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Stakeholder report

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EMPAFISH WP6 Deliverable No. 29

Stakeholder report

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1. Introduction

Multiple use marine protected areas (MPAs) are widely recognized as one method for managing large and diverse marine ecosystems. However, managing MPAs has been unsuccessful partly due to fragmentation of responsibility among different stakeholders. This has led to the establishment of protected areas with many different and sometimes overlapping objectives. In general, overlapping stakeholder interests provide partial and uncoordinated solutions to management problems, and under some circumstances may create problems rather than solving them. What is needed is a framework that unites the common goals of fishery managers, conservationists, fishers and other stakeholders.

The attitudes of resource users living adjacent to MPAs are a central issue for the management of protected areas. Many authors discussing the importance of the role played by stakeholders in achieving successful MPAs conclude that for management to be successful, stakeholders' attitudes towards MPAs and associated regulations need to be positive (Dahl 1997, White et al 2000, Himes 2007). It is therefore essential to study how communities and managing authorities agree on the common goals of establishing MPAs. Although ecological and economic reasoning have motivated the designation of MPAs, implementation has had a low success rate (Kelleher et al. 1995). A global survey of MPAs indicated only 9% had achieved their management objectives, 71% had unknown management objectives and 20% had failed to meet any objectives (Kelleher et al 1995). With this poor level of implementation, there is a need to evaluate the perceptions of stakeholders towards the objectives of marine protection.

Marine protected areas typically affect heterogeneous communities that include stakeholders with diverse perspectives and outlooks on the marine environment. For instance, commercial and artisanal fishers are most influenced by MPA designations because MPAs can potentially improve stocks in adjacent fishing grounds or eliminate large areas from fishing. Evidence for reserve effects (McClanahan and Mangi 2000, Roberts et al. 2001, Kaunda-Arara and Rose 2004) and theoretical modelling studies (DeMartini 1993, Rodwell et al. 2003) suggest that the potential benefits of biomass and larval export can be passed on to fishing communities. In general, stakeholder groups are affected by protected area management strategies through the specific types of restrictions on the use of resources, the failure of management to deliver on promises (Fiallo and Jacobson 1995, Mehta and Kellert 1998) and a lack of enforcement or rules and regulations (Hough 1988).

Marine protected areas in the Mediterranean region have different use zonations, levels of protection, management plans and legislative authorities. In general, Mediterranean MPAs comprise of a one-zone only protected area, mainly a no-take zone where all extractive exploitation is prohibited. Some MPAs have two zones including the no-take zone plus a buffer zone where fishing techniques are regulated. Yet others have three

zones comprising of the no-take zone, buffer zone and a transitional zone where further regulations on fishing gear types are imposed. Such a variation in zonation of uses allows evaluation of local perceptions into ways to manage stakeholders' competing interests. Such a study would focus on the perceptions of local stakeholders who are directly impacted by such use zonations.

Some of the oldest MPAs in the region include Cerbere-Banyuls (France) and Monte-Guia (Azores, Portugal) established in 1974 and 1980 respectively. Other MPAs such as Cabo de Palos (Spain), Ustica (Italy) and Sinis (Italy) are 10 to12 years old established in the late 90s. Yet other areas have been designated as MPAs but discussions are still underway to implement the protective measures e.g. Rdum Majiiesa in Malta.

Within this management environment, we reviewed the design and effectiveness of MPAs in southern Europe, considering the perceptions different stakeholders have of the objectives and zoning of MPAs. The importance of MPAs as sites for conservation, fisheries management, research and education, and tourism development were ranked based on the perceptions of stakeholders. We tested the hypothesis that perceptions on what functions MPAs fulfil will differ between fishers, recreational users and government officials and will depend on how long the stakeholder groups have been associated with MPAs. We predicted that the major objectives of establishing MPAs are met using MPAs that comprise all the three zones together with different levels of protection as opposed to MPAs with a single protected zone.

2. Surveys

A questionnaire (see Appendix) was developed to assess the perceptions of stakeholders of the importance of MPAs as areas for conservation, fisheries management, research and education, or tourism development. The questionnaire was designed to elicit the respondents' perceptions of the objectives of establishing MPAs, and how MPAs should be zoned. The questionnaire was translated into local languages and each respondent questioned using a face-to-face interview. Before asking questions regarding the objectives of marine protection, the type of stakeholder either as a fisher, government official, recreational user etc, and the name of the nearest MPA, were recorded. This information was used to group respondents for the data analyses.

Questions concerning objectives of marine protection provided the respondent with a list of nine specific objectives including whether MPAs are sites to protect representative sections of marine environment, protect marine biodiversity from damaging activities, prevent overexploitation of species, improve or sustain yields in adjacent areas, provide undisturbed localities for research or promote the development of tourism. Each respondent was asked to rank the objectives in order of importance using 1 for the most important objective, 2 for second most important …and 9 for least

important. To ascertain the rank provided by respondents for each objective, each respondent was also asked to determine the difference of importance between two consecutive objectives. Where pairs of objectives were of equal importance, respondents put 1, while where one objective was two times as important then 2 was used etc.

Questions on the best zonation of MPAs in southern Europe started with a definition of three zones of a model MPA. These include Zone A (no use zone) where all forms of use are prohibited except for research and education; Zone B (Regulated no extraction zone) which is the area of the MPA where uses such as for diving and research are allowed but no resource extraction activities are permitted; and Zone C (Regulated extraction zone) where resource extraction is permitted under certain conditions e.g. for specified fishing gear types and / or seasons. Each respondent was asked to rank how the different zonation of a MPA contributes to each of the objectives using a five point scale: using 4 where the MPA contributes very highly, 3 for highly, 2 for medium, 1 for low and 0 where it does not contribute to that objective at all. The MPA zonations teased out included having an MPA comprised of Zone A only, Zone B only, Zone C only, Zones A, B and C together, Zones A and B only, Zones A and C only, or Zones B and C only.

In order to help stakeholders, including decision makers, in the development of cooperation strategies for managing MPAs, one section of the questionnaire focused on specific issues dividing stakeholder opinion. For instance, should recreational fishers be allowed to fish in no-take areas for sport purposes when professional fishers are not allowed? To ascertain the stakeholders' views on these issues, each respondent was asked to choose on a 10 point scale whether they agree or disagree ('strongly disagree' = 0, strongly agree = 10) with statements such as 'Certain areas of the MPA should be permanently designated where any form of fishing including recreational fishing is not allowed'. All stakeholders were asked the same questions and the results were compared.

3. Processing of data from surveys

Closely related specific objectives were grouped together into broader objectives of marine protection: conservation, fisheries management, research and education, and tourism. For instance, protection of representative sections of marine environment and protection of marine biodiversity from damaging activities were grouped together into conservation, while preventing overexploitation of species and improving or sustaining yields in adjacent areas were grouped as fisheries management objectives. In order to compute the objective considered highly by stakeholders, ranks provided by respondents were reversed such that what the stakeholders ranked 1 was scored 9, 2 was scored 8…while 9 was scored 1. The mean score for each major stakeholder category

for each major objective was calculated. Ranks were treated as continuous data and analysis of variance (ANOVA) used to determine differences in mean scores for objectives between the respondents grouped by stakeholder category. Tukey's test was used to compare for differences between pairs of stakeholders if significant differences in means were reported for that objective from the ANOVA.

The views among local stakeholders on which objective was more important than another were investigated using data directly obtained from respondents. The mean number of times each objective differed from another were calculated and plotted for each stakeholder category.

In order to test whether fishing communities view MPAs as tools for fisheries management analyses were completed for all respondents together and fishers' separately for each MPA. Respondents' scores for each objective were plotted across all MPA sites to show if views varied based on the length of time since the MPA was established.

The scaled data on whether a respondent agreed or disagreed to given statements was used to calculate mean scores for each issue under investigation between respondents grouped by stakeholder category. Issues that were investigated include commercial fisheries and MPAs, diving and recreational fishing and MPAs, and whether MPAs are needed to fully protect species and ecosystems.

4. Results

4.1. The respondents

Two hundred and twenty three stakeholders answered the questionnaire (Table 1). Some were from areas with existing MPAs such as Cerbere-Banyuls, Cabo de Palos, and Monte Guia while others came from areas where consultations are underway to establish MPAs e.g. Rdum Majjiesa. Their affiliations fall into the fishing sector, tourism sector, conservation sector and members of specific institutions and authorities.

Table 1: Distribution of stakeholders according to general affiliations and their nearest MPA.

Stakeholder	Banyuls	Benidorn	Cabo de Palos	Castellammare	Monte de Guia	Rdum Majjiesa	Sinis	Ustica	Total
Fishers	**5**	**1**	**8**	**21**	**0**	**3**	**7**	**4**	**49**
Artisanal fisher				4					4
Commercial fisher	5	1	7			3	7		23
Fish trader			1	6					7
Fishermen association				6				4	10
Fishing boat owner				1					1
Trawler fisher				4					4
Recreational users	**12**		**13**	**24**	**2**	**23**	**3**	**22**	**99**
Hotel manager				10		4		5	19
Recreational fisher			4	7	2	8	3	4	28
Diver	5			3		6		5	19
Diving operator	4		4	2		4		7	21
Restaurant owner			5						5
Tourism association				2		1		1	4
Yachtsman	3								3
Conservationists	**5**	**2**	**3**	**1**	**1**	**7**		**2**	**21**
NGO		2	3	1		5		2	13
Conservationist						2			2
Scientist	5				1				6
MPA manager	**4**					**3**		**3**	**10**
Government officials			**1**		**5**	**5**			**11**
National ministry rep			1		5	2			8
Fisheries manager						3			3
Researcher			**2**	**3**	**8**	**3**	**4**	**4**	**24**
Others	**5**					**3**		**1**	**9**
Resident	5								5
Member of public						3		1	4
Total	**31**	**3**	**27**	**49**	**16**	**47**	**14**	**36**	**223**

4.2. Perceived objectives of MPAs

There was no significant difference in the scoring of research and education, and tourism development as objectives of establishing MPAs among all respondents, but scoring did differ among respondents for conservation and fisheries management (Table 2). Fishers ranked fisheries management as the most important objective of establishing a MPA giving it a mean score of 6.6 out of 9, while conservation ranked as less important with a mean score of 5.3. Government Officials on the other hand ranked conservation the top most objective and fisheries management the less important with mean scores of 7.1 and 4.9 respectively. MPA managers showed a similar ranking to government officials but generally scored fisheries management somewhat higher at around 5.1. Apart from the lower ranking by fishers of conservation and higher ranking

for fisheries management as objectives of establishing MPAs, all other stakeholder groups scored conservation higher than fisheries management. The scores given by all stakeholder groups for research, education, and tourism development were much lower (mean 3.6 and 3.1 respectively) than those given for conservation and fisheries management (6.4 and 5.4 respectively). Comparison of stakeholder groups based on their ranking of conservation and fisheries management show that fishers differed from all the other stakeholders in the way they ranked these two objectives (Table 3a and b).

Table 2: Scores provided by each of the respondents on the main objectives of establishing MPAs. Scores were provided out of 9, the highest score a respondent could give to one objective. Includes results of the analysis of variance (ANOVA). Sem: standard error of mean.

Respondent	n	Conservation		Fisheries management		Research and education		Tourism	
		Mean	sem	Mean	sem	Mean	sem	Mean	sem
Conservationist	21	6.8	0.2	5.5	0.2	4.0	0.4	2.2	0.2
Fisher	49	5.3	0.3	6.6	0.2	2.8	0.3	2.8	0.2
Government official	11	7.1	0.2	4.9	0.3	3.7	0.7	2.5	0.6
MPA manager	10	7.1	0.4	5.1	0.3	3.9	0.7	2.0	0.2
Recreational user	99	6.6	0.1	5.1	0.1	3.9	0.2	3.8	0.3
Researcher	24	6.8	0.2	5.2	0.2	3.6	0.4	2.6	0.3
Others	9	6.9	0.3	4.9	0.4	4.0	0.6	2.9	0.8
Total	223	6.4	0.1	5.4	0.1	3.6	0.1	3.1	0.1
F value		8.1		11.8		2.1		2.0	
Significance		0.001		0.001		NS		NS	

Table 3: Results of the paired comparisons using Tukey test for conservation and fisheries management across respondents.
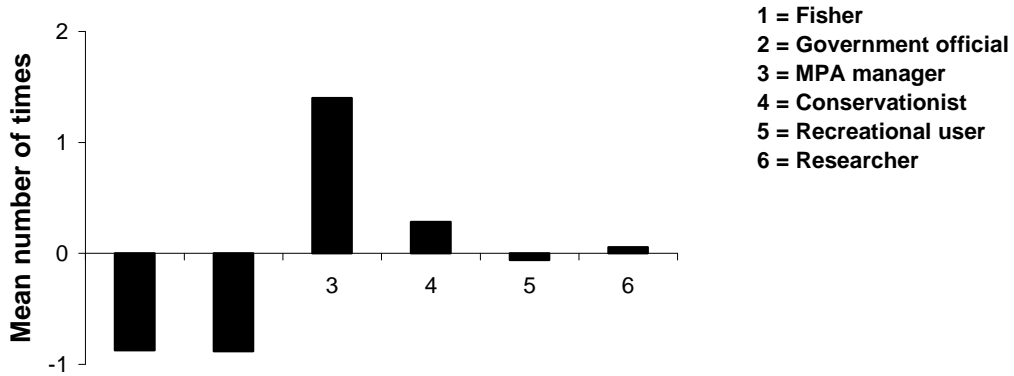
(a) Conservation

	Fisher	Government official	MPA manager	Conservationist	Other	Recreational user
Government official	+					
MPA manager	+	NS				
Conservationist	+	NS	NS			
Other	+	NS	NS	NS		
Recreational user	+	NS	NS	NS	NS	
Researcher	+	NS	NS	NS	NS	NS

(b) Fisheries management

	Fisher	Government official	MPA manager	Conservationist	Other	Recreational user
Government official	+					
MPA manager	+	NS				
Conservationist	+	NS	NS			
Other	+	NS	NS	NS		
Recreational user	+	NS	NS	NS	NS	
Researcher	+	NS	NS	NS	NS	NS

In contrast to the results from the rank scores, in the consecutive objectives comparison, there was a general agreement among stakeholder groups that the four major objectives of MPAs are of equal importance. Most stakeholders gave one or less than one as the number of times two consecutive objectives differed (Fig. 1). There were some minor discrepancies in the level of importance between objectives however, with government officials listing research and education as being two times as important as fisheries management (Fig. 1d). MPA managers thought that tourism development was eight times more important than research and education as an objective of MPAs. Analysis of the difference of importance between consecutive objectives given by stakeholders revealed that respondents either did not understand this question well or they could not decide the number of times the objectives differed. Most of the scores given differ from the way they ranked the level of importance of the objectives in the first question.

a) Convservation versus fisheries management

1 = Fisher
2 = Government official
3 = MPA manager
4 = Conservationist
5 = Recreational user
6 = Researcher

b) Conservation versus research and education
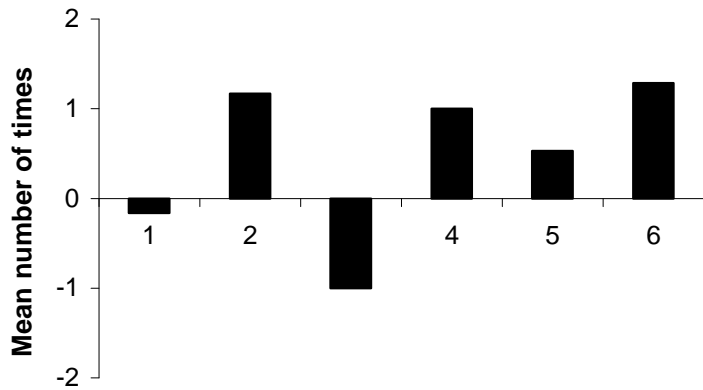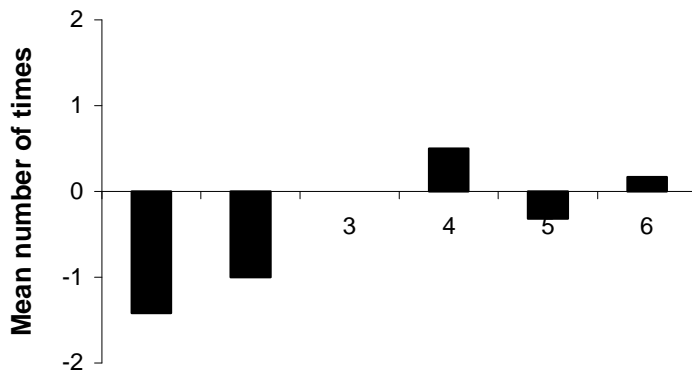
c) Conservation versus tourism

Figure 1: Respondents perceptions on the number of times two consecutive objectives differed. Positive values indicate that the former objective was higher than the latter while negative values indicate the opposite.
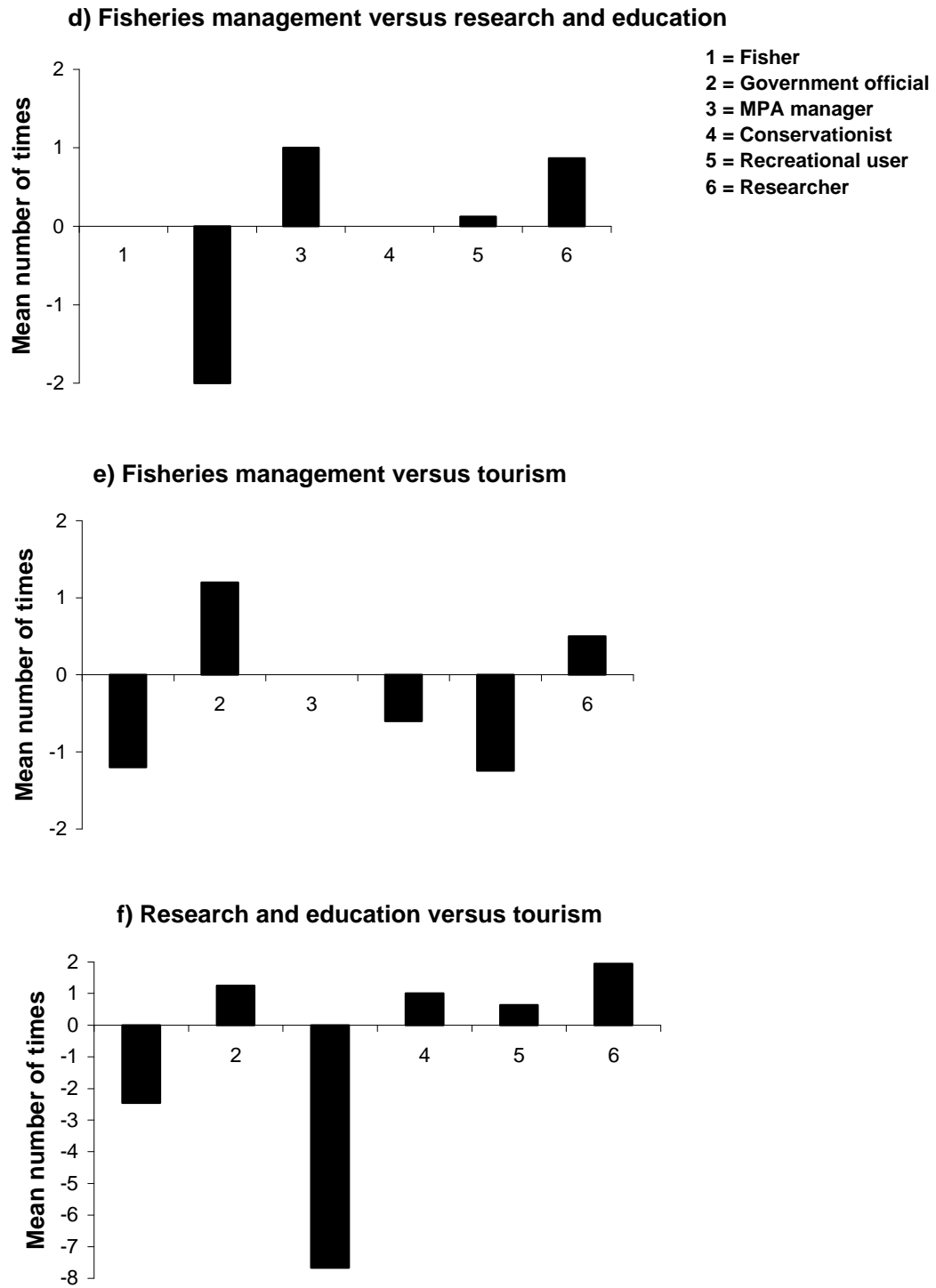
d) Fisheries management versus research and education

1 = Fisher
2 = Government official
3 = MPA manager
4 = Conservationist
5 = Recreational user
6 = Researcher

e) Fisheries management versus tourism

f) Research and education versus tourism

Figure 1: continue

The overall score provided for MPAs as sites for conservation by fishers and all other respondents progressively increased with the length of time of protected area management (Fig. 2a). Scores on MPAs as areas to manage fisheries decreased with the length of time of protected area management (Fig. 2b). This result is surprising since fishers gave a high rank to fisheries management as a major objective of establishing MPAs. It implies that fishers want to see MPAs established to manage fisheries but view the present MPAs as failing to do so. Stakeholder perceptions on research and education, and tourism development as objectives for establishing MPAs did not change much with the length of protected area management (Figs. 2c and 2d). Results of the scoring of the objectives of marine protection by all other respondents showed similar patterns but were not that strong (Fig. 3).
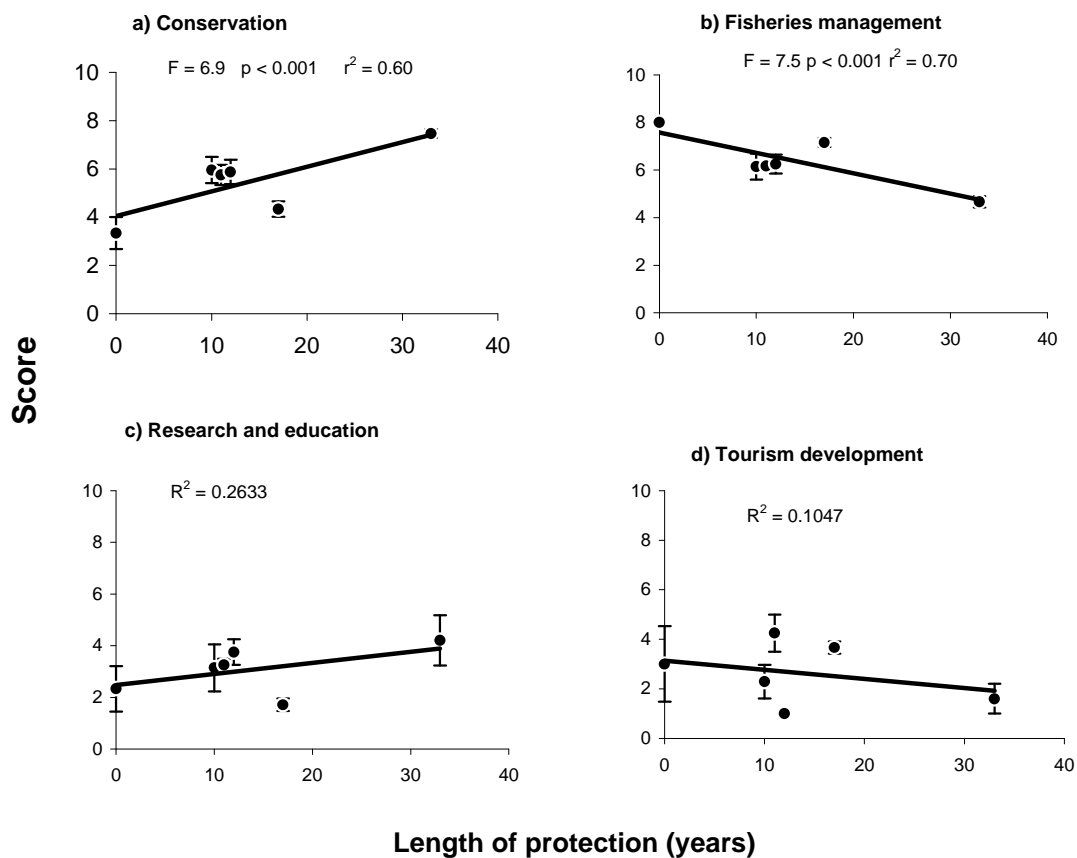
Figure 2: Scores for the objectives of MPAs provided by fishers from six MPA locations differing in the length of time of protected area management. Scores provided for conservation and fisheries management significantly differed over time.
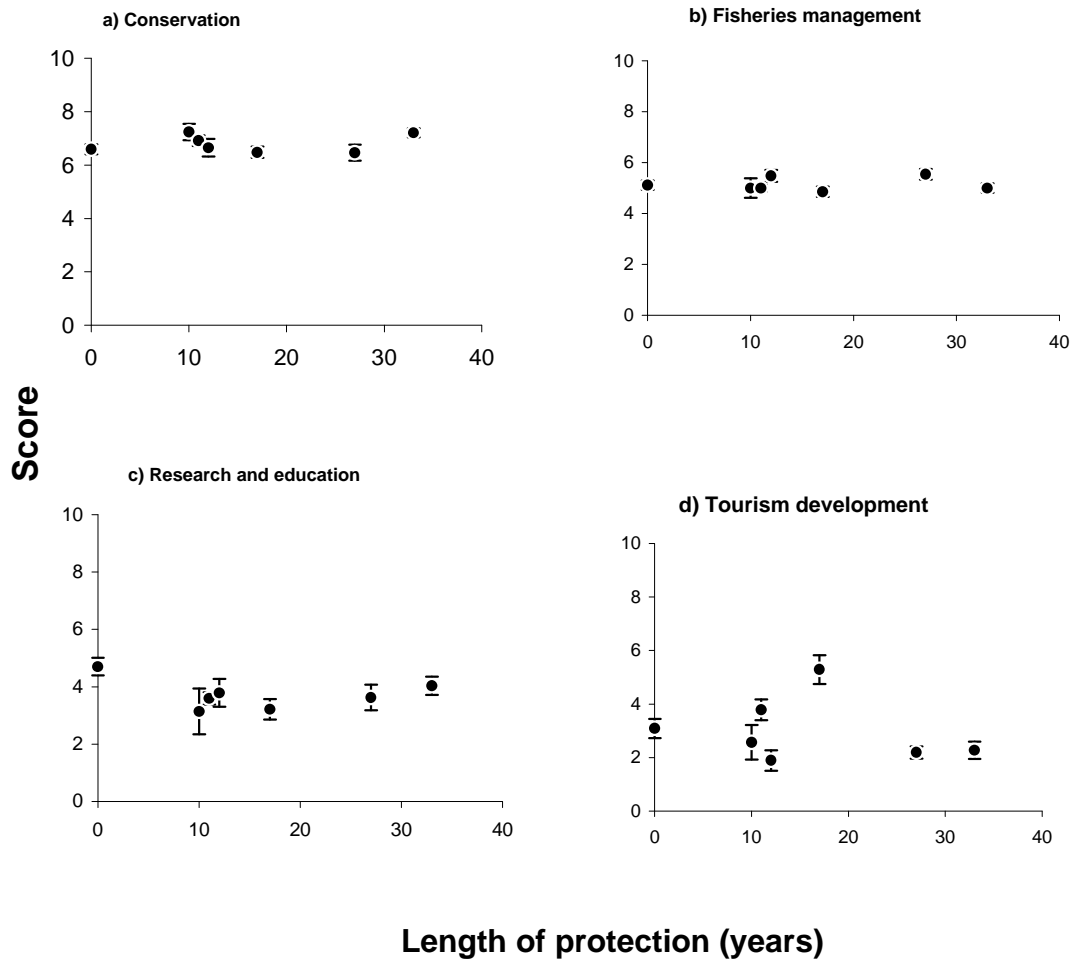
Figure 3: Scores for the objectives provided by respondents (excluding fishers) from six MPA locations differing in the length of time of protected area management.

4.3. Zonation of MPAs

The results of ranking of various zonations of a model MPA by stakeholders are presented in Figure 4. Respondents ranked highly MPAs with a gradation of two or three zones especially if the model MPA included a core zone where all extractive uses are prohibited. The model MPA should have all three zones together: a central (no use) zone that is bordered by a regulated (no extraction) zone with an outer regulated (extraction) zone. Stakeholders consider that such an MPA meets all the objectives highly.
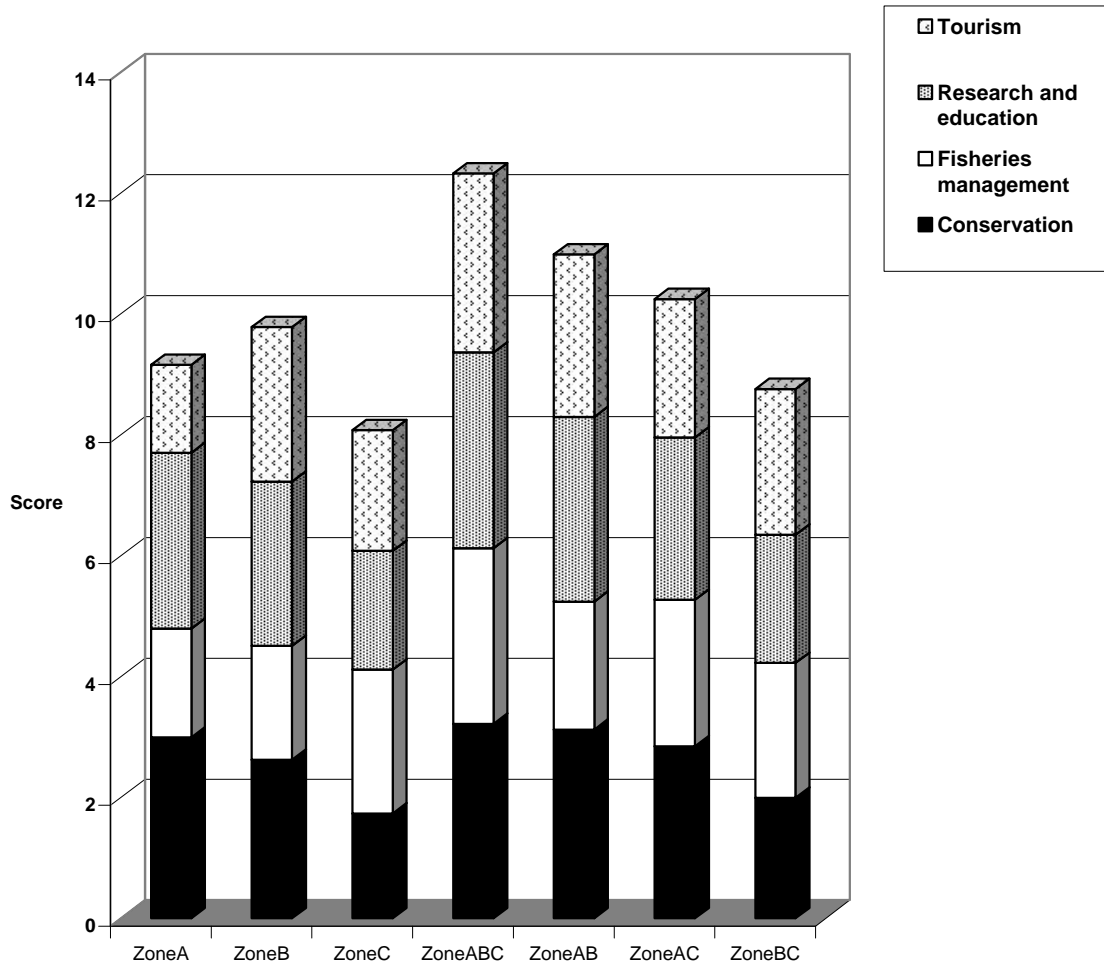
Figure 4: Ranks for zoning of a model MPA based on their fulfilment of the main objectives of marine conservation.

4.4. Commercial fishing and MPAs

All stakeholder groups strongly disagreed about whether commercial fishing should be allowed to take place everywhere in the sea indicating that they would rather see limitations on where people fish (Fig. 5a). Most of the stakeholder groups scored highly the need for area regulations using either temporary or permanent closed zones. Fisher groups in particular preferred the use of temporary closed zones as a way to manage fisheries (Fig. 5b) rather than the use of permanent closed zones, while all other respondents scored highly the use of permanent closed areas (Fig. 5c).
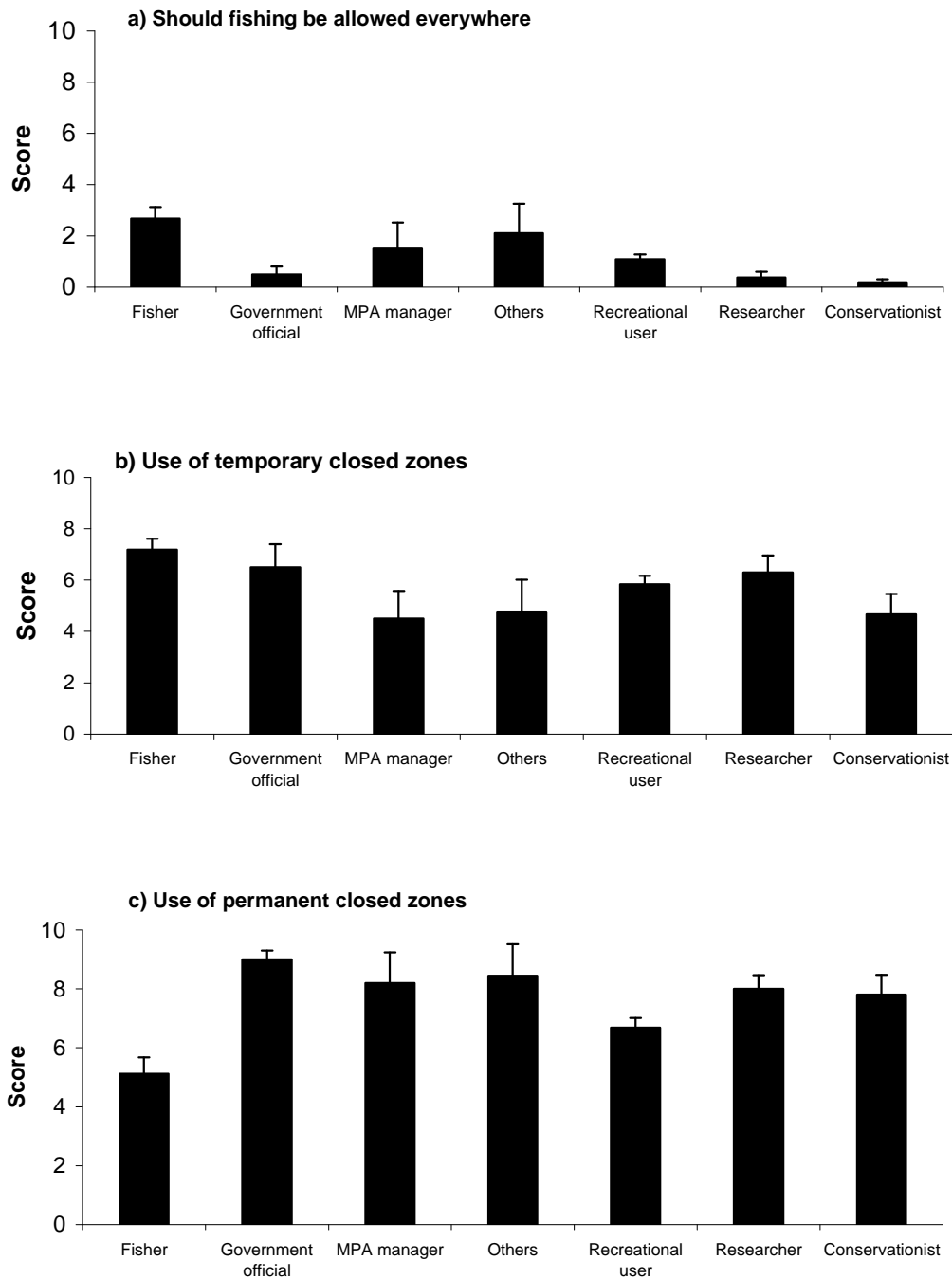
Figure 5: Scores of the agreement or disagreement to whether a) fishing should be allowed everywhere, b) temporary closed zones, or c) permanent closed zones should be used to manage fisheries. Higher scores demote agreement while lower scores disagreement.
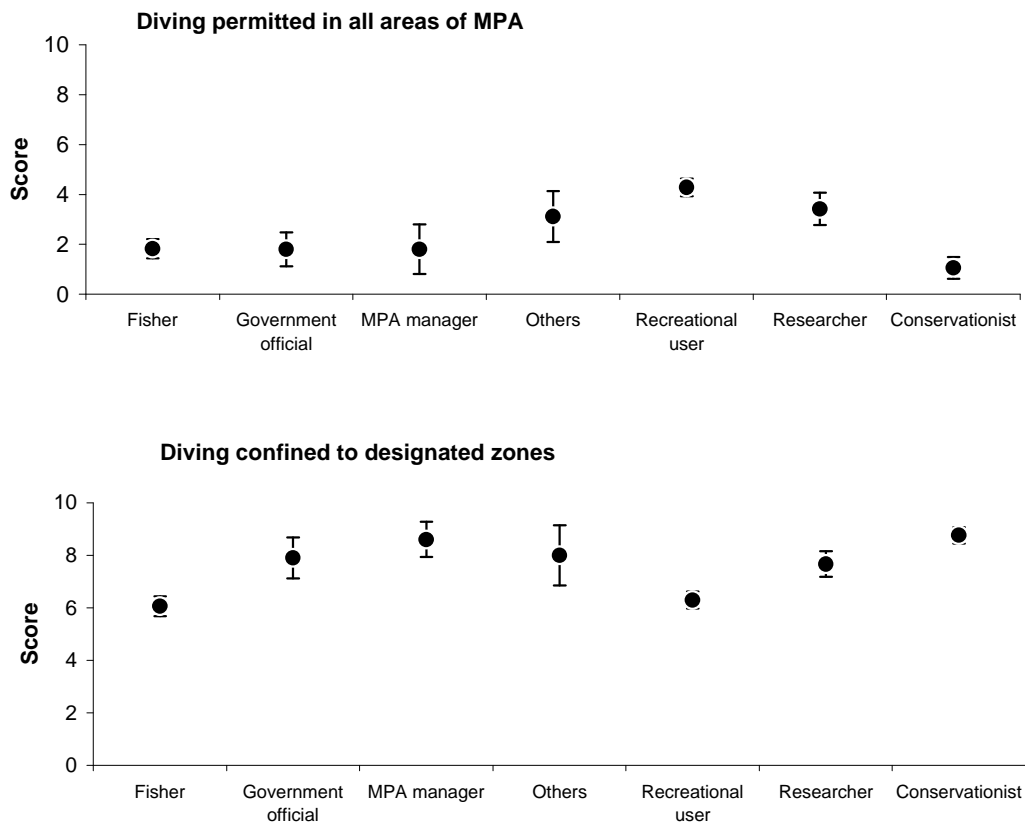
Figure 6: Scores of stakeholders concerning whether diving should be allowed in all areas of MPA or should be confined to designated areas.

4.5. Diving and recreational fishing in MPAs

Overall stakeholders prefer having areas within MPAs set aside as designated zones for diving and recreational fishing. Few stakeholders including recreational users supported diving and recreational fishing being allowed in all areas of the MPA (Fig. 6 and 7).

4.6. Protection of marine biodiversity

There was a significant difference between the score provided by fishers and those provided by other stakeholder groups on whether MPAs should have designated areas that fully protect species and ecosystems. Fishers provided the lowest score and hence had lowest support for the use of fully closed areas while conservationists??no conservation on graph? had the highest scores for this and supported it much more strongly (Fig. 8)

Recreational fishing permitted in all areas of MPA

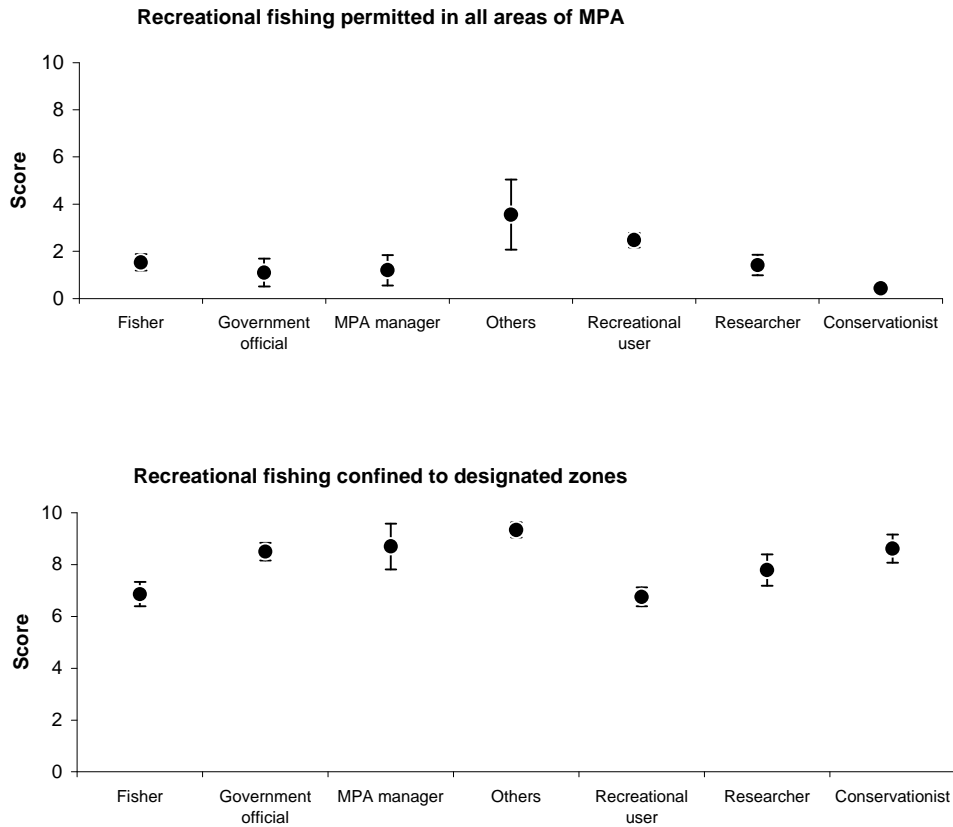**Recreational fishing confined to designated zones**

Figure 7: Scores of stakeholders concerning whether recreational fishing should be allowed in all areas of MPA or should be confined to designated areas.
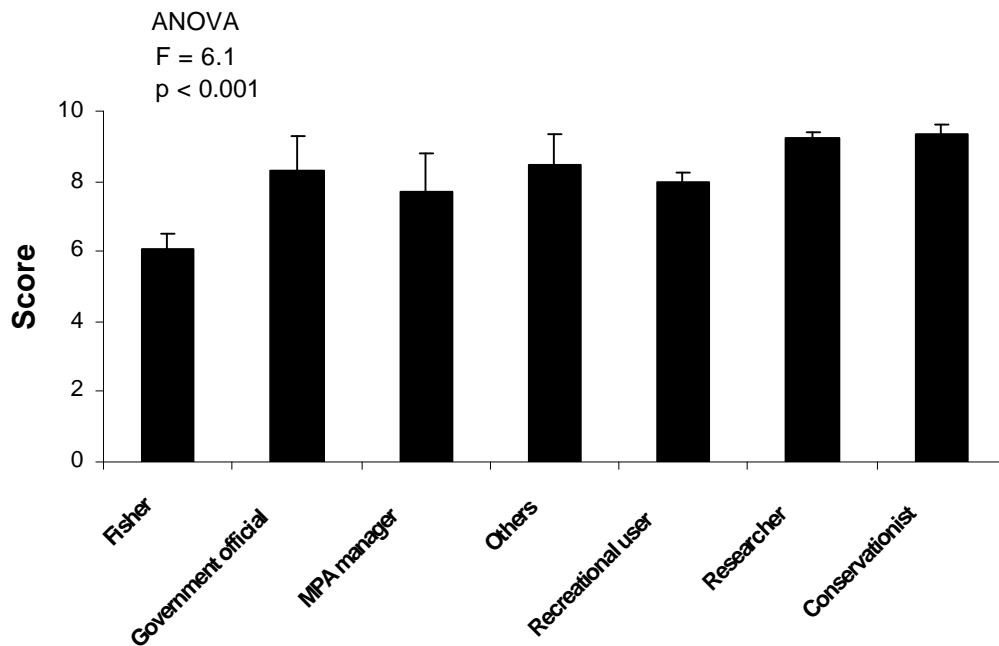

Figure 8: Scores of stakeholders concerning whether MPAs should have designated zones that fully protect species and ecosystems.

5. Discussion

The management of complex marine ecosystems should be simplified if there are shared perceptions among stakeholders on the objectives and ways to zone marine protected areas. Here, we examined the perceptions of stakeholders to determine areas of agreement and disagreement. Once areas of agreement are identified, the potential effects of these management methods can further be explored to determine if the management achieves the expected or desired effects. Similarly, once areas of conflict are identified, managers can focus on resolving them through further discussions or look into alternative management systems.

Respondents shared fairly similar perceptions concerning the objectives of marine protection. The core objectives of establishing MPAs are conservation and fisheries management while research, education and tourism development are secondary. There was however, a large difference between fishers and other stakeholders on which of the two core objectives is more important than the other. The fishers would like to see MPAs established to manage fisheries while the other stakeholder groups see MPAs as places of conservation. It is worth noting that categorizing the objectives of marine protection as we have done in this survey suggests a dichotomy between conservation goals and human needs whereas in fact there is a considerable overlap between these objectives. For instance, fisheries will not be sustained unless vulnerable life stages of exploited species are protected, nor will fisheries production be supported if essential natural ecosystem functioning is impaired (Hockney and Branch 1997, Roberts et al. 2003). However, our findings are important to understand local perceptions and values from the people who have a direct impact on the achievement of management objectives.

An area of strong agreement among stakeholders was that respondents perceived that MPAs which had been established for longer periods of time offered more conservation than fisheries benefits. This should be of concern for management as MPAs are expected, over time to increase yields in adjacent fishing zones and sustain the ecological basis of fisheries production. Among many other benefits, MPAs protect and increase fish stocks for spawning, and export larvae, recruits and adults into adjacent fishing grounds, reduce the risk of fishery collapse by maintaining a more diverse age structure and genetic base, and hedge against inevitable uncertainties (Alcala and Russ 1990, Roberts and Polunin 1991, 1993, Rowley 1994, Bohnsack 1998). A number of studies in the region have demonstrated how the present MPAs satisfy both fisheries and ecosystem management objectives (e.g. Francour et al. 2001, Claudet et al. 2008, WP2 report). Goñi et al. (2006) studied the spillover of spiny lobsters from Columbretes Marine Reserve using catch per unit effort data from commercial fishing boats. Their results showed that there was an export of lobsters from the reserve to the adjacent fishing grounds that was maintaining catch rates for fishers. Similar results were

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reported from Kenya by Kaunda-Arara and Rose (2004) and McClanahan and Mangi (2000). Kaunda-Arara and Rose (2004) used fish tagging experiments to study migration patterns of exploited species in Malindi and Watamu Marine parks. They found that three species of commercial importance exhibited consistent out-migrations from the parks into adjacent fishing grounds. McClanahan and Mangi (2000) conducted a fish trapping survey of the fishing grounds adjacent to the Mombasa Marine Park. Their study found that catch per trap, mean size of trapped fish and number of species caught per trap were higher nearer the park edge and declined away from the park edge. While there is increasing evidence that closing off areas is one of the most effective management tools for sustaining or increasing fish harvests, perceptions of fishers using adjacent areas of older MPAs indicate that they are not experiencing the benefits of the spillover effect.

Analysis of stakeholder perceptions towards zoning of MPAs and those towards diving and recreational fishing in MPAs indicate that respondents would like to see a hierachial limitation on the use of marine resources and the separation of conflicting activities. Such a zanation of usage is almost always practised in Mediterranean MPAs. However, there are MPAs that are still unzoned. Most of these are either integral reserves (comprised on a no-take area over the entire reserve e.g. Cote Blue) or are regulated for a single use throughout their area e.g. Lavezzi Nature Reserve used as a spear fishing area (Francour et al. 2001). Stakeholders view such one-zoned MPAs as not fulfilling fully the objectives of marine protection.

One of the factors influencing the success of a MPA is how well human activities within the protected area are controlled. For each activity, the effects on the environment and the conflicts it generates with other activities are important considerations. Our findings reveal that stakeholders would support the separation of areas for commercial fishing, diving and recreational fishing from those that protect marine habitats and species. Thus, ways to regulate these activities in protected areas should be pursued to improve the success of MPA implementation.

 It is expected that fishers will have a low support for fully protected marine areas as closed areas limit their fishing grounds. Until good evidence is provided which shows that fishers benefit from having such protected areas their attitudes and compliance towards area management will remain low. Our study shows that the views shared by fishers and managers on area management are polarised, and this is expected to make management of MPAs difficult to enforce. Nevertheless, these protected areas have been successful in increasing fish biomass and contributing to the export of fish biomass of some commercial species (Goñi et al. 2006, Claudet et al. 2008). It could be that fishers are not aware of these benefits because the scientific evidence has not been made accessible to them. It might also be due to high fishing effort and competition amongst fishers at the boundaries of existing MPAs. Fishers may therefore see MPAs as a benefit

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to recreational users and conservationists whilst restricting their access to resources. While MPA managers are more likely to weigh the direct and indirect benefits of such closed areas into their evaluation of protected areas, fishers are expected to be more concerned with the direct use values and will see protected areas as a loss of fishing grounds and access. Unless fishers appreciate the indirect effects of closed areas this dichotomy is likely to persist.

Conclusions

Despite the lack of a strong similarity in perceptions regarding the establishment of MPAs in the Mediterranean region, the management of these protected areas has been successful for enhancement of fish biomass (Goñi et al 2006, WP1, WP2). This suggests that shared attitudes are not essential to achieve the benefits of area management, although they are likely to improve compliance and reduce the costs of enforcement. In this study fishers' attitudes might be more supportive toward protected area management if they had greater recognition of the fisheries benefits of such areas. There is a need for greater communication between scientists, managers and fishers to improve the disparity in understanding the fisheries benefits of marine protection between these groups.

One method to obtain stakeholder input is to conduct structured and informal interviews to understand where a diverse group of stakeholders' preferences for management lie. While this may be less than feasible for some MPA practitioners due to time, budget and capacity constraints, obtaining significant stakeholder input in this way provides a viable way of addressing stakeholder concerns raised by the establishment of MPAs. The findings from this case study in eliciting stakeholder opinions on objectives and zoning of MPAs allow us to evaluate how stakeholders perceive marine protected areas as well as add new insights regarding similarities and differences between stakeholder needs, interests and concerns.

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Appendix:
Questionnaire used to survey stakeholders

Introduction

Multiple use marine protected areas (MPAs) are widely recognized as one method for managing large and diverse marine ecosystems. However, managing MPAs has been unsuccessful partly due to fragmentation of responsibility among different stakeholders. This has led to the establishment of protected areas with many different and sometimes overlapping objectives. In general overlapping stakeholder interests provide partial and uncoordinated solutions to management problems, and under some circumstances may create problems rather than solve them. What is needed is a framework that unites the common goals of fishery managers, conservationists, fishers and other stakeholders.

As part of the review into the design and effectiveness of MPAs in southern Europe, EMPAFISH work package 6 intends to survey different stakeholders to collect their views on the objectives and zoning of MPAs.

Aims

1. To collect views from stakeholders on the objectives that MPAs should fulfil in Southern Europe
2. To assess the degree to which different designations of MPAs fulfil these objectives
3. To help stakeholders, including decision makers, in the development of cooperation strategies for managing MPAs.

Stakeholders of MPAs will come from the following groups:

Fishing sector
1. Commercial fishers
2. Fishing boat owners
3. Fish traders
4. Fisherman's association

Tourism sector
1. Diving operators
2. Diving clients
3. Hotel industry
4. Recreational fishers
5. Tourism association

Conservationists
Researchers
MPA managers

NGOs
Public sector
Representatives from national ministries
Other interested stakeholders

MPA Name:———————   **Date:**———————
Type of stakeholder: _____

I. Questions about objectives of marine protection

Letter	Objectives of MPAs	Importance
A	To ensure protection of representative sections of the marine environment in southern Europe	
B	To protect marine biodiversity from damaging human activities	
C	To ensure protection of rare, localized or endangered species	
D	To prevent overexploitation by providing refuge areas for exploited species	
E	To protect breeding and nursery grounds of exploited species	
F	To improve or sustain yields in adjacent areas	
G	To provide undisturbed localities, populations and communities for research and education	
H	To promote and facilitate the development of tourism through the provision of sites that fulfil aesthetic needs	
I	To improve the extractive exploitation of certain species	

Q1. List the objectives from most important to least important using 1 = most important, 2 = second most important, 3 = third most important…9 = least important.

Q2. Determine the difference of importance between two consecutive objectives. If each pair of objectives is of equal importance to you, put 1. If it is two times as important, put 2. If it is 10 times as important, put 10.
Question: how much more important is 1 than 2?, 2 than 3?, 3 than 4? etc

| | Step 1 (objective letter) | | Step 2 (any number) |

Which is the most important?   1 ____

How much more important is 1 than 2? _____

Which is the second most important?   2 ____

How much more important is 2 than 3? _____

Which is the third most important?   3 ____

How much more important is 3 than 4? _____

Which is the fourth most important?   4 ____

How much more important is 4 than 5? _____

Which is the fifth most important?   5 ____

How much more important is 5 than 6? _____

Which is the sixth most important?   6 ____

How much more important is 6 than 7? _____

Which is the seventh most important?   7 ____

How much more important is 7 than 8? _____

Which is the eighth most important?   8 ____

How much more important is 8 than 9? _____

Which is the ninth most important?   9 ____

II. Questions about zoning

Definition of MPA zones

Zone A = No use zone: is the area of the MPA that is closed to all forms of use except for education purposes.

Zone B = Regulated (no extraction) use zone: is the area of the MPA where uses such as for diving and research are allowed but no resource extraction activities.

Zone C = Regulated (extraction) zone: is the area of the MPA where resource extraction is permitted under certain conditions e.g. for specified fishing gear types, seasons etc.

Zone D = Un protected zone: is the area where all uses are allowed.

Q3. How much does an MPA with zone A only, B only, C only, A, B and C together, A and B only, A and C only, and B and C only contribute to each of the following objectives? Rank how the different zonation of an MPA contributes to each of the objectives below using a 4 point scale. Put 4 where the MPA contributes very highly, 3 for highly, 2 for medium, 1 for low and 0 where it does not contribute to that objective at all.

	An MPA with…						
Objectives	Zone A only	Zone B only	Zone C only	Zones A, B & C together	Zones A & B only	Zones A & C only	Zones B & C only
Conservation							
Fisheries management							
Research and Education							
Tourism							

III. Questions focusing on specific categories of stakeholders

On a 10 point scale where 0 is strongly disagree and 10 is strongly agree, how much do you agree or disagree with the following statements?

Q4. Professional fishing in southern Europe:
a) In order to develop commercial fisheries, fishing should be permitted in all areas of the MPA.

0 1 2 3 4 5 6 7 8 9 10
Strongly disagree   ?   Strongly agree

b) In order to develop commercial fisheries, temporary zones should be designated where fishing is not allowed at certain times of the year.

0 1 2 3 4 5 6 7 8 9 10
Strongly disagree   ?   Strongly agree

c) In order to develop commercial fisheries, certain areas of the MPA should be permanently designated where fishing is not allowed.

0 1 2 3 4 5 6 7 8 9 10
Strongly disagree   ?   Strongly agree

Q5. Diving in southern Europe:
a) In order to develop the sector, diving should be permitted in all areas of the MPA

0 1 2 3 4 5 6 7 8 9 10
Strongly disagree   ?   Strongly agree

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b) In order to develop diving, MPAs should have designated zones where diving is not allowed and other zones designated where diving is allowed.

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

Q6. Recreational fishing in southern Europe:

a) In order to develop the sector, recreational fishing should be permitted in all areas of the MPA.

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

b) Certain areas of the MPA should be permanently designated where any form of fishing including recreational fishing is not allowed.

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

Q7. Marine conservation in southern Europe:

  a) Certain areas of the MPA should be designated that fully protect species and ecosystems

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

b) MPAs should be designated at sites with high biodiversity

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

Q8. Research and education in southern Europe:

a) Certain areas of the MPA should be designated for a better scientific understanding of how the marine environment works

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

b) The views of scientists on MPAs should be taken more important that those of other professions

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

c) The views of local stakeholders have equal weighting to those of national and international stakeholders

0   1   2   3   4   5   6   7   8   9   10
Strongly disagree   ?   Strongly agree

Q9. Institutions and authorities in southern Europe:

a) MPAs should be established with zones in order to separate activities that are conflicting

<div align="center">

0 1 2 3 4 5 6 7 8 9 10

Strongly disagree   ?   Strongly agree

</div>

b) For zoning to work, the stakeholders should respect the zones on their own initiative

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0 1 2 3 4 5 6 7 8 9 10

Strongly disagree   ?   Strongly agree

</div>

c) To implement zoning, the different stakeholders should participate in decisions about it.

<div align="center">

0 1 2 3 4 5 6 7 8 9 10

Strongly disagree   ?   Strongly agree

</div>

Thank you for your cooperation!