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The marine protected area of Portofino, Italy: a difficult balance

Paola Salmona*, Debora Verardi

Facoltà di Architettura, University of Genova, Stradone S. Agostino 37, 16123 Genova, Italy

Abstract

The Portofino promontory extends for 13 km along the northwestern Italian coast. This peninsula has a rough coastline, steep seabed, and high indices of biodiversity, both in its terrestrial and marine ecosystems. In 1935, a terrestrial protected area was established, preventing the intense urban development and mass tourism that characterises nearby areas today. Presently, the economies of the small towns in the area are based on elite tourism and recreational boating. Based on an analysis of the uses of the area and their impacts on the coastal ecosystems, we suggest that the present activities significantly degrade the area's environment. In 1998, the national government created a marine protected area surrounding the peninsula. Some local authorities and many stakeholders from the nearby communities opposed the designation, fearing a decrease in tourism and stricter control over recreational activities. Two potential alternatives exist for the area: (a) maintaining a traditional system with short-term economic benefits; or (b) choosing an innovative, environmentally sound system of management providing intermediate and long-term economic and environmental benefits. © 2001 Elsevier Science Ltd. All rights reserved.

The Portofino promontory, located about 25 km east of Genoa, juts into the Ligurian Gulf and possesses 13 km of coastline along the Ligurian Sea. The peninsula is a hilly area that reaches a height of 610 m at the summit of Monte di Portofino. Three Communes (municipalities) of Camogli, Portofino, and Santa Margherita have jurisdiction over lands of the Portofino Peninsula.

The rocky promontory is an area of Meso-Mediterranean climate, where human intervention has modified the original Mediterranean scrub vegetation through agriculture, fire, and the introduction of exotic species. The marine areas surrounding the peninsula are rocky and marked by small submarine caves and canyons. These features create many different niches and habitats. The absence of

*Corresponding author. Tel.: +39-10-109-5858.

E-mail address: salmona@libero.it (P. Salmona).

major rivers and large-scale human intervention on the land prevents significant sediment transport, creating low turbidity and high oxygen concentrations in adjacent waters (Fig. 1).

In particular, the area's rocky substratum and the hydrodynamic conditions in the western sector allow establishment of a rich and varied coral biocenosis. Sea fans,

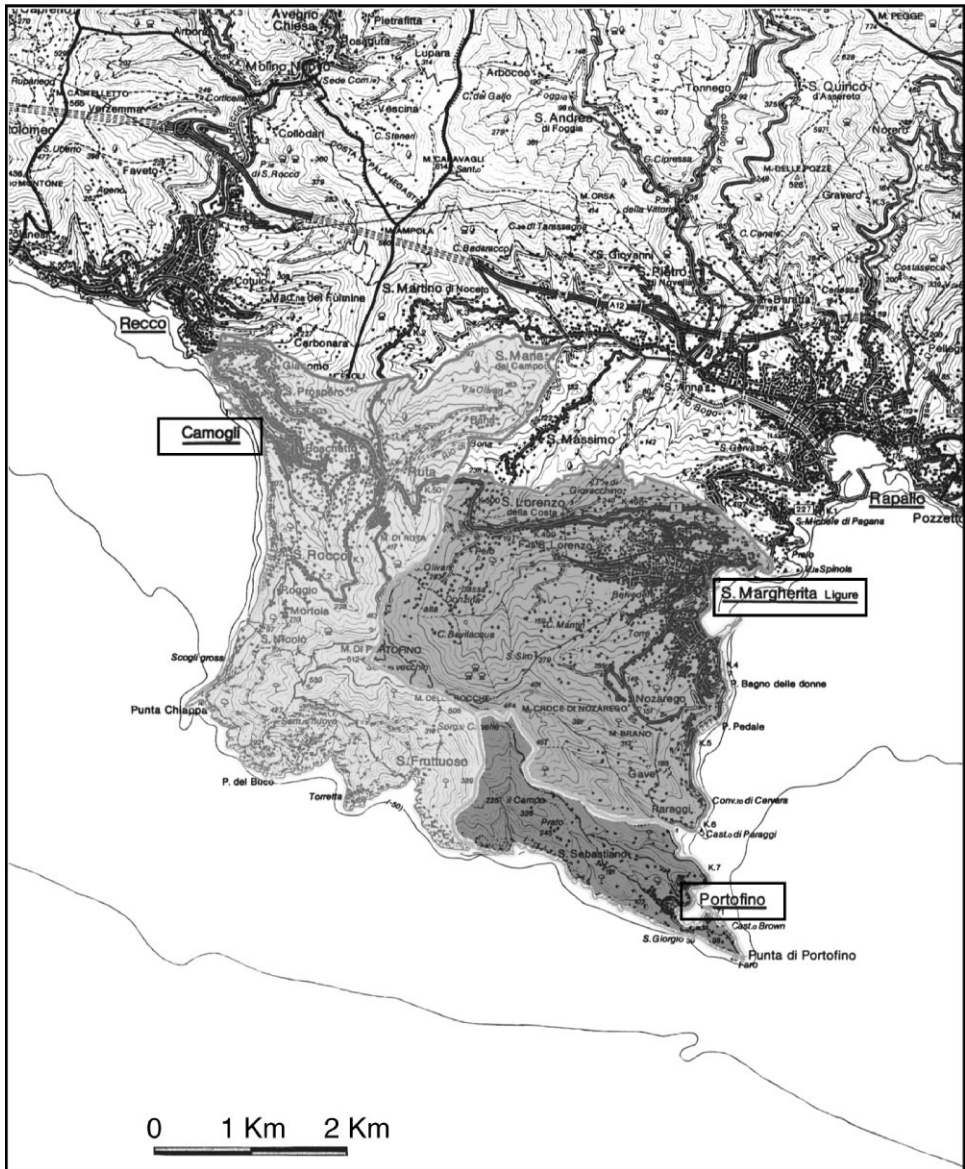


Fig. 1. Map of the area.

red coral, and some isolated or colonial madreporal species are among the most significant species. The eastern slope is more gradual and its most interesting formations are sea-grass (*Posidonia oceanica*) meadows. This marine phanerogam is of remarkable importance, above all because of the linked flora and fauna [1,2].

Originally, small fishing villages and some inland villages characterised this area. Olive trees, vineyards, and vegetables grew on the southern terraced slopes. On the northern side, at a higher altitude, chestnut trees were cultivated. An example of past times is the village of San Fruttuoso, a small, ancient fishing village built around a 10th century abbey.

Tourism grew in importance from the second-half of the 20th century alongside agriculture and fishing. The towns of Camogli, Portofino, and Santa Margherita became well-known seaside resorts noted for their landscape, fine climate, elegant hotels, and exclusive villas [3].

After World War II, the coastal tourist activities associated with these three communes developed to the detriment of traditional activities. As a consequence, their interior regions decreased in population, a large part of the farmland was abandoned, and the human pressure on the coast increased. The small fishing ports developed facilities for recreational boats, and yachting became one of the principal recreational activities. The coastal town centres grew with the majority of construction being holiday residences, but they failed to attain the growth of other Ligurian coastal resorts because of the territory's morphology. Today, the area maintains the characteristics of an affluent tourist resort, and the present economy is almost exclusively based on onshore and offshore tourism [4,5].

1. Key processes and issues

1.1. *The evolution of the area*

Camogli, Portofino, and Santa Margherita evolved differently from nearby towns. During the 1950s and 1960s, mass tourism development intensified in many Ligurian coastal towns, deeply modifying their landscape. As town centres expanded quickly, poorly planned holiday houses were built on the surrounding slopes [5].

The small fishing ports were enlarged and equipped with yachting facilities. In some cases, the sea-water quality degraded, and the currents, altered by the new waterfront construction, caused coastal erosion.

The growth of Camogli, Portofino, and Santa Margherita exhibits better planning for a few reasons:

1. *The presence of institutions advocating environmental protection:* The “Ente Autonomo Monte di Portofino” (Mount Portofino Autonomous Authority), a legal and administrative institution, was established in 1935 to protect the natural environment and the cultural heritage of the area. Its principal responsibilities were to control hunting, wood cutting, quarrying and grazing, and to restrict excavation and road clearing on the promontory. The institution also played an important role

in preventing unauthorised building and uncontrolled urban expansion. In 1978, the autonomous agency was abolished and the Regione Liguria (Ligurian Region) included the promontory and inland areas in its list of natural protected areas [6].

2. *The area's morphology*: The rough coast, steep slopes, and lack of roads discouraged building activity due to high costs.

3. *Influential tourists*: Some VIPs, frequent visitors to the area, awakened public opinion and convinced decision makers of the need to preserve the natural landscape of the area.

4. *The environmental awareness of some decision makers*: During the 1950s and 1960s, some local administrators resolutely opposed any project that involved dense and disorderly urbanisation of the area.

5. *The interest of scientists*: Scientists have studied the Portofino Peninsula and the surrounding sea for many years. Many published manuscripts describe the area and its ecosystems and point to the need for conservation [7].

As a consequence, the three towns improved the quality of their tourist facilities, rather than their number. For example, few villas were built on the hills. Instead, former farm houses were restored and enlarged and the surrounding agricultural land, transformed into private gardens.

The small existing fishing harbours rarely expanded, nor were new marinas built in the area. The decrease in number of fishing boats opened dockage space for recreational craft, up to 10 m in length in Camogli, 40 m in Portofino, and 60 m in Santa Margherita. Still, the total number of slips for recreational boats in the three harbours is much less than in neighbouring ports. Many facilities for yachting, sailing, and other marine-related recreational activities developed, offering visitors the same amenities of larger marinas [8].

1.2. *Environmental issues*

Even though the area survived the economic and real estate boom between the 1950s and 1970s relatively intact, a policy for effective environmental management never emerged. Onshore, the Ente Autonomo Monte di Portofino restricted activities hazardous to the ecosystem by means of legal decrees. However, the authorities never pursued active land use planning nor fostered an equilibrium between people and the ecosystem. The depopulation of the countryside caused a quick degradation of the human landscape. Many stone walls retaining the terraces soon collapsed, with landslides and soil erosion becoming more common. Thorny bushes gradually replaced many cultivated species. Moreover, the surveillance carried out by the Forestry Corps and the Ente Autonomo staff could not prevent all illegal activities. Illegal fires consumed large areas of the vegetation, and illegal waste dumping occurred. Some unauthorised buildings also appeared [9].

Currently, the area forms part of the Parco Regionale Monte di Portofino (Mount Portofino Regional Park) and the park authority is responsible for

its management. Since the park's establishment, park authorities has had two principal tasks:

(1) ecosystem protection and environmental restoration through slope consolidation, the creation of a water system to limit fire damages, and maintenance of important paths;

(2) implementation of environmentally sound agricultural and recreational uses of the area [10].

No environmental protection of the offshore waters existed before 1998. During the summer, many pleasure boats sail to these waters from the nearby ports of Camogli, Portofino, and Santa Margherita, or from Genoa and the larger marinas of Eastern Riviera [5,8]. Anchoring is possible in a narrow strip [11]. The ecosystems of these shallow waters are particularly stressed because of the mechanical action of chains and anchors, dumping of trash, and hydrocarbon spills from recreational vessels. Additionally, since the 1950s, the abundant marine resources of the area have attracted many sport fishermen. The situation was particularly serious prior to the early 1980s, when use of trammel nets, fish traps and scuba for sport fishing was still allowed. Consequently, populations of some species, especially sedentary ones, decreased significantly. Date mussel harvesting through use of explosives which destroys the rocky habitat of these shellfish produces a negative environmental impact. Some individuals still use this technique, although it is prohibited nationally. Since the 1983 prohibition on use of scuba equipment, traps and nets by sport fishermen, resource degradation has declined.

A narrow strip of coastal waters varying between 0 and 30 m deep attracts large numbers of scuba enthusiasts. Scuba diving used to imply the collection of valuable or decorative sedentary species, such as red coral, but today scuba associations and diving schools guarantee some control of this activity. However, scuba divers still cause negative environmental impacts. For example, inexperienced scuba divers stir mud from the sea bottom and may bump into and damage benthic organisms [12].

The Environment Ministry declared a marine protected area (MPA) adjacent to the peninsula in June 1998, but regulations still do not exist. The ministerial decree outlines the boundaries, zoning, and temporary regulations for the protected area [13]. These measures provide some restrictions over uses of the offshore areas, and have stimulated conflicts among interested groups.

Presently, the only actual regulation requiring monitoring of offshore and waterfront activities is the bathing season ordinance, issued at the beginning of summer by the harbour offices at Genoa and Santa Margherita. This ordinance regulates boating, bathing, and sport fishing [14,15].

Another environmental hazard, not only for the sea surrounding the Portofino Peninsula, but the entire Ligurian coast, is land-based source pollution. Tourist pressure in coastal towns during summer doubles their population, causing the overloading of sewer systems. These systems are often insufficient for the resident population or do not function properly for lack of maintenance. Moreover, during periods of high rainfall, rivers carry mud, waste, and pollutants from inland villages to coastal waters [16].

1.3. *Socio-economic issues*

The peculiar evolution of this area has preserved its identity, but at the same time led to a very rigid economic system. A large gap exists between tourism operators and related activities and employment in any other activity. The tourist supply, moreover, comes from a very small number of affluent visitors, and this activity is subject to many factors, such as weather or vessel number and size [17,18].

A paradox exists between the tourism and the ecosystem. On the one hand, awareness exists that the local economy is primarily based on the area's environmental values. On the other hand, the tourism industry wants to remain as unregulated as possible. The high income produced by this elite type of tourism has discouraged any innovation. Tourism operators consider the introduction of a cheaper, more sustainable tourism development, suitable to other segments of population, as a threat to their stability. The demand for tourist field operators is almost saturated, so few opportunities for new employment exist. Often economic operators are branches of firms whose head offices are located outside the area. These factors have led to a greater decrease in resident population than in the rest of Liguria during the last few years. The situation is more apparent in Portofino, where there are few alternative employment activities, compared to Camogli and Santa Margherita, where fishing, agriculture, and manufacturing activities still remain important [4].

1.4. *Territorial planning*

Land use planning of the Portofino Peninsula is rather complex because of the simultaneous existence of many regulations and territorial planning tools that in some cases overlap and in other cases leave gaps. No integrated plan exists for the management of all components of the coastal area. Existing planning tools, refer principally to the onshore coastal area or to the waterfront, while effective management of the offshore sector still does not exist. A territorial plan covering the whole Ligurian coast is still in the planning stage. Presently, however, the only provisions regarding the marine zone are a restrictive set of rules that are national in scope for fisheries and local for bathing and boating. A coordinating committee (consortium) responsible for management of the MPA has yet to promulgate regulations for the area. Table 1 describes the environmental planning tools utilised by authorities in the area.

2. **The coastal conflict**

Since the late 1960s, environmental associations and local and state agencies have submitted numerous proposals for the protection of the sea surrounding the Portofino Peninsula. Local stakeholders have viewed all those proposals with reservation, skepticism, or outright opposition. Imposition of some restrictions on

Table 1
Planning tools utilised in the area

Planning tool	Promoter	Field	Stewardship	Implementation	Short description
Town planning scheme [28]	Municipality of Camogli	Onshore/waterfront	Municipality of Camogli	It expired in 1988 but has yet to be revised	It has the task of defining the land use planning of each municipality's territory. It must indicate:
Town planning scheme [29]	Municipality of Portofino	Onshore/waterfront	Municipality of Portofino	It expired in 1997 but has yet to be revised	<ul style="list-style-type: none"> ● the main lines of communication
Town planning scheme [30]	Municipality of Santa Margherita	Onshore/waterfront	Municipality of Santa Margherita	In force since 1996	<ul style="list-style-type: none"> ● the zoning of the municipality's area ● the areas devoted to public use or subject to particular restrictions ● the areas devoted to public buildings or to facilities for the public welfare ● the restrictions of any kind ● the scheme's implementation rules
Landscape coordination territorial scheme [31]	Liguria Regional Authority	Onshore	Liguria region	In force since 1994	<p>It manages Ligurian landscape. It is made by three related parts: vegetation, buildings, and geomorphology. The scheme deals mainly with:</p> <ul style="list-style-type: none"> ● landscape quality ● access to the territory and the enjoyment of its resources ● conservation of the natural and cultural heritage ● ecosystem improvement ● management of non-renewable resources

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Table 1 (continued)

Planning tool	Promoter	Field	Stewardship	Implementation	Short description
Watershed plan [32]	Province of Genoa	Onshore	Magistrato Torrent and San Siro Torrent basins	Preliminary studies are under way	It manages the Province's watersheds, especially those areas that might be subject to floods. It is the basis for preventing hydrogeological hazards and for the co-ordination with the Civil Guard
Law no. 431/85. (Galasso's Law) [13]	Italian government	Onshore/waterfront	300 m landward from the shoreline	In force since 1985	It protects coastal areas landscape, water courses and many other peculiar ecosystems in Italy
Portofino regional park plan [33]	Portofino Regional Park Authority	Onshore	Portofino Regional Park area	A general management plan, started in 1990, is being approved	
Bathing season ordinance — Genoa	Genoa's Harbour Office	Waterfront/offshore	A sea strip 200 m wide from the shoreline in case of beach and 100 m wide from the shoreline in case of rocky coasts	Summertime from 1/5 to 30/9 Summertime from 1/5 to 30/9	It regulates bathing, water sports, and navigation close to the shoreline
Bathing season ordinance — S. Margherita	Santa Margherita Harbour Office	Waterfront/offshore			
Fisheries regulations [13]	Italian National Government	Offshore	Internal waters and territorial sea	Under development	

Marine protected area [13]	Environment Ministry	Waterfront/offshore	Not yet developed	Designated in 1998, but is not implemented yet	Regulations have not been adopted yet
Regional plan for the recovery of water resources [16]	Regione Liguria	Onshore/offshore	Territorio Regionale Liguria	Came into force in 1982 and was updated in 1991	It is the tool for the conservation and the use of water resources and for the planning of actions concerning waterworks, sewers and purification plants. It is strictly connected with the watershed scheme
Territorial plan for the coast [34]	Regione Liguria	Onshore/waterfront	The entire Ligurian coast	The project was adopted in 1999. Now it will be submitted to the involved municipalities and should finally be approved by 2000	<p>It co-ordinates actions on the coast according to the principles of sustainable development. Its aims are:</p> <ul style="list-style-type: none"> ● conservation and valorisation of the most valuable coastal areas ● rearrangement of urbanised coast ● defence of the shore from marine erosion ● implementation of public enjoyment and of recreational uses of the coastal zone ● updating and development of marinas ● reuse of the abandoned railway rights-of-way ● improving of coastal transportation system

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Table 1 (continued)

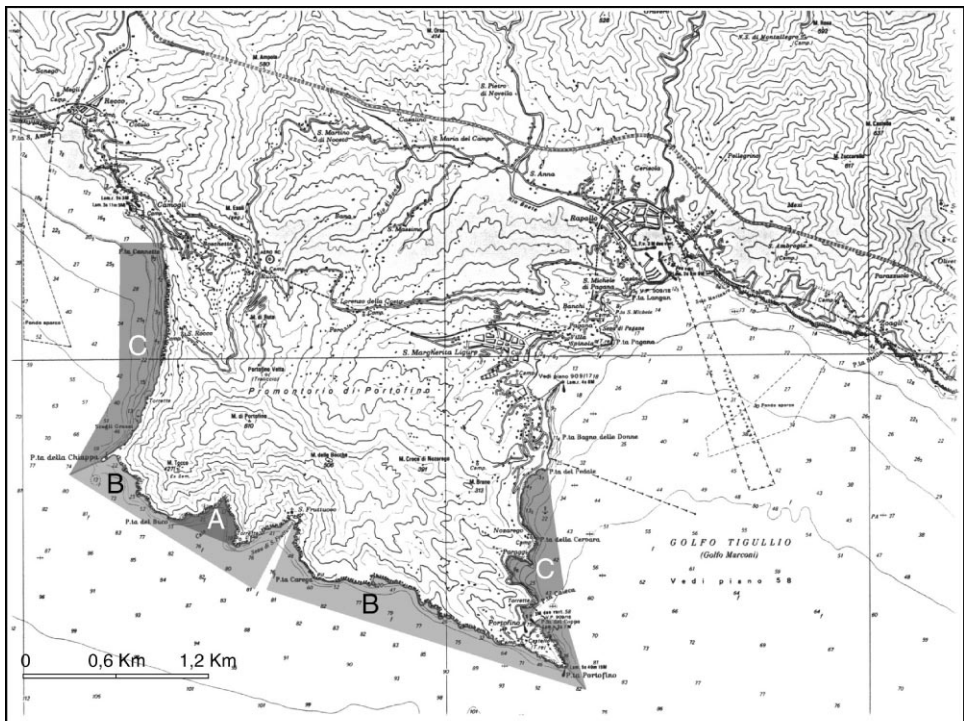
Planning tool	Promoter	Field	Stewardship	Implementation	Short description
Santuario dei Cetacei whale sanctuary [33]	Italian Government, French Government, The Principality of Monaco's Government	Offshore	A large triangle in the Ligurian Sea in the territorial sea of Italy, France and The Principality of Monaco	The Italian government is implementing a preliminary protected area	<p>The Italian proposal for the institution of a Cetacean Sanctuary aims to:</p> <ul style="list-style-type: none"> ● strengthen surveillance inside the area ● reduce pollution ● phase out the dumping of toxic compounds in the area ● control tourist "whale watching" ● restrict or forbid high speed craft competitions ● forbid the catch and the deliberate disturbing of marine mammals ● forbid the use of drift nets by 2000 ● regulate the use of new fishing tools

offshore and waterfront uses might have diverted some activities to other tourist resorts [19].

The Merchant Marine Ministry, through Law 979/82 (“Law for the Protection of the Sea”), included the area on the list of marine reserves in 1982. Later, the Framework Law 394/91 on natural protected areas confirmed this designation [20]. On 13 September 1997, the Environment Ministry announced that it intended to create the MPA of Portofino within 3 months and establish boundaries. Formal creation occurred on 6 June 1998 by ministerial decree. However, the decree did not immediately designate the managing agency.

As a consequence of the dialogue between the Environment Ministry, the Liguria Region, the Portofino Regional Park, and the stakeholders, the Environment Ministry emitted a new decree on 7 June 1999 that replaced the existing one. It slightly reduced the boundaries of the Marine Protected Area, enlarged the channels that reach some coastal villages and, amended some regulations regarding sport fishing, diving and recreational boating (Fig. 2 and Table 2) [13].

Following the formal creation of the MPA, a few loud protests occurred, including processions of vessels into the designated MPA, petitions addressed to the



A strict reserve zone **B** general reserve zone **C** partial reserve zone

Fig. 2. Zoning of the MPA.

Table 2
Regulations of the MPA

Zone	Forbidden activities	Allowed activities
(A) Strict reserve zone	Removal and damaging of species of flora and fauna; introduction of exotic species; alteration of geomorphological features and dumping; introduction of weapons, explosives and toxic or polluting compounds; entry and navigation; bathing; professional and sport fishing	Scientific research; controlled entry of boats for surveillance, rescue, research, and service
(B) General reserve zone	Removal and damaging of species of flora and fauna; introduction of exotic species; alteration of geomorphological features and dumping; introduction of weapons, explosives and toxic or polluting compounds; underwater fishing; anchoring; unauthorised mooring	Entry of boats for surveillance, rescue, research, and service; entry of small sailing or rowing boats (maximum length 6 m) to reach the mooring areas; professional fishing only for the people living in the municipalities of Camogli, Portofino and S. Margherita; mooring at authorised facilities; bathing; diving; sport fishing from the shore with fixed fishing rods; sport fishing for residents from boats with fixed fishing rods; collecting organisms and sediments for study
(C) Partial reserve zone	Removal and damaging of species of flora and fauna; introduction of exotic species; alteration of geomorphological features and dumping; introduction of weapons, explosives and toxic or polluting compounds; underwater fishing; anchoring; unauthorised mooring	Entry of boats for surveillance, rescue, research, and service; entry of small sailing or rowing boats (maximum length 6 m) to reach the mooring areas; professional fishing only for the people living in the municipalities of Camogli, Portofino and S. Margherita; mooring at authorised facilities; bathing; diving; sport fishing from the shore with fixed fishing rods; sport fishing from boats with fixed fishing rods; collecting organisms and sediments for study
Sea adjacent to the protected area	In a belt 1000m wide from the protected area's boundaries, speed should not exceed 10 knots	

Environment Ministry asking for revocation of an allegedly unjust measure, and protests in newspapers and on television. A series of meetings and discussions followed these unsuccessful protests, and attempts were made to reach a compromise. The conflict, which clearly places the economic interests of some sectors of the tourist industry against ecosystem protection, has yet to be resolved.

A debate based on environmental ethics is at the centre of the conflict. One development ethic is based on the exploitation of the ecosystem that produces short-term results, while another model is founded on sustainable management of natural resources and produces long-term results. The economy of the area reflects the first

model, developing during a period of great economic expansion, when environmental issues had little importance. Attempts to preserve the ecosystem might cause some restrictions to the existing elite tourism industry. However, new opportunities related to an ecologically sound tourism which addresses a diversified clientele might result. The potential changes might threaten existing interests.

Conflicting relations may take many forms. They might cause:

- an increase of unfavourable actions towards some uses,
- economic disadvantages for one or more uses,
- hazards for tourists or residents,
- degradation of the environment,
- loss of aesthetic values, or
- territorial competition among uses.

A square matrix (uses–uses matrix) is useful to graphically point out the conflicting situations [21]. We include uses of the Portofino Regional Park in the matrix, even if its current management structure is unconnected to that of the offshore ecosystem or the waterfront. The matrix illustrates that conservation of the marine and the coastal protected areas potentially conflict with:

- recreational boating and navigation (transportation routes, anchoring, vessel pollution),
- sport fishing, both from the surface and scuba diving,
- bathing in the strict reserve zone (Zone A),
- diving in the strict reserve zone (Zone A) and in the general reserve zone (Zone B), and dumping and other activities that cause pollution.

We consider some interactions between the MPA and other uses as neutral because they depend upon the management of the area and on its efficiency.

Conflicts at or near the waterfront are less in number and degree and refer mainly to bathing in the strict reserve zone, sport fishing, and activities that cause pollution or alteration of the coastal morphology.

Moreover, many conflicts between recreational uses exist, regardless of the presence of the MPA because of space conflicts and physical hazards [22]. For example, although the Bathing Ordinance strictly limits boating and sport fishing near the shoreline, many provisions of the Harbour Office are not enforced, especially regarding vessel speed and their distance from shore. The lack of compliance with existing regulations makes implementation of additional MPA rules even more difficult [14,15].

We correlate uses of the coastal area with the different components of the ecosystem through a rectangular matrix that compares impact on ecosystem components [21]. The matrix clearly contrasts activities that protect the marine and coastal environment with others that cause unfavourable impacts. In the matrix, we define: (1) negative impact, (2) positive impact, (3) neutral impact, and (4) no impact.

Fig. 3 is a rectangular matrix that summarises the negative impacts of various onshore and offshore activities on the components of the marine and terrestrial ecosystems of the Portofino Peninsula. It illustrates the need for environmental

IMPACTS OF COASTAL USES ON THE ECOSYSTEM		ECOSYSTEM COMPONENTS													
		ABIOTIC COMPONENTS					BIOTIC COMPONENTS								
		ATMOSPHERE	OFF-SHORE	WATERFRONT	ON-SHORE	OFF-SHORE	WATERFRONT	ON-SHORE							
		LOW ATMOSPHERE	WATER SURFACE	WATER COLUMN	SEA-BOTTOM	SEDIMENTS	SHORE-LINE	RIVERS	GROUNDWATER	SOIL	SUB-SOIL	PLANKTON	NECTON	BENTHOS	VEGETATION
OFFSHORE	FISHERIES	TRAWLING FISHERIES	●	●	●	●									
		OTHER FISHERIES	●	●	●	●									
	NAVIGATION	CRUISE BOATS	●	●	●	●									
		FISHING BOATS	●	●	●	●									
		FERRY BOATS	●	●	●	●									
	RECREATIONAL ACTIVITIES	SAILING	●	●	●	●									
		MOTOR YACHTING	●	●	●	●									
		WATER SPORTS	●	●	●	●									
		SURFACE SPORT FISHING	●	●	●	●									
	SEWAGE	TREATED SEWAGE	●	●	●	●									
UNTREATED SEWAGE		●	●	●	●										
VESSEL DUMPING		●	●	●	●										
SURVEILLANCE	PORT OFFICE'S CRUISES	○	○	○	○										
WATERFRONT	ECOSYSTEM	MARINE PROTECTED AREA	○	○	○	○									
		RESEARCH	●	●	●	●									
	FACILITIES	FISHING HARBOUR	●	●	●	●									
		FERRY BOATS QUAY	●	●	●	●									
		MARINAS	●	●	●	●									
		WATER SPORT FACILITIES	●	●	●	●									
	RECREATIONAL ACTIVITIES	BATHING	●	●	●	●									
		SPORT FISHING	●	●	●	●									
	ECOSYSTEM	MARINE PROTECTED AREA	○	○	○	○									
		REGIONAL PARK	○	○	○	○									
ONSHORE	SETTLEMENTS	TOWNS	●				●	●	●	●				●	
	TOURISM	HOLIDAY HOUSES													
		HOTELS													
		CATERING													
		FARM HOLIDAYS													
		CAMPSITES												●	
	INDUSTRY	MANUFACTURING ACTIVITIES						●	●						
		BUILDING ACTIVITY												●	
	AGRICULTURE	INTENSIVE AGRICULTURE						●	○					○	
	COMMUNICATION	RAILWAY						●	●	●				●	
		STATE ROAD	●						●	●				●	
	SERVICES	LOCAL ADMINISTRATION	●	●	●	●	○	○	○	○	○	○	○	○	○
		SECURITY CORPS	●	●	●	●	○	○	○	○	○	○	○	○	○
		CIVIL DEFENCE	●	●	●	●	○	○	○	○	○	○	○	○	○
		HEALTH & SOCIAL SERVICES													
TRADING															
TRANSPORT & STORAGE															
EDUCATION	PRIMARY SCHOOL														
	SECONDARY SCHOOL														
	UNIVERSITY	●	●	●	●	●	●	●	●	●	●	●	●	●	
RECREATIONAL ACTIVITIES	TREKKING												●		
	CULTURAL ACTIVITIES												●		
ECOSYSTEM	REGIONAL PARK						○	○	○				○		
	RESEARCH	●					●	●	●				●		

Fig. 3. Uses–ecosystem matrix.

protection measures in the marine area. A marine protected area is only one necessary measure. Others, such as fisheries regulations and measures to control land-based sources of pollution, might also be appropriate [22].

3. The actors of the conflict

Two sentences synthesise the conflict between a policy of status quo or changing the present situation: “No to the MPA”/“Yes to the MPA”. The actors fall into one of these two camps. Both categories contain more or less radical positions.

In the Municipalities of Santa Margherita and Portofino, many stakeholders adopted a unified position, while the interested parties in Camogli often took opposite positions. This fact is mainly due to some differences in the economic systems on the two sides of the peninsula. On the east side, in the whole Tigullio area, yachting and recreational boating play a very important role, as is evident by the existence of several marinas and nautical facilities. Moreover, the area’s economic livelihood depends principally on Rapallo and Chiavari, and the communes of Santa Margherita and Portofino are its leading tourist resorts.

In Camogli and the Golfo Paradiso on the western side of the peninsula, the tourist industry is based upon trekking, bathing, and diving activities. This area is closely connected with Genoa and is only indirectly affected by the development of yachting in the eastern municipalities [4].

In the winter 1997/1998, we conducted interviews with some stakeholders regarding the socio-economic scenario that could coexist with the MPA. We spoke with representatives of the local economic interests; sport and environmental associations in the area of Santa Margherita, Portofino, and Camogli; the agencies with authority in this territory (the Ligurian Region; the Portofino Regional Park; the Municipalities of Santa Margherita, Portofino, and Camogli); as well as three experts in the marine environment and land use planning from the Marine Environmental Science Institute and Faculty of Architecture of the University of Genoa. The 19 persons interviewed answered 25 questions, 13 of which were general in nature and the remaining 12, more specific. The questions were divided into three themes: (1) the circumstances of a socio-economic conflict as a consequence of the institution of the MPA, (2) the impact of new issues in territorial management, and (3) awareness of the new planning tools. We present the findings from our interviews below.

3.1. Positions opposing the MPA

The Tigullio yachting associations; nautical operators; the three municipalities; Santa Margherita and Portofino tourist operators and tradesmen oppose the MPA. The interests of these categories are based primarily on their perceived economic impact. The nautical operators and communal administrations strongly supported recreational boating. These stakeholders view the future of tourism in the area as a continuation of the current model with a mere growth in the number of

accommodations. Recreational boating in the area, closely correlated with temporary visits from an elite patronage, has consolidated over time as an economic activity capable of coexisting with the terrestrial Portofino Regional Park. Local communities place their economic hopes in the sea adjacent to the park, and they are opposed to restrictions in this area.

Recreational boating may experience unfavourable impacts due to the designation of the MPA, particularly because of the enforcement that zoning will require. The Harbour Offices of Genoa and Santa Margherita and the protected area's staff will have the responsibility of supervising and controlling activities that the Bathing Season Ordinance already limits, but in reality are uncontrolled along the whole Ligurian shoreline. In practice, to restrict such activities on a regional scale is very difficult, but the enforcement of these regulations inside this protected area must be a priority.

The social conflict has already begun. Some stakeholders have organised the “No to the Marine Park Committee”, forming alliances with municipalities and voicing their disagreement with the Environmental Ministry's proposal. A few yachting associations, whose head offices are located in the area, have expressed a limited acceptance to the project, acknowledging the area's scientific value, but believing it should be subordinate to their economic concerns. Their proposal is to protect areas less accessible by boat (i.e., deep areas where anchoring is very difficult) and keep the remaining areas open.

In the opinion of municipal authorities, the implementation of an MPA would be harmful to the local economy and provide no benefit for the ecosystem. Representatives believe it is meaningless to restrict the enjoyment of an area without first solving the environmental problems on a larger scale [22].

3.2. Positions supporting the marine protected area

Environmental associations with interests in the Ligurian Region, scientists, the Portofino Regional Park, and several economic interests agree with the institution of an MPA. The reasons for their positions reflect the need for preservation of a particularly valuable ecosystem for the benefit of all people. Some environmental associations make this their priority and assert that the economic operators of the area should develop new ecologically sound enterprises. They propose a series of ecotourism activities that would produce positive long-term benefits for the local economy. Other supporters assert the possible coexistence of the present economic system with environmental conservation, by increasing the natural value of the area. Camogli's ferrymen, tradesmen, and a few diving associations enjoy economic benefits from the implementation of the marine protected area. Water quality, clean beaches, and the integrity of the marine ecosystem are essential elements for the sustainable development of the area. All these groups stress the need for active management of the protected area, so that it may become a leading factor in the evolution of the area's economy [22].

4. Evolution of the conflict

Stakeholders expressed the above opinions before the designation of the MPA. We conducted an additional survey at a later time using a more informal questionnaire. From these analyses, we noted few changes in opinion. According to groups opposing the establishment of the MPA, the institution of the protected area remained an absurd and harsh measure forced upon them. Their only option would be to carve out their niche within the new restrictions.

Persons favouring the MPA express a certain satisfaction at the recognition of environmental protection at the institutional level. Now, however, attention will be focused on the implementation of the MPA.

A few important facts characterised the evolution of the conflict:

- (1) Minimal social involvement and the lack of co-ordination within stakeholder group.
- (2) The duration of the conflict.
- (3) The role of information, and
- (4) The existence and the role of the Portofino Regional Park.

4.1. *The social involvement*

The conflict was initially characterised by a series of isolated actions that often initiated little reaction. At an early stage of the proposal, the potentially adverse user groups did not enter into the discussion, but adamantly maintained their original positions. Subsequently, a series of public and private initiatives followed, but none of them produced results because of the minimal participation of the actors. This situation began to change only after 1991 when, as a consequence of a proposal submitted by the Central Institute for Applied Marine Research (ICRAM) and then revised by the Portofino Regional Park authorities, the concept of a marine protected area became more concrete. The municipalities and the opposing groups entered wholeheartedly into the debate, but still maintained uncompromising positions [23]. The involved parties entered into a genuine dialogue only after the formal institution of the MPA. A few groups, such as some sport or commercial fishing associations and some ferrymen, however, still maintained their initial positions.

Some potential supporters, such as some tradesmen, the diving associations, and Camogli ferrymen, although not actively supporting the proposals, favour environmental protection in principle. During the initial stages of the conflict, these groups remained in the background, waiting for issues to develop. In the 1990s, however, they became more actively involved in the debate [22].

The absence of positive initiatives is most evident in this scenario. The opponents only protested but did not offer alternative solutions. Additionally, MPA supporters failed to advance practical proposals, offering only vague notions about the advantages of the protected area to the region's economy.

The weak co-ordination of supporters or opponents of the MPA also characterises this conflict. For example, the “No to the MPA Committee” was supported by many opposing groups. Although the committee organised many protests, in some cases the municipalities and other people involved were not informed and failed to participate. Other supporters or opponents organised around old perceptions of the protected area and failed to obtain current information [22].

4.2. The duration of the conflict

Curiously, this conflict dragged on for almost 30 years before negotiations began. This was a consequence of minimal social involvement, the absence of a legislative mandate by the Italian legislature, and many other factors causing inertia. During this period, knowledge of the area’s ecosystem increased and the acceptance of environmental conservation values has grown. The original idea of protecting a few scattered ecosystems evolved into the broader concept of integrated management, in which the entire ecosystem is protected [24,25]. The environmental awareness of most local communities, however, remains similar to that of 30 years ago, creating a tension between environmental values and ethics.

4.3. The role of information

Public information has played an important role in the conflict since 1997, and especially after the decree of the MPA. Municipalities and the opposing groups have attempted to disseminate their point of view through local and national press. However, supportive groups have not undertaken similar efforts. As a result, the matter appeared one-sided and erroneous to those unaware of the situation.

Environmental associations and the supporting agencies, have disseminated their views through sectoral documents and white papers addressed to readers already possessing a certain environmental awareness. Therefore, their chances of advancing general public opinion remain quite small. Some diving associations and other groups in favour of the MPA have expressed their opinions via specialised magazines, emphasizing their hopes for future management.

The information remained principally emotional, appealing above all to the public’s feeling, through colourful language, rather than offering an economic or scientific analysis of the situation. Stories focused on “little towns which will be ruined”, rather than about possibilities of change in the economic system; “restrictions to personal freedom” instead of regulation of a common resource; and “protection of an individual species”, rather than ecosystem preservation. Clearly, the press failed to mention the benefits of integrated coastal management.

4.4. *The role of the Portofino Regional Park*

The Portofino Regional Park Authority has had the responsibility of protecting the terrestrial environment of the area for a number of years. The authority also possesses significant institutional capabilities and enjoys acceptance by the local communities. Representatives of the municipalities and user groups working in the area participate in park management. From the point of view of integrated ecosystem management, preservation of marine areas cannot be separated from the protection of coastal lands [26,27]. The communes, Ligurian Region, the Regional Park Authority itself and nearly all the other groups involved view the Regional Park Authority as the natural authority to manage the marine protected area. However the Environment Ministry did not adopt this view. According to Law No. 394/91, marine protected areas fall under the jurisdiction of the national government (“The State”), and if one happens to be located close to a terrestrial National Park, its management is entrusted to the existing Park Authority [13]. However, the Environment Ministry holds that because Portofino Park is regional, it cannot assume the management of a protected area created by a higher governmental level. After much discussion, in mid 1999, the Environment Ministry assigned the management of the area to a consortium comprised of the Municipalities of Camogli, Portofino, and S. Margherita; the University of Genoa; and the Province of Genova.

Although the direct involvement of the municipalities in the MPA management could be a possible solution for this conflict, another source of tension is likely to occur between the new MPA consortium and the existing terrestrial park, as a result of overlaps or gaps in authority.

5. Conclusions

Two diverging alternatives appear for Portofino. Although the marine protected area has been designated, alternative policy scenarios can have two radically different results for the area.

The first scenario is defined *low coherence scenario* and maintains a development model that is essentially similar to the current one. In general terms, this policy would tend to ignore the MPA and create a marginal role for it in the area’s economy. The following characteristics represent the first scenario:

- (1) Lack of social participation and opposition to the MPA by the local governments and the economic groups.
- (2) Minimal environmental consciousness.
- (3) Little coordination between the MPA management authority and other involved institutions (Portofino Regional Park Authority, University of Genoa, Ligurian Region, etc.).
- (4) Delay in the enforcement of the MPA and primarily restrictive management.
- (5) Continuing violation of laws and regulations.

- (6) Lack of coordination of environmental management on a broader scale, i.e. Land-based source pollution, and
- (7) Little effort in the implementation of territorial planning tools.

As a consequence, the situation will become stagnant and unfavourable to the development of innovative policies. A fragmented and complex situation of environmental planning would discourage successful implementation of MPA regulations and environmental improvement [24].

The second scenario is the *high coherence scenario* and suggests the integration of the marine protected area into the economic system of the territory. This scenario adopts the principles of Integrated Coastal Management and Sustainable Development. The principal characteristics of this model are:

- (1) A more cooperative attitude of the municipalities and the opposing economic groups.
- (2) Governmental financial support for sustainable enterprises in the Portofino Peninsula.
- (3) Coordination of the management of the MPA and the terrestrial Portofino Regional Park.
- (4) Increasing awareness of environmental problems in the local communities.
- (5) Coordination between the MPA management body, governments, and scientific circles.
- (6) Immediate implementation of the town planning schemes in force or under development, and
- (7) Coordination between the existing planning tools.

A better coordination of the management tools on a large scale should lead to a more efficient management of this coastal area. The MPA would then become a logical extension of the existing terrestrial protected area, and gain a strong ecological, scientific, and educational significance. At that point, the MPA would clearly provide an added value to the area [24].

On this basis, it is now possible to outline a first balance. Most local communities and above all local administrators remain unconvinced of the need to preserve the environment and do not accept policies that promote long-term benefits. Presently, a consortium comprised of a majority of opponents to the MPA is in charge of administering the area. This suggests that their objective will be to maintain the status quo. Temporary boundaries have been marked with buoys, but enforcement personnel do not exist. The time period established by the Environment Ministry for preliminary planning has expired, but no action has been undertaken, nor does an agreement with the Portofino Regional Park Authority exist. Most visitors do not even know that the MPA even exists. Moreover, the Ligurian coastal planning situation is not likely to improve in the near future. The situation is quickly evolving toward the *low coherence scenario*. One possible solution could be given by small-scale, ecologically sound initiatives, led by local stakeholders. Some examples might be guided boat tours, one-day cruises, improvement of public transportation linked

with Portofino Regional Park initiatives, traditional fishing tours, sailing and rowing events, and guided scuba diving with environmental interpretation. These initiatives might overcome inefficient MPA management and demonstrate the opportunities for alternative economic ventures.

6. Discussion questions

1. Would a phased implementation of the MPA be more acceptable to local authorities?
2. How is it possible to increase the social involvement of local communities?
3. What are the advantages and disadvantages of the Environment Ministry's "top-down" zoning strategy for the Portofino MPA?
4. Is it feasible to undertake educational initiatives in the area against the opposition or inertia of the local authorities and the MPA Authority?
5. Describe the institutional fragmentation that exists on the Portofino Peninsula.
6. What strategies could best coordinate activities of the two independent management authorities for the terrestrial and marine protected areas?
7. Which possible alternatives exist to creation of an MPA in this area?
8. The Environment Ministry formed a Consortium to oversee the MPA. Membership includes representatives from the three municipalities, the Province of Genova, and the University of Genova. Why do you think that the Environment Ministry failed to include a representative of the Portofino Regional Park Authority on the Ligurian Region on the Consortium? Do you think that this was a missed opportunity for inter-governmental coordination?
9. Is environmental management on the Portofino Peninsula a good example of integrated coastal management?

References

- [1] Girani A, Olivari S. Guida al Monte di Portofino. Sagep Editrice, Genova, 1986.
- [2] Cattaneo Vietti R, Sirigu AP, Tommei A. Mare di Liguria. Centro Studi Unione Camere di Commercio Liguria, Genova, 1988.
- [3] Stringa P. Il Golfo Paradiso da Genova a Portofino. Stringa Editore, Genova, 1984.
- [4] Camera di Commercio, Industria, Artigianato e Agricoltura di Genova — Ufficio Studi. Imprese iscritte alla Camera di Commercio di Genova — analisi dati comunali, Genova, 1996, 1998.
- [5] ISTAT. Censimento generale della popolazione — Genova, 1951–1991.
- [6] AA.VV. Piano dell'area protetta del Parco di Portofino. Istituto Ligure ricerche Economiche e Sociali, Genova, 1997.
- [7] I C R A P (Istituto Centrale per la Ricerca Scientifica e Tecnologica Applicata alla Pesca). Indagine sulla situazione naturale ed antropica nell'area interessata all'istituzione della riserva marina di Portofino, a cura di Diviaco G., Roma, 1990.
- [8] <http://www.nautica.it>.
- [9] Diviaco G, Marini L., Tunesi L. Parco marino di Portofino: criteri metodologici per la stesura della proposta di zonazione, Oebalia, Roma, 1992.
- [10] <http://www.regione.liguria.it>.

- [11] IIM (Istituto Idrografico della Marina). Portolano del Mediterraneo, Genova, 1992.
- [12] Cattaneo Vietti R, Orsi Relini L, Wurtz M. La pesca in Liguria. Centro Studi Unione Camere di Commercio Liguria, Genova, 1984.
- [13] <http://www.parlamento.it>.
- [14] Capitaneria di Porto di Genova. Ordinanza Balneare per la stagione estiva 1997, Genova, 1997.
- [15] Capitaneria di Porto di Santa Margherita. Ordinanza Balneare per la stagione estiva 1997, Santa Margherita, 1997.
- [16] Regione Liguria. Aggiornamento del Piano Regionale di Risanamento delle Acque, DGR no. 53 del 3/7/91.
- [17] Regione Liguria. Statistica. ZUNINO M.T. ed., Genova, 1998.
- [18] Regione Liguria. Statistica. D'AURIA M. ed., Genova, 1999.
- [19] Diviaco G, Tunesi L. Criteri naturalistici nella realizzazione di aree protette marine. AA.VV., Pianificazione e progettazione delle riserve marine, a cura di Paoletta A., Technosynthesis-Str s.p.a., Alatri, 1992. p. 33–43.
- [20] Bontempi R. Parchi e Riserve marine: il quadro normativo — principi generali. AA.VV., Pianificazione e progettazione delle riserve marine, a cura di Paoletta A., Technosynthesis-Str s.p.a., Alatri, 1992. p. 90–107.
- [21] Vallega A. Governo del mare e Sviluppo Sostenibile, Mursia, Milano, 1993.
- [22] Di Vinci E, Salmona P. Le aree protette marine e costiere nell'ottica dello sviluppo sostenibile: Portofino, un caso di studio. Graduation thesis, Università degli Studi di Genova, Facoltà di Architettura, 1998.
- [23] Comune di Santa Margherita. Piano Regolatore Generale, Santa Margherita, 1993–1997.
- [24] Salm RV, Clark JR, Siirila E. Marine and coastal protected areas: a guide for planners and managers. International Union for Conservation of Nature and Natural Resources, Washington, DC, 2000.
- [25] Paoletta A. La pianificazione della tutela in ambiente marino-costiero. AA.VV., Pianificazione e progettazione delle riserve marine, a cura di Paoletta A., Technosynthesis-Str s.p.a., Alatri, 1992. p. 1–6.
- [26] Arca' G. Le riserve marine: integrazione tra tutela marina e tutela terrestre. AA.VV., Pianificazione e progettazione delle riserve marine, a cura di Paoletta A., Technosynthesis-Str s.p.a., Alatri, 1992. p. 67–74.
- [27] Clark JR. Coastal zone management handbook. Boca Raton, FL, USA: Lewis Publishers, 1996.
- [28] Comune di Camogli. Piano Regolatore Generale, Camogli, 1977.
- [29] Comune di Portofino. Piano Regolatore Generale, Portofino, 1985.
- [30] Comune di Santa Margherita. Piano Regolatore Generale, Santa Margherita, 1995.
- [31] Regione Liguria. Piano Territoriale di Coordinamento Paesistico, Genova 1991.
- [32] <http://www.provincia.genova.it>.
- [33] <http://www.parks.it>.
- [34] Regione Liguria. Piano Territoriale di Coordinamento della Costa, Schema di Orientamento ex. art. 4 l.r. 39/84, Genova 1999.