la présence des intérêts portant sur la protection de la population de phoques vivant à l'intérieur du périmètre du parc¹¹. De plus, il s'est révélé qu'une polémique existait entre les pêcheurs eux-mêmes, certains favorisant la pêche industrielle, d'autres la pêche artisanale, ce qui a causé des conflits concernant la légitimité des représentants au sein des comités de concertation¹².

Pêcheurs récréatifs

Les pêcheurs récréatifs, n'ayant pas été sollicités lors des consultations préliminaires, ont néanmoins clamé une place dans les comités de concertation, stipulant que l'importante contribution économique de leurs activités à la communauté leur réservait le droit d'y siéger¹³. La crainte de se voir écartés par les réglementations proposées ont toutefois engendré une forte animosité envers le projet, ce qui a abouti à la création d'une nouvelle association (ADVILI¹⁴) qui s'oppose fortement au projet à l'heure actuelle. Plusieurs pêcheurs professionnels ont également adhéré à cette nouvelle association².

Professionnels du tourisme

¹⁰ Noel, 2005, cf : Agardy, 1994

¹¹ Frangoudes et Alban, 2004

¹² Alban et Boncoeur, 2004

¹³ Raffin, 2003

¹⁴ Association de Défense et de Valorisation des Iles et du Littoral de la mer d'Iroise

La majorité de ce groupe accueille favorablement le projet en raison de l'augmentation escomptée du nombre de visiteurs au parc. Une partie du groupe s'est néanmoins avouée ambigüe en raison de la question de compatibilité d'un tourisme accru avec l'objectif énoncé de préservation du milieu marin².

Enjeux actuels:

- ~~/~~ Obligation d'élargir les objectifs initiaux
- ~~/~~ Nécessité d'une concertation plus grande avec les groupes directement touchés par le projet
- ~~/~~ Nécessité d'une implication plus importante des usagers
- ~~/~~ Nécessité d'une meilleure prise en compte des aspirations des populations locales

Raisons des enjeux actuels :

- ~~/~~ Durée trop longue du processus de création

Ce point se révèle intéressant lorsque, suite à une revue de la littérature concernant les AMPs à l'échelle mondiale, bon nombre de difficultés éprouvées par d'autres initiatives relèvent du fait que le processus d'implantation ait été estimé trop rapide. Ceci a notamment été le cas aux Îles de la Sporade (Grèce). La durée du processus menant du lancement du projet à son implantation a dans ce cas été de quatre ans, temps dont, selon plusieurs, la courte durée voué aux consultations et à l'identification de l'avis et l'implication des communautés locales, a été la raison principale de l'échec subséquent du projet. La durée du projet de la mer d'Iroise relève au fait des mêmes principes. Ayant négligé l'étendu d'intérêts à prendre en considération lors des débuts des consultations, ces dernières ont du être recommencées ultérieurement à plusieurs reprises.

- ~~/~~ Incapacité de représenter les intérêts des différents *stakeholders* lors des consultations préliminaires

Ce point démontre qu'une connaissance approfondie de la structure organisationnelle des différents acteurs et enjeux (économiques, écologiques et sociaux) locaux gagnerait à être acquise avant la mise en place d'un comité de gestion. La question de représentativité au sein d'un tel comité semble par ailleurs être un élément clef pour la réussite à long-terme du fait que ce sont les avis et les décisions de ce comité qui affecteront par la suite l'ensemble des communautés sur les plans à la fois écologique, économique et social.

☞ Existence de conflits latents entre *stakeholders* pré-existants au projet

Ce point soulève l'importance d'une compréhension approfondie des dynamiques sociales des communautés touchées par le projet afin de permettre à un comité de gestion d'AMP de veiller aux intérêts de tous les intervenants impliqués. Une telle compréhension s'avère d'autant plus pertinente si l'un des rôles d'un tel comité est d'agir en tant que médiateur entre les différents groupes d'intérêts.

☞ Cadrage législatif inadéquat

L'inadaptation des procédures juridiques actuelles en France liées à la protection du milieu marin a été l'une des raisons expliquant la lenteur de progression des différentes étapes du projet. Le fait que la loi concernant les parcs nationaux date de 1960 et que celle-ci soit exempte de considérations spécifiques pour les particularités du milieu marin a ainsi contribué à la complexité du processus. Plusieurs pays travaillent actuellement en faveur d'une loi spécifique pour les aires protégées en milieu marin. Cet effort relève du fait que les lois concernant les aires terrestres se sont avérées inadéquates ou insuffisantes pour des mesures liées à l'environnement côtier ou marin. Parmi les pays oeuvrant dans ce sens, ayant des conditions climatiques semblables à ceux de la Bretagne, nous trouvons, entre autres, les pays arctiques¹⁵. Groenland est actuellement en train de revoir l'entièreté de sa législation concernant la conservation marine, incluant la désignation d'aires protégées et Islande a instauré une loi spécifique pour les aires marines protégées en 1995. Cette même année, la Norvège a identifié, le long de ses côtes, 41 zones susceptibles de devenir des AMPs dans le future et un processus de révision des lois concernant la protection du milieu marin est en cours. Les Etats-Unis ont créé le *Coastal Zone Management Act* en fonction des AMPs nationales et au Canada il existe, depuis 2002, *la loi sur les aires marines nationales de conservation*. La Russie, bien que n'ayant pas encore de loi spécifique pour des AMPs éventuelles, a vu les menaces nationales de jadis (surpêche et pollution liée au transport maritime) diminuer de presque 50% depuis que la majorité de la flottille se trouve reléguée au *dry-dock*¹⁶.

☞ Rôle crucial de l'implication de la population locale sous-estimé à l'origine

Comme semble dire la majorité des auteurs qui ont évalué la gestion et le fonctionnement d'AMPs dans le monde, cet aspect demeure le facteur incontournable lorsqu'il s'agit de viser le succès à long-terme d'une AMP¹⁷.

¹⁵ Islande, Groenland, Norvège, Russie, Canada, États-unis

¹⁶ CAFF 2000

¹⁷ Agardi, 1993; Alder, 1996; Mascia, 1999; White, 2002; Russ et al., 2004; Chuenpagdee et al., 2002; Rudd, 2003

~~✍~~ Interférence avec les échéances politiques

Conclusion

Le cas de la mer l'Iroise illustre de façon éloquente les principaux enjeux dont fait face un grand nombre d'AMPs à travers la planète. Comme le démontre cet exemple, ces enjeux semblent principalement liés au facteur social et au cadrage législatif entourant les pratiques existantes et les mesures visées dans l'aire d'étude. Nous en concluons que la complexité des liens (horizontaux) entre les usagers impliqués et ceux (verticaux) entre les usagers et les instances gouvernementales, demande qu'une attention particulière soit portée sur l'identification des dynamiques sociales locales, ainsi que sur le cadrage législatif entourant les pratiques et les plans concernant l'AMP en question. La compréhension de ces dynamiques permettrait de faciliter les interactions futures entre les parties impliquées, ce qui, selon la littérature, contribuerait considérablement à mettre toutes les chances du côté de l'aire protégée et des communautés impliquées.

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