WCPA-Marine & WWF
Marine Protected Area Management Effectiveness Initiative

Application of the WCPA-Marine/WWF Guidebook on Evaluating Effective Management in MPAs

MIRAMARE

A Demonstration Case

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September 2003

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WCPA-Marine & WWF
MPA Management Effectiveness Initiative

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Table of Contents

Miramare Natural Marine Reserve

Introduction

Why perform MPA management effectiveness evaluations?

Marine protected areas (MPAs) are recognized as management instruments to protect marine biodiversity, to maintain/restore ecosystem health, and to provide coastal communities with a sustainable source for economic growth. However, most MPAs around the world face multiple issues, such as insufficient financial and technical resources, lack of trained staff, and lack of natural and social sciences research support. These issues severely impact MPA managers and practitioners in reaching the goals and objectives of their MPAs.

Measuring the performance of MPAs and their impact on natural environments and society is becoming a priority for many national governments, international organizations, and donors. Evaluating the effectiveness of an MPA provides results on the successes or failures in reaching the goals and objectives of the MPA and gives critical information to:

- Adapt management strategies to improve the MPA performance
- Set priorities for new projects and strategies
- Improve accountability, and
- Implement measures to maximize the MPA benefits to the society

The WCPA-Marine & WWF MPA Management Effectiveness Initiative

In 2000 the World Commission on Protected Areas-Marine (WCPA-Marine) and the World Wide Fund for Nature (WWF), initiated the MPA Management Effectiveness Initiative (MEI) to provide MPA managers and practitioners with a simple instrument to conduct an evaluation. This 4-year program aimed to increase international awareness of performing monitoring and evaluation in MPAs in collaboration with MPA managers and experts worldwide. A major product of this initiative is the guidebook *How is your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness*. It gives a step-by-step description on how to perform an MPA effectiveness evaluation, how to select and measure the most appropriate indicators, and how to use the results of the evaluation. The guidebook contains a set of biophysical, socioeconomic, and governance indicators, which are designed to measure management effectiveness in a wide range of MPAs.

Demonstration case report

Eighteen pilot MPAs, with diverse management objectives and environments, were selected to field test a draft of the guidebook to develop a flexible tool that could be used in many types of MPAs. Over a 6-month period, representatives from these MPAs participated in two activities: (1) a training workshop to learn how to use and apply the guidebook, provide feedback and select the most appropriate indicators for each site; and (2) measure the selected indicators in their MPAs and submitted their results and recommendations to improve the guidebook. Four of these pilot sites, with different environments and management systems, did a more in-depth report of their experiences to illustrate how the guidebook can be implemented.

This report is the case of the **Miramare Natural Marine Reserve** of Trieste, Italy, and how this particular MPA followed the field-testing process of the Guidebook. This case study will provide MPA managers and practitioners working in similar MPAs an example of how the guidebook can be applied and adapted to conduct management effectiveness evaluations.

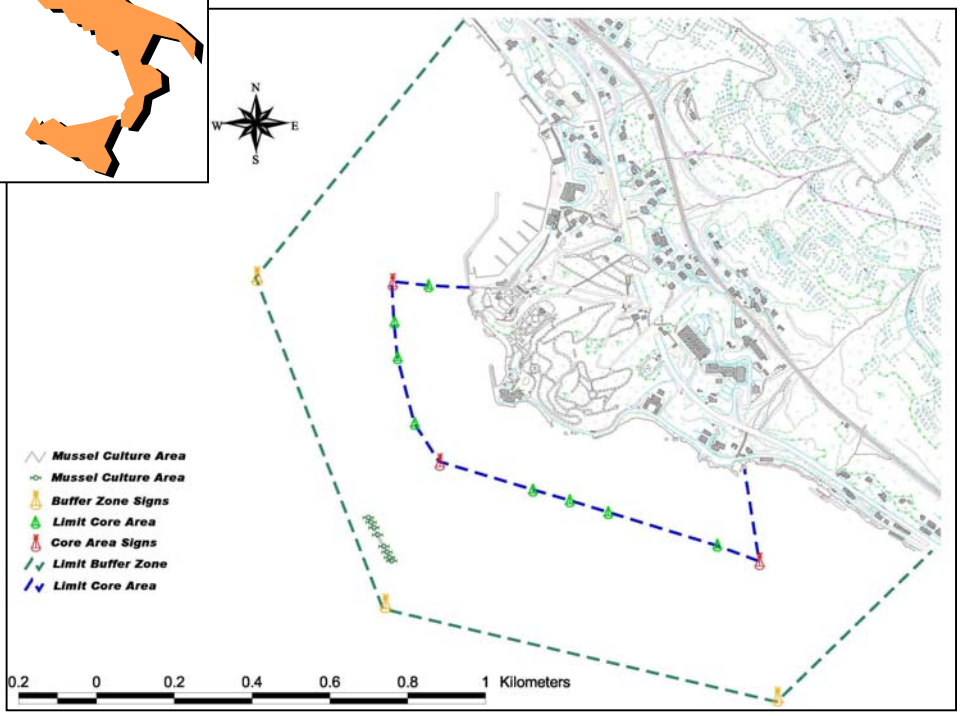
Descriptive Information

Name:	**Miramare Natural Marine Reserve**
Country:	**Italy**
Location:	**45°42'N; 13°42'E**
Area:	**1.2 Km^2**
Objective:	**No-take area**
Near City:	**Trieste**

The Miramare Natural Marine Reserve is probably the smallest functioning MPA in the Mediterranean Sea, and it is located about 8 km from the city of Trieste, Italy. The reserve area has a coastline of 1,700 m and an offshore area of 120 hectares (the MPA does not include land area). This area is divided in a *core* zone (30 hectares) and in a *buffer* zone (90 hectares). The maximum depth reaches 18 m.

Due to its geographic position and the geo-morphological structure, Miramare is a unique environment that represents most of the features and characteristics of the Gulf of Trieste. Some of the major ecological characteristics include:

- Tidal flats with significant tidal range (about 2 m)
- High temperature variation in the water column
- Fresh water flows from rain and several watershed systems (Isonzo, Timavo, and Tagliamento rivers)
- Coastal currents influenced by strong winds
- Both soft and hard bottoms represented along the coast
- Input of new oxygenated water into Mediterranean Sea (in winter)
- Eurihaline and eurithermal benthic communities, some of them adapted to intertidal conditions.



Regional characteristics

Miramare is located northeast of the Adriatic Sea and, from the ecological and environmental perspective it represents a very specific area of the Gulf of Trieste. Some common marine species from the Adriatic Sea are represented in this area, but because of the special characteristic of the northern Adriatic, this place is also home of unique species, such as *Fucus virsoides*, an endemic type of brown algae. Similar ecological and environmental characteristics of Miramare are difficult to find in the Adriatic Sea, but the site's conditions are similar to those found on the Istria peninsula. The area of Trieste is also notable for the interaction of a mountain range (Alpi Giulie) and the sea, which determines a high influence of rainwater and runoff sediments to the coastal areas. The oceanographic characteristics are determined by shallow waters (less than 50m depth), and by ecosystems such as sandy and muddy bottoms.

Social characteristics

Miramare is an urban MPA located within Trieste, one of the most important towns of northeastern Italy and home to 250,000 people. As with many Italian MPAs, the basic site management is ecologically oriented, and Miramare is devoted to the management of target-species of ecological and economic importance. Its primary function is to preserve target species in the area, and its biodiversity monitoring activities provide important data for universities and research institutions with which it has agreements. Miramare serves as a model of sustainable management for the entire Mediterranean region and conducts an annual course for other MPA managers in the area.

Since the site was created in 1986, the local population has become accustomed to it, and the older generation makes few efforts to learn more about the area or related marine issues. Younger residents tend to be more aware of the reserve's importance, because Miramare is the center of marine environmental education in the area, serving as an educational contact for marine science education at the primary and secondary levels and providing 8,000 students a year with classroom and field experiences.

The site also includes a visitor's center and museum that attracts 5,000 visitors a year – 1,000 of whom participate in scuba and snorkeling to view the site's underwater attractions.

It addition to attracting tourists to Trieste, Miramare supports the local economy by employing eight full-time staff members. The area also benefits economically because Miramare enhances of the populations of several fish species that are important in sport fishing. Forty percent of the site's funding comes from Italy's central governement, and 60 percent is raised through tourism and services (visitor donations, scuba diving fees, etc.).

Problems from local activities that impact the reserve include heavy metal pollution from industrial activities (compounded by sediment re-suspension caused by wind influence) and night fishing with artificial light that lures pelagic species from the reserve into fishing areas. One month out of each year, Trieste's tourist body organizes an exhibition in front of the reserve that causes light and sound disturbances. Tourist companies sometimes complain about navigation restrictions that prevent them from navigating too close to a historic castle located within the coastal boundary of the reserve.

MPA Establishment

- **Establishment date** The reserve was legally established in 1986, but it has existed since 1973 as a protected area designated by the local Coast Guard.

- **Legal framework and mandate** The Marine Reserve of Miramare is managed by the Italian World Wildlife Fund on behalf of Italy's Ministry of the Environment and Protection of the Territory (MEPT) by institutional decree enacted on November 12, 1986. Like all of the MPAs in Italy, Miramare has a mandate that includes the protection of the environment within the defined area, the promotion of science and research, the improvement of educational and outreach activities, and the task of increasing knowledge and awareness about marine conservation.

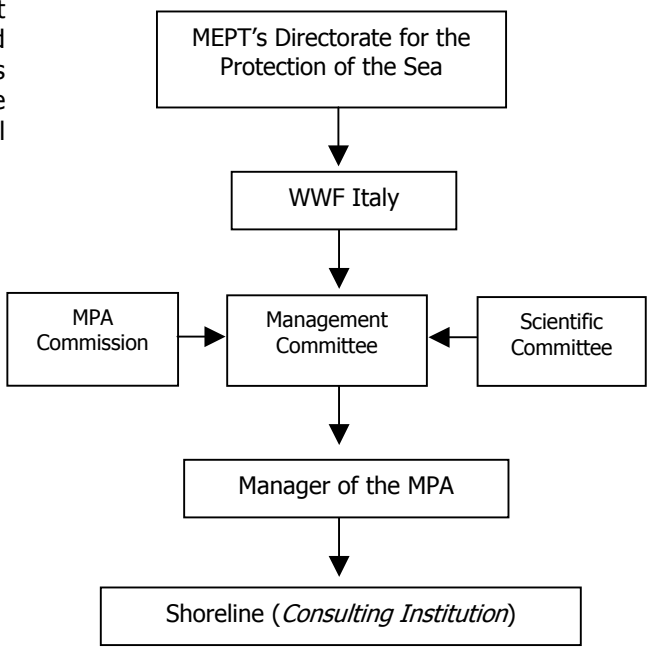
MPA Goals and Objectives

The aim of the reserve is to maintain ecological and biological diversity in the marine environment surrounding Trieste through scientific research and monitoring activities. The reserve also supervises educational programs designed for students and the public to spread knowledge with environmental education.

Institutional Arrangement

The MEPT has an agreement with WWF, which serves as the management institution for Miramare. The reserve also has three control bodies and one implementing body:

1) Protected Area Commission (11-12 people): Approves annual program, confirms and controls all activities of the reserve.
2) Private Management Committee (3 people): WWF staff that arranges daily activities on the site and confronts field management problems. This body gives the technical approval to the site manager for all management activities.
3) Scientific Committee (3-4 people): Supports all the annual monitoring and research activities and the educational programs and advises the site manager on technical issues on the MPA activities.
4) Shoreline Cooperative (private institution): Implement all management activities under a contract with WWF



Management System and Staff

The Miramare MPA does not have a conventional plan. Article 3 of the institutional decree that created Miramare establishes the central management goals and objectives of the MPA. Every year, based on these goals and objectives, the WWF management body proposes a provisional activities program to be submitted to the protected area commission and the MEPT. Once the program is approved, it's implemented by the WWF via Shoreline (with the supervision of the MPA manager). Miramare is the only MPA managed by a private institution in Italy (all others are managed by local public institutions, such as coastal municipalities).

In the MPA, managers, researchers and educators work daily full-time. Graduate students (MS and PhD) undertake research in collaboration with the MPA staff under the supervision of the Biology Department at the University of Trieste. All the employees have graduate degrees in biological or natural sciences with backgrounds in environmental protection and biological conservation; many of them previously trained as researchers at Miramare. Although the staff has experience in performing public opinion survey, the site does not employ any social or governance professionals.

The Miramare site manager also serves on Trieste's tourist coordinating board.

The Miramare site contains no residents or fisherman, so the staff works mainly with stakeholders outside the MPA. It collaborates mainly with fisheries, both professional and artisanal; the staff has surveyed fishing procedures and gear on fishing boats (with the reluctant participation of the fishermen). The Miramare MPA also plays a role in larger-scale decision-making activities in the Gulf of Trieste region. Teachers from the Trieste schools that participate in Miramare's educational program help plan the program activities each year.

Major Issues

Tourism affects the MPA and is also affected by it – tourism causes light and sound disturbances within the MPA, and the MPA's protected zone interferes with boat access to a historical site. Industrial pollution and fishing activities close to the MPA also harm the site's ecological balance.

Outreach, Training, and Stakeholder Participation

Since 1989, the site has received annually:
- 200 sea watching visitors (on average)
- 900 – 1200 divers
- 7000 - 9000 students from schools
- Four undergraduate students per year (on average)

The site supplies the following materials (some of which include summaries in English):
- MPA Guide on species found in the MPA
- Institutional and educational posters
- Educational manual for students and teachers (hard copy and CDs)
- Technical presentations at universities and schools
- Tourist and educational videos and a public web site (http://www.riservamarinamiramare.it)

MPA Evaluation Conditions

Evaluation system in the MPA
Before starting the experience with the MPA MEI project, the management staff did not do any conventional evaluation of the effectiveness of their management. Each year the protected area commission analyzes and evaluates the work that has been done over the past year and plans for future activities. The main objective in setting these plans is to achieve the MPA's overarching goals. Before this experience, only annual assessments evaluated the previous year's successes and areas for improvement as part of the process of planning the new year's activities.

For the MPA staff, the most important aspects of the MPA performance to be evaluated are the scientific programs conducted in the core area of the MPA. Next, it is important to assess the effectiveness of the educational programs in reaching their objectives, especially the goal of increasing the local population's knowledge of marine biology concepts and respect for conservation activities and regulations.

Within the management structure of the MPA, there are no procedures or restrictions regarding the use of results of a management effectiveness evaluation for adaptive management. Moreover, the staff is planning to present the evaluation results to the Ministry of Environment, and an adaptive management will be suggested to them to demonstrate that the system has worked for Miramare management activities. This will be a good communication system with the national MPA authority and a good way to promote the management effectiveness project within Italy's MPA network and internationally.

Benefits of doing management effectiveness evaluation
An ME evaluation will guide continuing research and community activities. Keeping records of evaluation performance over the years will help the MPA develop future management plans and determine new or improved activities to conduct. Preliminary indicator measurements suggest that future changes will include:

- A visual census extending beyond the MPA boundaries in order to improve comparisons across years

- Improved procedures for disseminating scientific results obtained from studies within the MPA and the surrounding area.

Main audience for a management effectiveness evaluation
The members of the protected area staff, the members of the reserve commission, and the ministry of the environmental resources will utilize the results from the ME evaluation. While the public is not the primary audience for the evaluation, they will benefit from the improved management procedures that will result from it, and an improved system for communicating ME results to the public will help them realize the importance of the MPA presence.

Use of the guidebook
The Miramare staff has been conducting scientific monitoring for several years, and these procedures integrate well with the guidebook's biophysical indicators. With the guidebook as a resource, the staff is laying plans for additional research that emphasizes the site's socioeconomic aspects.

Applying the Guidebook

Selected Indicators

Miramare selected the following indicators for the Draft Guidebook (see Annex 1 for a detailed list of the indicators contained in the Guidebook):

Goal	Objective(s)	Selected Indicator(s)
To protect and maintain Northern Adriatic (Mediterranean Sea) biodiversity (habitat, populations, species)	• To protect in space and in time focal species that are targeted for human use (both extractive and non- extractive) • To monitor the evolution in time and in space of habitat and/or populations and/or species	Biophysical indicators 3,7,11
	• To maintain aesthetic values of the area under the natural and artistic points of view • To spread the knowledge regarding marine biology, eco- sustainability, conservation, and importance of MPA presence in the community	Socioeconomic indicators 8/9,12,13,15,16
	• To manage the MPA effectively and to reduce coastal resource use conflicts	Governance Indicators 2,3,10,12

Staff Training and Use of the Guidebook

The staff members who worked on the evaluation read the guidebook and then discussed data collection strategies as a group. Since the researchers already specialized in procedures used to measure biophysical indicators – CTD probes, echosounders, radiometers, GIS software, GPS, etc. – they required no additional training in these areas. Plans for the coming year include improving staff knowledge of socioeconomic and governance aspects of MPA management, which will improve the measurement of these indicators, add value to the MPA management data, and allow the staff to apply the results in a more holistic fashion.

Who measured the indicators?
The MPA staff measured the indicators; specifically, this involved two reviewers, two divers, one diver assistant, two researchers to supervise the work in collaboration with the University of Trieste, one GIS analyst, and one CTD analyst.

Methods used
In all cases, the staff used the methods suggested by the guidebook to measure biophysical, socioeconomic, and governance indicators. For Biophysical Indicator #1, they also used classes abundance and size classes methods; for Biophysical Indicator #7, they added information from interviews with regional agency representatives.

Interpretation of the results
The staff has summarized the interpretation results as follows:

Biophysical Indicators

- Miramare accomplishes its role of conservation of local species of ecological importance. Initial results show that the core area of Miramare is an important aggregation area during the reproductive season for most of the focal species chosen for the study, and data obtained from external agencies suggests that the water quality has suffered no significant variation in the last 10 years.

- It's important to evaluate the impact of the staff activities – such as educational exhibits, scientific research, and diving activities within the core area – on the reserve. Future activities will include the creation of another small no-take area in the tidal flat to conduct comparative studies on the impact of research activities.

Governance Indicators

- The local community knows the general conservation rules of the MPA, but the MPA staff plans to use the local media to teach residents more about the functioning of the MPA (for instance, the roles of the buffer and core area of the site) so that they will understand the rationale for the rules.

- The MPA works only in accordance with its current mandate from the Italian government, which means that it refrains from undertaking activities – such as pure scientific research – that fall outside of that mandate.

- Compared with other MPAs in the Italian system, Miramare has a high compliance with rules and regulations of the national system. At the same time, increased interagency integration – e.g., improved coordination between Coast Guard and Miramare staff regarding enforcement procedures – will benefit the MPA.

Socioeconomic Indicators

- Miramare has an aesthetic value for the local community, and local residents appreciate the need to conserve coastal resources and preserve this particular area for future generations. At the same time, they dislike some of the restrictions associated with this preservation and do not always understand the many steps MPA staff must take in order to achieve the conservation goals.

  Knowledge of scientific terminology (e.g., "biodiversity") is limited, which hampers local understanding of the MPA staff's day-to-day work.

- Restoration efforts around cultural and historical sites located within the MPA limits (Castello and Castelletto di Miramare) command significant media attention and often overshadow conservation efforts.

Target for the Indicators

To measure the Biophysical Indicator #1, the staff measured the population of adult and juvenile fish inside and outside the MPA. Data collection on socioeconomic indicators involved work with residents of Trieste (the town closest to the MPA).

Biophysical: External stress and disturbance on the marine reserve, Fish population (adult and juvenile), health of ecosystem (through specie abundance).

Socioeconomic: Local population support (Trieste), people's input for MPA performance, economic impact on coastal-related activities.

Governance: Improve institutional interrelationship; influence enforcement and decision-making of other public institutions about disturbing coastal-related activities; all coastal related institutions (about 11 ministries involved at the national level)

Materials and Measurements

The evaluation required six staff people (breakdown of responsibilities described above). One of the staff's tasks was to prepare a questionnaire to collect data on the socioeconomic indicators. Since biophysical monitoring has been ongoing at the site, no additional materials or equipment were required to evaluate the biophysical indicators.

Measurement of biophysical indicators involved diving gears to do visual census, CTD probes to measure chemical and physical features of the water column, and GIS software and a differential GPS to map the areas free from extraction. Measurement of socioeconomic indicators involved phone and in-person interviews with local residents.

The staff used the methods suggested by the guidebook, except in the Biophysical indicator 1; in this case, they used the **Class of abundance** (Harmeli-Vivien *et al.*, 1985) and **size class** methods in order to survey the fish population. For socioeconomic and governance indicators, telephone and in-person interviews were conducted.

Limitations of Indicators

The staff noted that certain biophysical indicators, such as food web integrity, are difficult to measure because they involve too many variables and are open to a variety of interpretations.

Time restriction is a big limitation; evaluation has to be conducted in a long period of time in order to develop the methods to use and train staff or personnel to measure some indicators, specially the complex ones.

Interpretations of Results

Biophysical indicators 1
For the seven focal species analyzed, the staff obtained the following sequence of scores: 1, 5,5,5,5,5,5, which means that the first species is more abundant outside the protected area than inside it, and the other six species are more abundant inside the area. According to the guidebook's methods for interpreting results, the conclusion from these results is that the MPA isn't effectively protecting the first species. However, the researcher conducting this evaluation noted that the individuals of the first species found outside the MPA are smaller than those found inside it. Since the recruitment of the first species takes place in the buffer area close to the MPA boundary, it is likely that a "spillover effect" makes it difficult to obtain meaningful results for this species. Staff members have suggested that eco-ethological studies be undertaken to complement the results for this indicator.

Biophysical indicators 7
Miramare staff collects data on water characteristics, measuring variables such as currents, salinity, and temperature three times each day, and a regional agency conducts the analysis on this data.

The staff has suggested that for their particular site, oceanographic abiotic data may not be the best indicator of overall MPA effectiveness, and that they should focus more of their attention on biological indicators. Since local educational efforts are likely to be more effective at stemming pollution and other harmful effects on water quality, the staff suggests measuring local activities and opinions to determine how effective their educational programs have been.

Socioeconomic and governance indicators
Miramare's staff conducted in-person interviews with 60 local residents during the winter of 2002-2003. This provided sufficient data to conduct analysis, but staff members felt they could better measure these indicators by using a larger sample size and including more tourists, who are a key target audience of the site's educational programs. They intend to conduct more interviews during the warmer months, when more tourists and local residents are available for random interviews, and use a sample size of 1000.

Lessons Learned

Identifying and Measuring Indicators

Miramare's staff is enthusiastic about the method of evaluating management effectiveness by selecting and measuring specific indicators. They suggest doing further work to adapt the indicators to particular sites, noting that Miramare's location in an urban area with many historical sites and active industries makes the adaptation of socioeconomic and governance indicators especially necessary. In terms of the biophysical indicators, they caution that certain indicators can be affected by factors outside of the staff's control, and that some interpretation is necessary to distinguish between such factors (for instance, whether water temperature is affected by local activity or by global warming).

The staff noted that several factors – such as a lack of technical expertise, lack of funding, and lack of necessary staff time – made it difficult to select a set of indicators to measure effectiveness. At the same time, they did find the selection of indicators to be an interesting and valuable experience, and they were pleased with the flexibility of the indicators to be adapted to specific cases. They also enjoyed the opportunity to interact with and learn from management representatives at other MPAs, and found it useful to compare these other sites' choices and needs to their own.

For future planning, the staff noted that the evaluation process requires a significant amount of time, which should be built into future work plans, and that it will likely be necessary to hire an expert to measure the socioeconomic indicators.

Measuring Management Effectiveness

The Miramare staff determined that the results were useful in evaluating their MPA's effectiveness and in highlighting new activities that they can undertake to improve their management effectiveness, such as increasing patrolling efforts during the summer months and comparing data from inside and outside the protected areas in order to better evaluate the reserve effect. They also note that this experience was a good training exercise that helped them understand the importance of adaptive management, and they recommended the adoption of this evaluation system for regular use.

Benefits of the Experience

The most notable benefit of this exercise at Miramare has been extending their evaluation practices to include socioeconomic and governance indicators in addition to biophysical ones. Miramare staff had been conducting biophysical research in collaboration with the University in Trieste, and they are now considering creating a collaboration with additional faculty there in order to improve their monitoring of socioeconomic and governance indicators. During the annual process of determining objectives and activities, they plan to use the indicators to help them define new socioeconomic and governance objectives.

For the Miramare staff, this exercise allows them to maintain control over the decision making in a management process. The use of the guidebook is also an opportunity for them to undertake scientific research, such as comprehensive monitoring, and justify it to MEPT, which requires that research only be undertaken for management purposes.

The inclusion of Miramare in the MPA management effectiveness initiative process, and as a demonstration case for the World Parks Congress, will increase the site's international exposure, and the staff hopes that Miramare can serve as a model of management and MPA-MEI guideline implementation in Italy and other parts of the Mediterranean region.

Concluding Remarks

The Miramare staff view the adoption of the evaluation process as an opportunity for improving collaboration within Italy and on a regional level. Information provided by the indicators will help them advance productive relationships – for instance, by improving work with the Coast Guard and other coastal entities to strengthen regulations on activities close to the MPA. If other Italian MPAs adopt the guidebook method – a course that the Miramare staff strongly recommend – it will improve opportunities for comparing activities and data.

Miramare is considering the possibility of organizing a meeting to bring the World Parks Congress results to Italy and plan collaboration between MEPT, WWF-Italy, and WCPA-Marine for designing a strategy to extend the application of the guidebook to other MPAs in Italy. In a more long-range plan, they would also like to create a database that collects information from indicator measurements to enhance collaboration with other MPAs while also helping to validate the indicators and their results.

The staff also anticipates that the guidebook will help them to achieve certification under EMAS II, the EU's version of the latest ISO system to certify activities that meet standards for low environmental impact. The MEPT has requested that the protected areas undertake the EMAS certification, so Miramare is planning to use these indicators to determine the level of impact of some activities around the MPA (e.g., noise pollution).

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Annex 1

List of Indicators (A) contained in the Draft Guidebook and used by pilot sites to field-test the indicators, and (B) contained in the final version of the Guidebook

	A. Indicators used by the Pilot Sites Draft Version of the Guidebook (September 2002)	B. Revised list of Indicators Final Version of the Guidebook (September 2003) (*)
BIOPHYSICAL	B1. Focal Species Abundance B2. Focal Species Population Structure B3. Composition and Structure of the Community B4. Recruitment Success within the Community B5. Habitat Distribution and Complexity B6. Food Web Integrity B7. Water Quality B8. Type, Level, and Return on Fishing Effort B9. Area Restored B10. Area Under Reduced Human Use/Impacts B11. Area Free from Extraction	B1. Focal Species Abundance B2. Focal Species population Structure B3. Habitat Distribution Complexity B4. Composition and Structure of the Community B5. Recruitment Success within the Community B6. Food Web Integrity B7. Type, level and Return on Fishing Effort B8. Water Quality B9. Area Showing Signs of Recovery B10. Area Under No or Reduced Human Impact
SOCIOECONOMIC	S1. Household Perceptions of Availability of Seafood S2. Local Fisher Perceptions of Harvest S3. Material Style of Life of Households S4. Community Infrastructure S5. Household Occupational Structure S6. Number and Nature of Markets S7. Infant Mortality Rate S8/9. Perceptions of Non-Market and Non-Use Value of the MPA S10. Percentage of a Particular Group in Leadership Positions S11. Local Marine Resource Use Patterns S12. Local Values and Beliefs Regarding the Marine Resources S13. Changes in Conditions of Ancestral and Historical Sites, Features, and/or Monuments S14. Stakeholder Knowledge of Natural History S15. Level of Understanding of Human Impacts (Including Population) on Resource S16. Distribution of Formal Knowledge to Community S17. Income Distribution by Source by Household	S1. Local Marine Resource Use Patterns S2. Local Values and Beliefs Regarding the Marine resources S3. Level of Understanding of Human Impacts on Resources S4. Perception of Seafood Availability S5. Perception of Local Resource Harvest S6. Perception of Non-Market and Non-Use Value S7. Material Style of Life S8. Quality of Human Health S9. Household Income Distribution by Source S10. Occupational Structure S11. Community Infrastructure and Business S12. Number and Nature of Markets S13. Stakeholder Knowledge of Natural History S14. Distribution of Formal Knowledge to community S15. Percentage of Stakeholder Group in Leadership S16. Changes in Conditions of Ancestral and Historical Sites, Features, and/or Monuments
GOVERNANCE	G1. Existence of a management plan and adoption of plan G2. Understanding of MPA rules and regulations by the community G3. Existence of a decision-making and management body G4. Existence and adequacy of legislation to enable the MPA to accomplish its goals and objectives G5. Degree of stakeholder participation in management of the MPA G6. Level of satisfaction of stakeholders with participation G7. The amount and quality of training provided to resource users to participate in MPA management G8. The amount and quality of training provided to community organization to participate in MPA management G9. Community organization formed and active G10. Available human resources and equipment for surveillance and monitoring G11. Clearly defined enforcement procedures G12. Number and variety of patrols per time period per unit area G13. Effective information dissemination to enhance and support compliance of stakeholders G14. Regular meeting of MPA staff with stakeholders G15. Proportion of stakeholder trained in sustainable resource use G16. Number of stakeholders involved in surveillance, monitoring and enforcement	G1. Level of Resource Conflict G2. Existence of a Decision-Making and Management Body G3. Existence and Adoption of a Management Plan G4. Local Understanding of MPA Rules and Regulations G5. Existence and Adequacy of Enabling Legislation G6. Availability and Allocation of Resources G7. Existence and Application of Scientific Research and Input G8. Existence and Activity Level of Community Organization(s) G9. Degree of interaction between managers and Stakeholders G10. Proportion of Stakeholder Trained in Sustainable Use G11. Level of Training Provided to Stakeholders in Participation G12. Level of Stakeholder Participation and Satisfaction in Management Process and Activities G13. Level of Stakeholder Involvement in Surveillance, Monitoring and Enforcement G14. Clearly Defined Enforcement Procedures G15. Number and Variety of Patrols Per Time Period per Unit Area G16. Degree of Information Dissemination to Encourage Stakeholder Compliance

(*) Note: Some of the indicators contained in the Draft Guidebook (September 2002) and used by the pilot MPAs during the field-testing phase were altered for the final version of the Guidebook (September 2003). The indicators of the final version were revised, regrouped, merged, and/or renamed based on the comments and recommendations from the pilot sites and external peer reviewers.

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