

Unbalanced governance: The Cres-Lošinj special marine reserve, a missed conservation opportunity



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ABSTRACT

Croatia sits on the border of the European Union both politically and geographically. Political change towards a liberal democracy has taken time and many aspects of such a system, such as nature protection, have been slow in evolving. Marine conservation is not a priority in the country despite recognition that the islands, coast and adjacent marine area are of particular importance for foreign revenue. Tourism is the major driver of the local economy of these coastal regions and is heavily concentrated in the summer months of July and August. Coordinated management of natural coastal and marine resources with sustainable exploitation is urgently required in the tourism hotspots of the region. The Cres-Lošinj Special Marine Reserve (CLSMR) was designated in 2006 with the specific aim to conserve a local dolphin population and sustainably manage the use of the natural resources of the Cres-Lošinj archipelago. The archipelago is a nationally important region for tourism. Between July 2006 and July 2009 the CLSMR was the largest marine protected area (MPA) in the Adriatic Sea. The CLSMR represented Croatian commitments to many of the international environmental agreements signed by the government. However local development commitments made by the sitting political party was in direct conflict with the objectives of the MPA. As a result support for the concept was undermined and, coupled with State paralysis, the imbalance between local development and international commitments led to a proposed downgrading of the MPA and subsequent degazettement.

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1. Introduction

The Cres-Lošinj Special Marine Reserve (CLSMR) is located in the northern part of the Croatian Adriatic (Fig. 1). Croatia is part of central and south-eastern Europe on the western coast of the Balkan Peninsula. It can be regarded as a medium sized country in terms of both population and territorial area [1]. The country has recently transformed from a socialist to capitalist system and is on the brink of European Union (EU) membership, scheduled to take place on the 1st July 2013. Population growth rates are declining slightly and density levels are around 78 persons per square kilometre [2]. Per capita Gross Domestic Product (GDP) is around 13,700 USD per year (2010 estimate), and GDP by sector and employment is dominated by the service industry (> 60%) [2]. This is related to tourism and tourism services which are concentrated in the coastal and island regions. Although Croatia was involved in the destructive breakup of Yugoslavia,

the country is now relatively stable and governance is through a Presidential-Parliamentary democracy, with power concentrated in the Parliament.

The CLSMR is situated off the eastern coast of the Cres-Lošinj archipelago, wholly within the jurisdictional limits of the municipality of the City of Mali Lošinj. The municipality hosts a year round population of ~8000 persons with a density of approximately half (38 persons per square kilometre) of the national average [1,3]. The labour force is dominated by the service industry (around 90% of the workforce) and unemployment is lower than the national average [3]. The archipelago suffers from significant fluctuations in occupancy related to seasonal summer tourism when visitors outnumber residents by three to one. The Cres-Lošinj Archipelago lies in the borderland area of the northern Adriatic, which is an inherently European space [4]. The region has a rich local heritage, reflecting its history of control and occupation by the Illyrics, Romans, Croats and regional powers based in Venice, Italy and Austria [5]. Changes in regime have led to the emigration of many islanders, especially following the conclusion of the Second World War and the change from Italian to Yugoslav control. It was not until the development of mass tourism facilities in the late 1960s that the population increased

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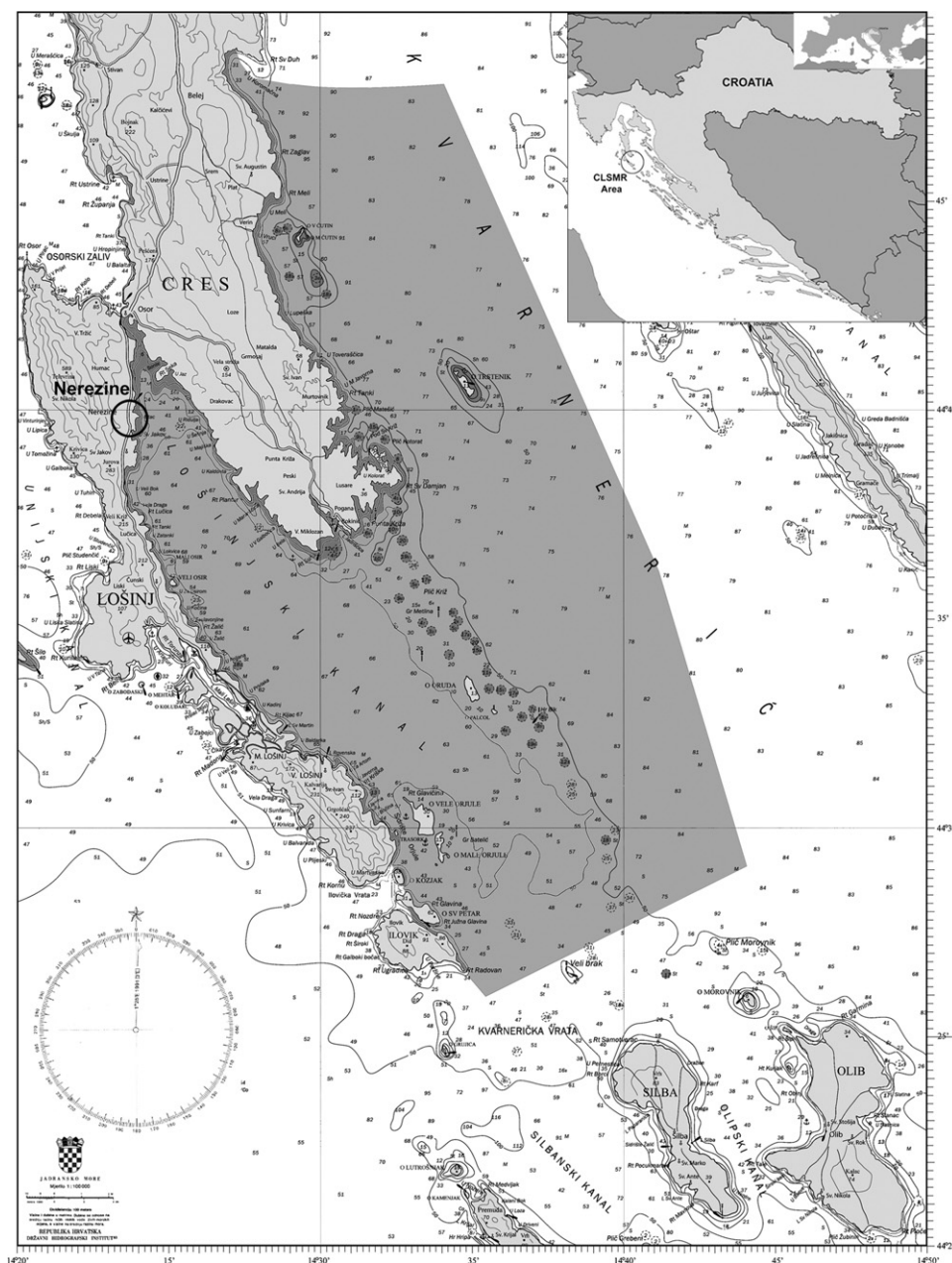


Fig. 1. The Cres-Lošinj Special Marine Reserve.

again [6]. Immigration of continental Yugoslav nations, including inland Croatians, changed the demographic balance, making it the most open population of the Adriatic archipelagos [7]. Emigration remains a problem, with a steady movement of young people to the continent seeking higher education and wider employment opportunities [8].

Tourism originally developed in the 1880s based on the healthy climate of the region, following the collapse of the wooden ship building industry [9]. Socially, economically and environmentally, tourism dominates the archipelago. Although there has been significant development of tourism and tourist facilities, the local infrastructure does not have the capacity to efficiently host either the current levels of tourism or planned increases [10]. Modern tourism is focussed on the coastal and marine environment and concentrated in the summer months. Outside the summer season many of the facilities close, which exacerbates the feelings of isolation and peripherality of the local population in winter [11].

2. Objectives

The Cres-Lošinj area, also known as the Kvarnerić, is one of the most pristine marine areas in the northern Adriatic Sea. This is mainly due to the cyclonic circulation of water masses within the Adriatic [12] and the presence of a submarine ridge stopping fluvial sedimentation from the river Po, Italy [13]. The marine area encompasses a wide range of habitats, including rocky shores, submerged reefs, sea grass meadows, and mud seabed. It is particularly diverse, with a total of over 95 species of teleost fish, sharks and loggerhead turtles (*Caretta caretta*) [10]. This diversity includes a community of bottlenose dolphins (*Tursiops truncatus*) as one of the top predators in the region. It is due to the presence of this community that research was initiated in 1987 and has been ongoing to the present day. This large data set led to the development of the proposal for protection in 2002 led by a local NGO [14].

The primary objectives of the CLSMR were [14]

- To restore and maintain the population of bottlenose dolphins in the Kvarnerić at a viable level.
- To ensure that the Kvarnerić provides the environmental and ecological processes necessary for the achievement of this primary objective, subject to natural change.
- To provide protection of the habitat of the Loggerhead sea turtle for whom this area is a summer habitat for foraging, and an overwintering habitat.
- To implement protection of sea grass meadows (*Posidonia oceanica*) and coral communities.
- To protect islands and coasts that are nesting and brooding sites for protected bird species.
- To protect underwater archaeological sites.

The CLSMR also fulfils many of the international obligations signed by Croatia, especially the major conventions and agreements relevant to marine biodiversity conservation. The most applicable in this case are

- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 1979). The CLSMR is included in the Croatian Emerald Network [15].
- The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) (Monaco, 1996). The CLSMR was recommended for protection by the ACCOBAMS Scientific Committee in 2002 [16] and again at the third and fourth Meetings of the Parties [17,18].
- The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona, 1976), particularly the potential to be included in the Specially Protected Area of Mediterranean Importance (SPAMI) list [14].

Being an accession country, harmonisation with EU Directives is a priority. With respect to nature conservation, harmonising national law with the EU Habitats Directive (Council Directive 92/43/EEC) was a particular priority [11] and the CLSMR is listed as a future *Natura 2000* site. The site has also been declared as a core area of the Croatian National Ecological Network, part of Croatia's commitments to the Pan European Ecological Network [19], and has been listed as part of Croatia's commitments to the Convention on Biological Diversity [20].

3. Drivers/conflicts

The service sector dominates Croatian GDP and employment, which in turn reflects the significance of the tourism industry (Fig. 2).

Tourism is the primary economic driver and also offers the greatest potential threat to the biodiversity of the islands, coastline and sea. Related and additional threats come from urbanisation and unregulated development, fishing, and pollution. Local Physical Plans for the islands and coastline have been targeted by speculators to profiteer through the planning system before EU accession [21]. There is also an increasing interest in the pelagic fishery, with the development of a nationally subsidised industrial fleet [22].

The CLSMR suffers from the same drivers and conflicts as the rest of the Croatian Adriatic. Directly after the cessation of hostilities in the 1990s, tourism recovered faster in Lošinj due to the developed infrastructure and lack of direct conflict (Fig. 2). Yet, only a limited part of the archipelago is serviced by an adequate sewerage system, with many hotels only having primary wastewater treatment facilities. The system is adequate for the residents of the archipelago, but in August when the population quadruples the water quality declines [23]. Tourism is projected to grow by 40% within the archipelago between 2005 and 2015 [24].

Associated with this growth is an increase in marine tourism, particularly an expansion of the harbour of Mali Lošinj adjacent to the CLSMR, and the marina in the village of Nerezine within the area (Fig. 1) [25]. The development of marine tourism in the archipelago, particularly the use of personal watercraft, has a direct effect on the environment. Physical and acoustic disturbance appears to displace the dolphins in the summer months, when the number of locally registered boats quadruples [26,27]. The proposed marina in Nerezine represents a particular threat due to its position and the 380 berths planned. If the marina is constructed it is likely to affect the dolphin distribution due to disturbance pressure. It is unknown how this pressure could affect the dolphins at a population level or in terms of permanent migration from the area, but it is possible that these effects could be significant. Yet, the harmonisation of the Croatian Law for Environmental Protection with the EU Directive on Environmental Assessment (Council Directive 85/337/EEC, amended Council Directive 97/11/EC) requires that all new major infrastructure development proposals should be subject to a full Strategic Environmental Assessment, as well as satisfying the 'appropriate assessment' requirements under Article 6 of the Habitats Directive [28–30].

Additional disturbance can be attributed to the locally based commercial day-trip boats which have in the past rarely observed the voluntary code of conduct when in the presence of dolphins. Furthermore there is no realistic estimate of the number of boats transiting the area. Associated with marine tourism is the transmission of the invasive algae *Caulerpa taxifolia* and *Caulerpa racemosa* through unmanaged anchoring. In November 2009 a large patch of *C. racemosa* was discovered less than 5 nautical miles from the border of the CLSMR.

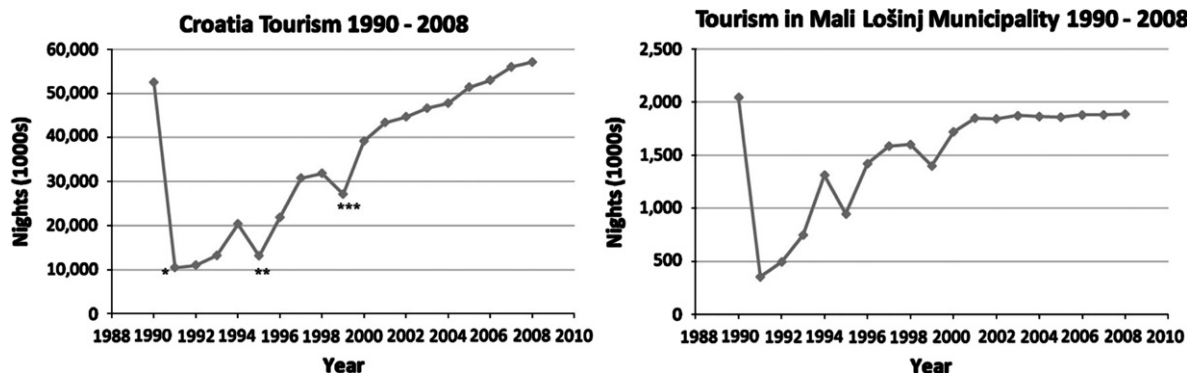


Fig. 2. Tourism in Croatia and the Mali Lošinj municipality, 1990–2008 (Statistical Office, Rijeka).

Although the professional fishery accounts for less than 1% of employment in the municipality, its effect on the marine system is larger due to the multiple gears used in the area and the large 'recreational' fishery [10]. The area is fished by bottom trawlers, purse seiners, static gill and trammel nets, long-lines, rod and spear guns. In all niches fishes are exposed to at least one gear. 'Recreational' fishing has a major impact due to the fact that many seasonal workers supplement their income outside the summer season by fishing [31]. Incoming fishers, including professional purse seiners and bottom trawlers use the area, and the purse seiners have also been implicated in the illegal use of explosives [32]. There is a general decline in the index of fish biomass of total catch and catch of the commercial species in the area [33]. The opening of the external EU market has led to many fish being exported from Lošinj to Italy, exacerbating the over-fishing problem.

The migration of people from the archipelago and general changes to the way of life has led to the loss of local ecological knowledge. This makes it difficult to identify a defined indigenous population to develop long-term sustainable development strategies. The role of certain influential local individuals dominates the participatory process, and for institutions seeking to fulfil statutory requirements for participation it is easier to access these individuals rather than seek broader consensus [21].

4. Governance framework/approach

The definition of a Special Reserve is described under Article 12.1 of the Nature Protection Act of the Republic of Croatia (NPA) [34] as '*an area of land and/or sea of particular importance for its uniqueness, rarity or representative character, or is a habitat of endangered wild taxon, having a particular scientific significance and intended purpose*'. A Special Reserve is declared by the Government of the Republic of Croatia, on the recommendation of the competent authority, the Ministry of Culture. In order to prepare the proposal, the Ministry tasks the State Institute for Nature Protection (SINP), the advisory agency for biodiversity conservation, to prepare an expert elaboration. This includes an analysis of the current state of the environment, its use and threats. After the elaboration is submitted, the Ministry is obliged to carry out a public hearing and take into consideration community opinion. After incorporating input from the public, a final elaboration is made and an act is proposed for Government approval. Following Government approval, authority for management is appointed to the Public Institution for the Management of Protected Nature of the County within which the area resides. However, this designation type allows for the local Municipal authorities to request management rights, which would then be ceded by the County [34]. This is the case with the CLSMR, which resides wholly within the jurisdiction of the Mali Lošinj local authorities, thereby allowing for the municipality to request management rights and develop the Public Institution for the management of the protected area [35].

In the case of an area that is considered to be of value for nature conservation and under immediate threat, an *ad hoc* temporary 'preventive protection' can be granted by the Ministry of Culture. Preventive protection is a proactive step, under Article 26 of the NPA [34]. It lasts for a maximum three year period, within which time a final proposal for the protection should be drawn up by the Ministry with expert advice from the SINP, and submitted to the Government for approval. Within this three year period no new use of an area is permitted and it has the same status as if permanently protected. However, ongoing use, provided it does not undermine the objectives of the area, can continue [23]. In 2006, the objectives of the CLSMR were considered to be under immediate threat from the construction of a 380 berth marina in the small village of Nerezine located in the middle of the area (Fig. 1). On 26th

July 2006 the CLSMR was granted three year preventive protection by the Ministry [36]. Prior to the declaration, cooperation between the promoting local NGOs and the local stakeholders had been good, especially regarding cooperative research projects. There had been a conscious effort to engage stakeholders, bringing their participation and opinions into the advisory documents submitted to the SINP. From a local stakeholder perspective, the proposed CLSMR appeared to be regarded with paternal indulgence, along with confidence that the system would not favour conservation over development and fishery. At the national level, the expert elaboration made by the SINP gave clear biological arguments for protection which were supported internationally by the scientific committees of ACCOBAMS and the International Whaling Commission [16–18,37]. ACCOBAMS also lobbied the national government to fulfil their commitments to the Agreement and other regional conventions. This was especially pertinent due to the imminent third Meeting of the Parties to ACCOBAMS to be held in Dubrovnik, Croatia in October 2007. Coupled with this was national media pressure supporting the proposal. It is important to note that there had been no direct contact between the Ministry of Culture and the local stakeholders prior to the declaration of preventive protection.

The abrupt declaration of preventive protection surprised even the most ardent proponents of the area and had an almost immediate backlash, with some local stakeholder groups, particularly the fishery and boat guilds, concerned by the lack of direct communication from the national authorities. The defining issue at the local level was the conflict between the development of the marina in Nerezine and the CLSMR [38]. Although this conflict was hidden behind other concerns, such as the maintenance of the fishery and general tourism development, it was the catalyst for the emergence of opponents to conservation. In addition, the new municipal administration had campaigned in support of the marina and the loss of their support for the CLSMR was a major factor in the decline in national support, in an election year [21]. The Ministry of Culture was caught between local development issues, important to the political party, and international commitments. Local pressure forced a change in the opinion of the Ministry, who allowed temporary protection to expire, in the hope that it would go unnoticed at international level, and allow developments such as the marina in the municipality. Preventive protection of the CLSMR expired on the 26th of July 2009. Although the Ministry of Culture did not make a formal decision or take actions regarding the permanent designation of the marine protected area (MPA), the SINP carried out a series of selective interviews with local stakeholders in 2009 [39]. The findings of the study proposed to downgrade the MPA from 'Special Reserve' to 'Regional Park', and included the movement of the borders to 300 m from the inhabited coastline of the archipelago, including around the village of Nerezine. In this manner conservation would not significantly inhibit economic development [39].

5. Effectiveness

The CLSMR was assessed in this study as "No clearly recognisable effective governance framework in place", with an effectiveness score of 1 out of 5, as it can no longer be regarded as a listed MPA. In the three year period of preventive protection the CLSMR was the largest MPA in the Adriatic Sea at approximately 525 km² (Fig. 1). Even during this period it could only be regarded as a 'paper park' with no management, no budget and no enforcement. However, preventive protection did postpone the construction of the Nerezine marina. In effect the marina was forced to be put on hold until a new environmental impact assessment could be undertaken, due to the temporary protected

status of the area. In the latest version of the Physical Plan of the municipality the marina had reduced in size from 380 berths to 280 berths [25]. General disturbance and boat traffic remains an issue in the area. However, observations by locally based researchers indicate that the widely published code of conduct, combined with increased public awareness through the educational centre discussed in Section 6.2, has reduced negative interactions between personal watercraft and dolphin groups. Issues remain over the conduct of professional tour boats deliberately disturbing dolphins for the attention of tourists. However, again, the behaviour of the boat operators has improved, probably due to the same incentives plus a growing realisation that the dolphins provide an economic benefit to their business. In addition, the recent successful prosecution of an individual harassing a dolphin elsewhere in Croatia probably had an effect on local boat user behaviour.

Preventive protection also focussed the attention of the authorities and stakeholders to the fact that some form of management is required. Protection stimulated debate over the state of fish stocks in the region and the potential to develop 'micro-zones' for management in the spawning season [39]. Media interest in the interactions between fisheries and dolphins, specifically related to the stranding of dolphins due to the use of explosives, led to the investigation of illegal fishing practices by the Inspectorate for Nature Protection of the Ministry of Culture and the local police in 2007. Finally, the area is still listed as a core site of the National Ecological Network and a future *Natura 2000* site and as such should benefit from further protection, especially with regards to the legal requirements for the evaluation of the environmental impact of projects that may affect its integrity.

6. Incentives

An overview of the incentives employed in the governance of the CLSMR is provided in Table 3, as a framework for discussions on particular incentives under each of the five categories (Table 1).

6.1. Economic incentives

Early in the process of promotion, efforts were made to develop ideas for alternative employment and economic opportunities. The CLSMR proposal was linked to the development of tourism in the municipality. In cooperation with the local authorities, Lošinj Island became promoted as 'the island of dolphins', highlighting the region within the Croatian tourism package. However, changes to the local administration and the local Tourist Board in 2005 led to the image moving away from nature towards health tourism, with a rebranding as 'the island of vitality'. This change was partially due to the local political issues that emerged with the declaration of preventive protection in

2006 [22]. Nevertheless, day-trip boat operators still promote their trips using the dolphin image or the idea of searching for dolphins and many still advertise the MPA. There was an attempt to gain support with the local fishery guild, promoting the concept of making fishing only accessible for locally registered boats, and branding local fish as being sustainably fished from the CLSMR. However, this idea was never adopted due to the solidarity of local fishermen with external fishers, objections raised from adjacent islands and the national fishery guild, and the absence of a coherent Lošinj fishery guild. Despite the potential for developing these ideas, it turned out that the leaders of the local fishery guild and the local boat operator's guild later opposed the CLSMR in cooperation with the developers of the marina in Nerezine.

There were options to access start-up funds for the CLSMR from EU sources, especially as Croatia is in the process of accession. However, the lack of experience and capacity for developing such projects limited this option, and fears over the cost of establishing the area was a disincentive for the County and Municipal authorities. Linking the CLSMR with the promotion of compatible local economic developments remains an essential incentive.

6.2. Interpretative incentives

The development of the Lošinj Marine Education Centre in 2003 by a local NGO, with corporate funding and cooperation from the local administration, has provided a focal point for sustainable development and extra-curricular environmental activities. It is the central point for the continued promotion of the CLSMR, highlighting the advantages of the MPA for local management and economy, through lectures, exhibitions and printed materials. The centre combines education and entertainment and is a tourism asset to the local community. Beyond serving as a tourist attraction in the summer, it attracts schools and colleges in the spring and autumn seasons, which also benefits the local economy. Educational programmes have been developed to engage local students from kindergarten to high school. Interpretative incentives have been used to help keep students interested in the island and perhaps in some small way stem local emigration. The combination of the educational centre as an interpretive resource, but also benefiting the local economy, is an important long-term tangible asset. However, it is debatable how effective these factors have been in countering pro-economic development interests, such as those related to the marina proposal.

Engaging with the media was helpful in promoting the CLSMR as the first MPA for dolphins in the Mediterranean. Media pressure directly supported the declaration of preventive protection which in turn delayed the plans for the marina in Nerezine. However, as conflicts emerged, some media also sought to exacerbate problems by publishing negative stories about the CLSMR. The media is an important means to develop support for

Table 1
Governance details.

National Level	National Government	Ministry of Culture (MoC)	State Institute for Nature Protection (SINP)
	Governmental decision on the justification of the area must be made for permanent protection	The competent authority for nature protection (2003–2011)	Advisory body to the MoC for nature protection. Supervisor overseeing the work of the county institutions
Country level	Public institution for managing protected nature areas of the county of Primorsko-Goranska		
	The legally responsible institution for the development of a management plan and internal rules for the area. The Institution also has the power to approve or prevent any activities that are seen as a potential threat to the area.		
Municipality level	Mali Lošinj municipality		
	The municipality has the option to assume responsibility for the area, appoint a management board and undertake the development of a management plan. However, oversight into the rules to appoint the board and the development of the management plan remains the responsibility of the Ministry of Culture.		

conservation, but also a double edged sword, with potential for manipulation by opponents with little opportunity for response once something is published.

6.3. Knowledge incentives

The nature of cetaceans and their mobility make scientific uncertainty inherent when trying to define population home-range or critical habitats for spatial conservation measures, such as protected areas. In Croatia, institutional position remains an important verification of competence, more so than publications or international recognition. One fundamental issue to emerge was regarding the origin of the biological information in the arguments of the validity of the CLSMR. The initial biological justification came from an NGO working in the region for over a decade, recognised by the international and relevant national authorities [40,41]. The main opposition to the biological argument came from a university professor specialising in veterinary medicine utilising the media and grey literature. Despite reassurances over the validity of the science for the MPA from the SINP and the Scientific Committee of ACCOBAMS, certain stakeholders refused to accept science from an NGO over the opinion of a tenured professor. Uncertainty in this case allowed for the promotion of alternative information regarding the status of the dolphin population which was adopted by opponents to the area. The definition of a platform for independent advice and arbitration would be fundamental to the development of appropriate governance of the CLSMR (Table 2).

In addition, the absence of information on marine habitats and fish stocks also increased uncertainty and limited attempts to seek support from the fishery stakeholders. Although attempts were made to access local ecological knowledge through interviews and meetings, and the local fishery guild were included in research programmes on shark and marine turtle populations, these cooperative projects ceased at the designation of preventive protection. It is also worth noting that many university students have undertaken thesis projects related to the development of the MPA and this has provided valuable knowledge.

6.4. Legal incentives

The legal situation of the CLSMR is ambiguous. The Nature Protection Act of the Republic of Croatia (NPA) [34] lacks practical application as it has been changed on a regular basis during the last 20 years. Although now harmonised with the EU Habitats Directive, the Ministry of Culture has allowed for an arbitrary and interpretative reading of the NPA, which as yet has not been tested in court to establish precedence. In addition, the responsibility for nature protection changed, in 2003, from the Ministry of the Environment and Nature Protection to the Ministry of Culture, where there is little expertise and limited interest in the subject, particularly from the politicians and civil servants that develop the political framework for the Ministry. The State Authorities appear to lack the political will to promote

conservation strategies over development. Communication between the SINP, the Ministry of Culture, the County Public Institution for Managing Protected Nature Areas and the Local municipality appears to be limited. Each office is coordinated by an elected official, usually sponsored by a political party. Often officials are from differing parties, hence there is a politicisation of conservation strategies, with little cross-party coordination. The original designation type, 'Special Reserve', allows for the development of a local management board. However management fell between the State, County and Local authorities, none of whom wanted to take the leadership role. The proposed change to a Regional Park by the SINP in 2009 has not appeared to have resolved this issue of institutional fragmentation.

Without the overarching requirements for harmonising national policy with international and particularly EU law, there would be little national interest in developing the CLSMR. At international level, the EU, ACCOBAMS and other agreement and convention secretariats will need to apply new pressure on the Croatian Government for the implementation of successful governance of the CLSMR (Table 2). These legal obligations for effective marine conservation are arguably the most important incentive in this MPA case study.

6.5. Participative incentives

Public participation is a relatively new concept in Croatia, as a country emerging from a socialist regime. It is difficult to create true opportunities for effective participation where there is little or no experience with these processes by the citizens or the facilitating institutions [21]. Initial good cooperation between local NGOs, stakeholders and the SINP helped move the CLSMR proposal to the declaration of preventive protection in 2006. However, the manner in which preventive protection was declared by the Ministry of Culture, without prior official notification or formal consultation, eroded the previously developed local trust [38]. Exacerbating this was the lack of explanation of the possible bylaws, which allowed for the creation of misinformation and further tension at local level. Without clarity on who can participate in the process, successful governance is unlikely to evolve (Table 3).

Since 2006, participation has been highly selective, with the State authorities seeking opinions only from highly vocal and particularly assertive stakeholders, such as the fishery and the boat operator's guilds. Many local stakeholder groups remain fragmented and manipulated by the interests of individuals acting as their representatives. The most recent stakeholder interviews undertaken by the SINP were made with the focus on developing the new expert elaboration for the Regional Park designation. Interviews again concentrated on those individuals opposing the CLSMR and did not give much opportunity for the potentially counter-balancing views of other islanders.

6.6. Cross-cutting issues

The absence of clear leadership by the competent authority, the Ministry of Culture, has undermined the development of the CLSMR. Inactivity following the declaration of preventive protection in 2006 eroded any trust that had previously been created at local level. The change in local leadership and the loss of support from the municipal authority, through the change in local administration in 2005, was also a significant setback for the MPA [21]. This outlined the political nature of the problem related to the conflict between development pressures and conservation. The role of local NGOs in the process was quite significant, particularly in developing knowledge and interpretative incentives as well as trust. NGOs made efforts to engage stakeholders

Table 2

Impacts addressed and not addressed in CLSMR.

Impacts addressed	Impacts not addressed
<ul style="list-style-type: none"> • Development of the Nerezine Marina • Discretionary code of conduct around dolphin groups • Use of explosives in fishing activities 	<ul style="list-style-type: none"> • General personal watercraft behaviour • Illegal fishing practices • Aggressive 'dolphin watching' tour boat behaviour. • The spread of invasive algal species. • Land-based pollution.

Table 3
Summary of incentives for the Cres-Lošinj special marine reserve

Incentive type	Incentives applied to address conflicts and provide governance steer	Incentives needed to improve MPA governance
Economic	<ul style="list-style-type: none"> • Funding from private or NGO sources to promote the effectiveness of the MPA 	–
Interpretative	<ul style="list-style-type: none"> • Public communication, education, and awareness-raising 	
Knowledge		<ul style="list-style-type: none"> • Developing mechanisms for independent advice &/or arbitration in the face of conflicting information &/or uncertainty
Legal		<ul style="list-style-type: none"> • International-regional-national-local regulatory obligations that require effective MPA conservation. • Clarity and consistency in defining legal objectives of MPAs, general and zonal restrictions, jurisdictional boundaries, roles and responsibilities of different authorities and organisations. • Ensuring that sufficient state capacity, political will, surveillance technologies and financial resources are available to enforce all restrictions equitably on all local and incoming users, including addressing driving forces.
Participative		<ul style="list-style-type: none"> • Transparent participation and decision-making processes • Clear rules on the means and degree of participation from different groups.

and authorities at all levels. However, the lack of institutional backing, particularly from the Ministry of Culture, undermined the legitimacy of these efforts.

Equitable participation in Croatia remains in its formative stage. Generally, participative approaches concentrate on ‘the usual suspects’ with little attempt by the authorities to do more than minimum consultation. Additionally, consultation has concentrated on attempting to placate opposing stakeholders rather than seeking wider views and agreements. Within the municipality this is exacerbated by the demographic changes, transience and seasonality, which make it difficult to create a critical mass for the development of collective action which could lead to the stewardship of the region as a whole.

7. Conclusion

The story of this case study can be divided into two stages, the stage prior to preventive protection and the stage post July 2006. The trust and cooperation developed between local stakeholders and conservation NGOs before July 2006 was destroyed by the sudden declaration of preventive protection. Exacerbating this was the loss of local authority support and the undermining of the biological data provided by researchers from the local NGO. Lack of political will to address the issues of the MPA whilst preventive protection was in place led to proposal by the SINP to downgrade the MPA from ‘Special Reserve’ to ‘Regional Park’ [39]. It is difficult to define how the downgrade may affect the effective governance of the area as at no point has there been any clarity on potential management or the bylaws that would affect day to day use of the region. The proposed movement of the boundaries of the MPA accompanied by the downgrade could allow the development of the marine in Nerezine directly adjacent to the MPA, but outside the boundaries. If this is the case this could open up questions over the validity of the area to satisfy biological objectives, and the potential of the designation to fulfil the requirements of the international agreements and conventions, particularly the EU Habitats Directive [38].

It is clear that a combination of all incentives is important for the successful designation and management of this MPA. Whilst the relative importance of the incentives may change over time, legal and economic incentives remain the most vital in this case

study embedded within the Croatian context. These two incentives were closely linked to the cross-cutting issues of leadership and the role of NGOs. The absence of political leadership could not be substituted for by the role of NGOs in this case, reflecting the conclusions of the governance manual [42]. Ambiguity over the identity and role of the competent authority will need to be clarified for the CLSMR to be effective (Table 3). The overarching role of the international institutions remains critically important particularly EU accession and the need to harmonise with the Habitats Directive. Countering this is the increasing economic integration with the EU market which is placing greater stress on the marine environment of Croatia as a whole. However, economic incentives remain an important aspect of conservation and must remain a feature for the CLSMR if it is to be successful. This may be related to the possibility of finding external funding for the set up and management costs of the MPA, including the identification of funds for the development of alternative livelihoods.

In recent months there have been significant changes to Croatian society as a whole. The economy has collapsed, high profile corruption cases are being prosecuted and greater accountability in the State institutions appears to be developing. In November 2011 elections saw a change in national government. The implications for nature conservation are significant, particularly the move of nature protection back to the Ministry of the Environment and Nature Protection from the Ministry of Culture. At a local level there is a realisation that other less developed areas of Croatia are becoming more proactive in competing for tourists. Interest in promoting sustainable tourism as a brand is developing; associated with this is growing awareness by the State and tourism industry of the role of nature and conservation in promoting tourism. Within the local NGO network there have been efforts to concentrate on developing incentives indirectly connected to conservation, in particular the validation of scientific knowledge through peer reviewed articles, community based education groups and projects, and new ties to the local authority, community and commerce. Perhaps the change from Special Reserve to Regional Park has satisfied the opponents. Possibly the objections of some stakeholder groups have dissolved in realisation of the hidden agenda of the development lobby. There is growing recognition that a multiple use MPA could help long-term island development. Through these

factors support for the CLSMR, in some form, appears to be growing again.

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