

MEDPAN NETWORK REGIONAL EXPERIENCE-SHARING WORKSHOP
PORT CROS NATIONAL PARK, FRANCE – 12-14 NOVEMBER 2013

**SURVEILLANCE AND REGULATION
IN MEDITERRANEAN MARINE
PROTECTED AREAS:
HOW TO MAXIMIZE THE EFFICIENCY
AND SUSTAINABILITY OF ACTIONS**

WORKSHOP PROCEEDINGS

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PORT CROS NATIONAL PARK, FRANCE
12-14 NOVEMBER 2013



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BACKGROUND

In 2013, MedPAN's Mediterranean exchange of experience workshop was held on 12th to 14th November in Hyères (France), in partnership with the Port-Cros National Park that celebrated its 50th birthday this year: half a century of existence and an extensive experience to share in marine surveillance and regulation enforcement. The workshop gathered a hundred participants from 16 countries on this topic.

Surveillance and regulation enforcement in MPAs: a key topic for our network's effectiveness

This year's workshop aimed to address one of the fundamentals for Marine Protected Areas, understanding that « *surveillance and compliance of regulations is a prerequisite for every management action* ». (MedPAN Workshop proceedings - Sustainable Fisheries Management and surveillance in Mediterranean marine protected areas, 18-21 October 2006, Porto-Vecchio, Corsica, France).

The enforcement of regulations is a cross-cutting issue based on several factors: legal frameworks, institutional competencies, management procedures, stakeholders' compliance, information and awareness, local people's perception and behaviour, but also on the human capacity, equipment and financial resources available.

In order to bring this complex subject up to date, MedPAN initiated a study in June 2013 focusing on the regional level to identify gaps, best practices, needs and strengths in terms of surveillance and regulation enforcement with a view to build the capacity of Mediterranean MPAs in this domain.

Following this study, MedPAN's 2013 Mediterranean exchange of experience workshop aimed to prepare the implementation of a MPA managers support program from 2014 to build their capacity in the surveillance and enforcement domain.

The workshop's program has been built around this operational objective.

The workshop included sessions of different formats:

- Plenary sessions to present the study's findings, introduce the different workshops and share their results;
- Experience-sharing workshops that called upon participants to interact on several topics after short presentations of successful experiences. Objective: identify best practices.
- Case study workshops that put managers around a table and get them to deal with a specific situation presented by one of them. Objective: collectively provide solutions to a particular problem and make recommendations for capacity building.

- A field trip hosted by the Port-Cros National Park to share in situ the extensive and wealth of experience from one of the oldest Mediterranean MPAs.

The following pages give an account of the discussions held in working groups during the workshop and of the recommendations made by the participants. Also included in this document, the results of the study on the "*surveillance and the enforcement of regulations in Marine Protected Areas in the Mediterranean*", the list of the workshop participants, and a focus on the MedPAN Call for Small Projects (surveillance and raising awareness in the Maro-Cerro Gordo MPA).

RESTITUTION OF EXPERIENCE SHARING WORKSHOPS

Six experience-sharing workshops called upon participants to interact on several topics after short presentations of successful experiences. These sessions brought together working groups of 20/30 people.

By highlighting everyone's experience and knowledge and taking into consideration the diverse situations encountered, these exchanges opened lines of inquiry for optimising surveillance and regulation enforcement practices in MPAs.

Duration: 90 mn.

Objective: identify best practices.

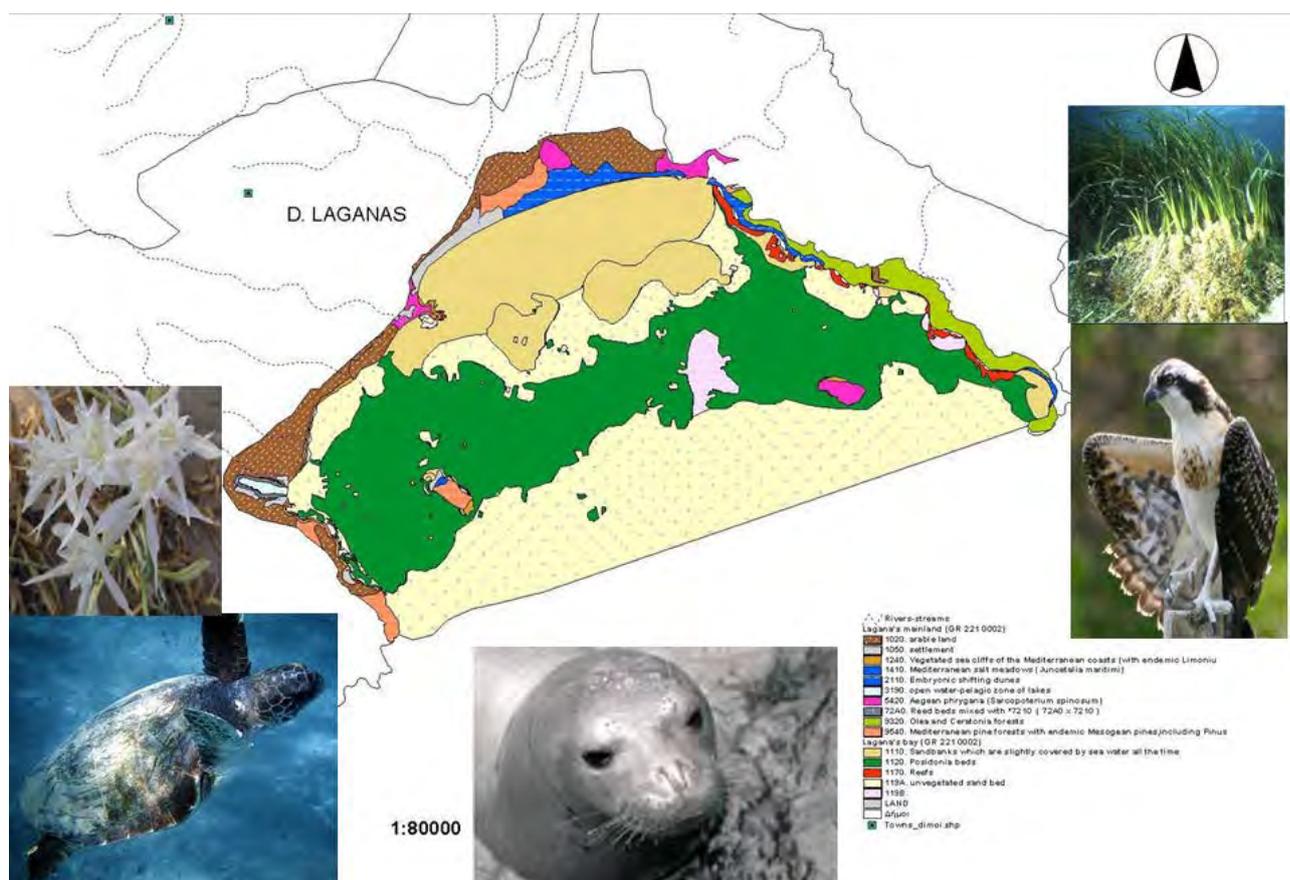
Surveillance and control of users and activities

National Marine Park of Zakynthos, Greece

Presentation by Laurent SOURBES

Moderator: Nicolas GERARDIN

The National Marine Park of Zakynthos, which was established in 1999 by Presidential Decree, has been managed since 2000 by a management body. It is located on the southern coast of the island of Zakynthos in Greece. The NMPZ has three species in its area (the Loggerhead turtle *Caretta caretta*, the Mediterranean monk seal *Monachus monachus* and the Cory's Shearwater *Calonectris diomedea*¹) and marine habitats (*Posidonia oceanica* seagrass meadows) which are classified as a priority under Annexes I and II in Directive 92/43 and Annex I in Directive 79/409 EEC.



The NMPZ's main objective is to protect and manage one of the most important nesting areas for the *Caretta caretta* sea turtle in the Mediterranean (1,200 nests per year on average in Laganas Bay), whilst supporting and developing sustainable economic activities in its space of legal competence. The approach

¹ The Cory's shearwaters nest on small islands 30 nautical miles south of Zakynthos. These small islands have a protection problem: their remoteness entails a complex management and requires significant resources.

used by the NMPZ aims at integrating the objectives of the National Park into the local socio-economic context through the prism of sustainable development.

A comprehensive legal framework

The NMPZ has a specific presidential decree with a comprehensive legal framework, and also has a set of European guidelines, as well as national laws outlining management, conservation, sustainable development, cooperation, and network issues. Most of the Park's activities thus fit into a comprehensive legal framework, which contributes to the clarity of the objectives and of the means implemented to attain them.

Key pressures

Zakynthos is a tourist destination with leisure activities and professional business activities that need to be regulated; indeed, professional businesses develop products that are often based on issues of quantity rather than quality. But the notion of quantity, in the sense of products of mass consumption, creates a problem of coherence within a national park and often has an impact on protection objectives.

The main dangers for the Loggerhead turtle are speed boats (collisions), the possible destruction of nesting sites on beaches, destruction of nests by parasols, fishermen bycatches, and the problem of street lighting which creates a phenomenon of disorientation (especially for baby turtles who instead of heading towards the sea go back inland and to certain death).

Implementation of a surveillance and activity control system

Implementing a surveillance and activity control system was essential as soon as the Park was created because of the marine protected area's size (89 km²) and its geographical peculiarities: it contains a separate marine area - the Strophadia Islands – which is around 30 nautical miles from the island of Zakynthos. It also has an ecological importance for nesting Loggerheads.

Since 2001, surveillance programmes were developed, implemented and are evaluated annually. The underlying logic of controlling activities and users in the MPA is based on:

- The management body's competence. As the Park's agents are not commissioned, surveillance is shared between the management organization and institutional authorities (mainly maritime police).
- Suitability of the resources available (staff, equipment, infrastructure) for the protection objectives. **The priorities are categorised** depending on the degree of pressure exerted on the protected area and particularly the nesting beaches. Thus, since the establishment of the management body, the focus was on protecting the coastal zone and enforcing legislation in the marine area which is mainly the local maritime affairs' responsibility. Since 2006, the acquisition of equipment required

for surveillance at sea and hiring specialised staff has made it possible to gradually intensify surveillance and make it more effective as well as controlling activities in the MPA.

- Reinforcing governance by involving the institutional authorities more and making them participate in the MPA's protection and conservation objectives. With this in mind, since 2011 patrolling in the marine area has been carried out jointly (1 Park agent - 1 sworn officer of the maritime police), which in addition to being more efficient has significantly reduced the costs in terms of resources and personnel.
- Continually reconsidering implemented objectives and resources through a quantified assessment of the surveillance programme. In order to do this, all the components of an effective surveillance are discussed: such as the number of offenders, the type of infringements, the level of information provided to the public (number of brochures printed and distributed, signage on land and at sea, number of hits to the website's surveillance page, number of offenders informed etc...); vocational training and regular information given to the competent authorities and the relevant Park staff whether they work in the land-coastal or marine side; evaluation of staff efficiency and loyalty which ensures a continuity in the operations (number of patrols, busy areas, initiatives taken...); establishing a periodic scientific monitoring linked to management objectives and the participatory level of users to the MPA's goals and objectives (voluntary work, signed and implemented cooperative charters, forums).
- Rational use of available resources and particularly technology that can reduce significant costs in resources and staff (applications on Android phones which inform users on entering protected areas, satellite surveillance of users via transmitters, such as the VTMISS system²).

Recommendations

Encourage simplifying legislation

To enforce the law, it must be consistent with the main management objectives of the MPA. And as far as possible, this law must be clear and applicable. Some measures have the right intention, but are not adapted to the realities on the ground. A legislative framework which is too rigid, complex or unusually coercive is inapplicable, which tends to undermine simple and effective actions that could be undertaken.

² Vessel Traffic Monitoring Information System

Link the various elements of the MPA's operation to the surveillance activity and implementing regulation enforcement

It is essential to link the various elements of the MPA's operation, such as capacity building, information, governance, environmental education, participatory approach, the acquisition of infrastructures and equipment, surveillance activity and implementing regulation enforcement.

These elements are "allies" that can contribute to effective and efficient enforcement. They may also contribute to reducing pressure from human activities in a protected area and thus provide alternative solutions to coercive law enforcement: a museum, an information centre are such alternatives.

"At Zakynthos, one of the assessment criteria for Park agents' effectiveness is the number of leaflets they distribute because every time they give specialised information to someone, they are talking to people, making contact. It is important that visitors feel there is an interest in them and not that they are just in a protected area with rules to follow", says Laurent SOURBES.

Participatory approaches can also contribute significantly to surveillance, as long as the stakeholders, whether they are fishermen, boatmen or other users, benefit from the implemented regulation and from the favourable environmental status of the area they use.

In any case, it is essential that the message delivered to users is clear and has prospects for the sustainability of their business over the long term, whether these are professional or recreational activities.

Implement regulations based on management priorities

Responding to pressure always comes down to a problem of energy, resources, and scientific knowledge. To protect while developing, means that one must establish management priorities based on the connection between threats exerted and the type of activities being developed in the area.

In NMPZ's case where the main objective is to protect the Loggerhead turtles' nesting sites while supporting and developing sustainable economic activities, priority is given to monitoring beaches then marine surveillance to prevent collisions between turtles and speed boats³, and lastly the control of fishing (which does not affect nesting but may pose a problem of incidental catch of marine turtles).

"This order of priority was established based on our knowledge of simple facts which enabled us to impose certain rules and reduce the impact of activities on nesting," explained Laurent SOURBES. "For example, the simple act of going to the beach and swimming has a potential impact in nesting sites (use of umbrellas, sand castles, noise pollution, etc.). When we see that there are 700,000 visitors over the summer season, we understand that there is a need to regulate all activities and to enforce rules. To ensure this protection, information and adapted coercive measures are required. "

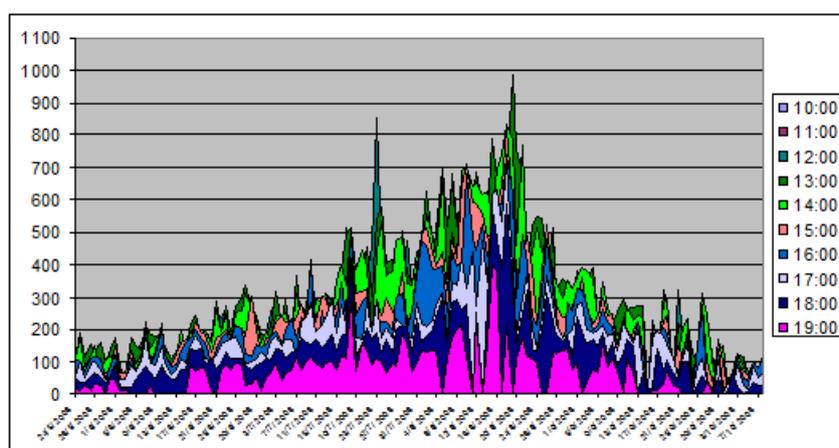
³ The problem with the boats' speed in the Gulf is that it endangers 300-500 turtles resting there all day (waiting till night to reproduce).

Support management measures and regulations by scientific monitoring

Scientific monitoring is one of the pillars for an effective implementation of regulations and management measures: it is the foundation for defending regulation; it enables to validate or invalidate actions in the field.

Laurent SOURBES illustrated this by giving an example of the value of monitoring to implement adapted management measures: "At Zakynthos, we have to manage the number of visitors to a beach where there is a limit set by law of 350 people at any one time. This beach, which is a nesting site, is very popular with tourists. In August we can count up to 1,200 people at any one time. We were faced with a legal framework completely out of phase with reality.

In order to manage the pressure of tourists on this beach, we relied on scientific data (socio-economic and environmental): we observed that the visitors all came at the same time (peak time can be seen on the graph below). To control the numbers, it was decided to hand out scheduled tickets (free of charge) showing people their time of entry and departure time. Depending on the period of the year (high/low



season) while taking account of the repartition of nests and visitors on the beach, we established a maximum limit of two hours (beginning of afternoon) or of three hours (morning and evening). In encouraging them not to go to the beach all at the same time, this measure allowed a better management of visitors.

Initially, the local operators did not appreciate this approach, but it was respected by 99% of people without any real need to control (they were asked to return their tickets on departure allowing us to count them). This approach required few staff so also provided an efficient response with low resources. Today, the beach welcomes between 120 and 130 000 visitors per year, but this attendance can be considered under control."

In the long term, such an approach also promotes a clearer understanding of the Protected Area's carrying capacity and contributes to establishing coherent regulations.

Bring appropriate responses to immediate pressures

It is essential to always be able to adapt, especially in emergency situations which were not foreseen by the legislator. At Zakynthos, if there is an immediate threat to sea turtles, priority is given without discussion. Thanks to scientific monitoring, adaptive management allows a rapid response to unpredictable incidents at any time.

For example, turtle egg hatching during the day when the beaches are crowded requires, as Laurent SOURBES explained, an immediate response to an emergency situation: *"In general, turtle breeding activity combines well with summer visitor activity: the visitor and the turtle in principle never meet on the beach⁴, except when hatching occurs during the day, requiring an immediate intervention by our guards, so that people do not impede the baby turtles' access to the sea (we immediately delimit the area with barriers so that people respect the distance)."*

Develop a strategy for “amphibious” monitoring

"MPAs are unique in that they can involve us in amphibious surveillance on land and at sea," says Nicolas GERARDIN. Given the constraints of surveillance at sea (weather, high costs, inability to have boats available at any time, distance⁵...), effective surveillance generally means that it must be based on land and at sea. Thus, at Zakynthos the guards patrolling the beaches also monitor the marine area and warn the marine patrols when they see speeding or entry in an exclusive protection zone.

Favour an adaptive strategy to cut costs of control measures

Juan Carlos JORQUERA GAMEZ reflected on the importance of an adaptive strategy to cut the costs of control measures: *"In Spain, a few years ago when we were "rich" (before the crisis), we did deterrent patrols. The deterrent was a permanent presence of patrols in the reserves. Today, we can no longer afford it, so we must focus on adapted control measures which aim to surprise the offenders in the act. We observe that this strategy is effective: offenders tend to disappear when such operations are conducted successfully."*

Cooperate with the competent authorities

It is important to distinguish between the MPAs whose agents are commissioned and MPAs whose agents have no coercive power. It is therefore essential that there is a close cooperation between the MPA agents and the competent authorities (Maritime Affairs, Police, Customs...) in the latter case.

"At Zakynthos, for agents with no coercive power, the measures taken are naturally subject to the NMPZ's cooperation with Maritime Affairs, maritime police and other relevant authorities."

⁴ *"Regarding the issue of visitor management in combination with reproductive activity of the turtle, we consider a set of factors to be favorable: the turtle remains at sea in the bay of Lagana during the day, while tourists are on beaches. In the evening, the turtles get out of the water to spawn, while visitors are not there, the beach being closed and surveilled from 19h to 7h. When visitors arrive and settle on the beach, in a limited zone 5 meters from the sea, they do not have access to the back of the beach where turtles have nested",* Laurent SOURBES.

⁵ Especially the small islands called Strophades as they are very far from Zakynthos (30 nautical miles), an important site for migratory birds and Cory's Shearwater breeding site: it takes 2 hours by boat to get there, and the guards are forced to stay one to two weeks, sometimes even three weeks due to weather).

We must therefore motivate and get these administrations interested in the Park's objectives and to do this we need to schedule meetings (just before the tourist season and just after)," recommended Laurent SOURBES.

Like many participants in this workshop, Laurent SOURBES stressed that developing such collaborations takes time and it is also comes down largely to people.

Since 2011, at NMPZ this cooperation is seen through joint patrols involving Park agents and Maritime Affairs. These joint patrols are more efficient in terms of rapid response⁶, and also enable to combine information and appropriate sanction. *"It works perfectly as the Park agent and the Maritime Affairs guards are aware and accountable to both sides. They represent different organizations with different powers, but each one wants to show the other that he does his job well," says Laurent SOURBES.*

In the Port Cros National Park, where the situation is different because the Park's agents have police powers⁷ and therefore a degree of autonomy, cooperation with other competent authorities is also considered an asset. *"To establish cooperation with these authorities, one must however be able to overcome our cultural differences. We must educate these police players in environment protection issues. This involves training sessions with them to identify crucial elements in the territory which need surveillance"* recommended Nicolas GERARDIN.

Reflecting on the Banc d'Arguin National Park (Mauritania) experience, Ahmedou OULD HAMADI for his part stressed the limits of a surveillance system, which if MPA agents do not have enforcement powers, entirely depends on a cooperation with external authorities: *"in the Banc d'Arguin National Park, despite the legal skills of agents required by law, they were not sworn-in between 2000 and 2008. Even though we have a strategic partnership with the Mauritanian Coast Guards (from the Navy), the Park's agents are often the only ones present to record infringements and transmit information. But long delays in information processing encourage repeat offenses and discredit the agents' work. Since 2008, the swearing-in process has been accelerated: today we have 30 sworn officers who have also been trained in booking procedures. We have observed that since 2008 deterrence has become important (offenders are wary because they now have agents in front of them with enforcement powers). **If your decree does not provide the controlling agents with legal powers, I advise you to quickly move in this direction.**"*

If the Manager claims to apply the law, he must comply to it too

Some particularly important elements for an effective implementation of regulations are signposting and appropriate facilities such as organised moorings. They provide limits and do not let people who violate the regulations use the classic excuse "I did not know."

⁶ Previously, the Park's agents reported offenses to Maritime Affairs. By the time they arrived, it was usually too late.

⁷ In France, National Park agents are part of a State organization which includes agents from the National agency for hunting and wildlife (ONCFS), fishery officers from the National Office for Water and Aquatic Environments (ONEMA), and National Park agents. They are appointed by the Ministry of the Environment, and they are sworn-in by the High Court. They have police powers, which in a number of cases even goes beyond theirs.

It is also essential that the manager uses eco-friendly means to respect the environment which is his mission to protect "*Posidonia is a protected species, and the effort made by the NMPZ to equip its marine area with anchorages that do not affect this species*"⁸, gives it legitimacy to fight against those who would harm it", says Nicolas GERARDIN.

Maximise the effectiveness of surveillance operations by using new technologies available

To compensate for limited resources, alternative solutions can be found by using available technology. To monitor illegal trawling activities (prohibited throughout the MPA) in its marine zone, the NMPZ uses data from the *marinetraffic*⁹ website for example. This site is easily accessible and allows you to see the position of vessels practically in real-time (data is regularly updated every two hours). Also, the Maritime Affairs in Greece have a similar tracking system for trawlers, that allows them to collect information on their movements over time and eventually to identify entries and fishing activity in the NMPZ's protected area. In case of proven infringement, this system allows the Maritime Affairs to prosecute the offenders, even though the offense was committed in the past.

The Port-Cros National Park is trying out the "Recopesca"¹⁰ tracking system. It is an active fishing boat geo-location system: boats are equipped with a beacon system which gives information on their movements (speed and course), on the biochemical water quality, the temperature, etc... For trawlers, sounding lines measure the depth at which the net is dragged. This enables to precisely assess the environmental conditions and areas where the boats fish. Recopesca is interesting both in terms of surveillance and in compiling data to improve the organization of fishing activities in the area.

Juan Carlos JORQUERA GAMEZ reporting on **the situation in Spanish reserves**, explained how the use of simple technologies such as photo, video and GPS (or differential GPS¹¹ for greater accuracy) allows overcoming the current lack of sworn personnel: "*The administration does not have enough staff to do surveillance missions in our reserves. Our guards are contract staff. They are not really State agents so what they report on is not necessarily regarded as true. To solve this problem, we provide them with the technical means to get evidence on what they report: the guards take a photo with date, latitude, longitude, or better still a film showing the offender in action (fishing in a prohibited zone, removing the anchor with Posidonia leaves...).* These will be used as evidence; this is important because if a guard reports an offense and it is not sanctioned, it discourages them."

For Enrico Barro from the company VITROCISET, which has developed a **user tracking system using an Android operating system within the European MEDUSE project in partnership with the La Maddalena National Park (Italy)**, the technologies exist, are easy to use, cheap, and are a source of potential income: "*tracking users is fundamental for MPA managers. However, the downside is that users do not want to*

⁸ The NMPZ has opted for "harmony" anchoring systems in Posidonia meadows (protected habitats)

http://www.portcrosparcnational.fr/documentation/pdf/technique_Ancrage%20Harmony.pdf

⁹ <http://www.marinetraffic.com/>

¹⁰ <http://www.ifremer.fr/peche/Les-defis/Les-partenariats/Avec-les-professionnels/Recopesca>

¹¹ DGPS : http://fr.wikipedia.org/wiki/GPS_diff%C3%A9rentiel

be tracked. Our solution is to provide a service in exchange for geo-location information. The user registers on arrival at the park and is discharged from paying an entry fee (La Maddalena Park has an entrance fee). In exchange for his free admission he gets Park services: he is informed of the regulations and zoning (therefore ignorance can no longer be an excuse), he is being offered paid services. Our experience shows that the user is satisfied with this type of approach.

For the manager, this approach allows a more effective control of users (he will know who has paid, where the user is...), manage the access and capacity of certain areas (ability to limit access to a bay to a certain number of vessels, or limit the anchorage time...).

This type of tool enables to implement a pay-per-use policy, but above all favours a true environmental protection policy. "

Stay up to date on changes in the Law and regulations

Keep an eye on any changes in the Law and regulations (not overlook general legislation which may exceed the MPA's scope, but must be applied if applicable in the maritime domain of the country concerned) and give this information to the relevant agents.

Evaluate actions carried out

Always call into question the actions carried out by evaluating them: at NMPZ, guards daily fill in standard forms. From the information collected, the Park makes a statistical evaluation of the situation in the protected area to see if it is improving or getting worse.

Capacity building: agents gain knowledge and skills beyond surveillance missions to reinforce their commitment and avoid the "resignation" phenomena

Capacity building is fundamental: "Ongoing training makes the Park agents interested in what they are doing, involves them in scientific monitoring, motivates them, helps them develop a real sensitivity which makes them more efficient. This is particularly important in a context like NMPZ, where agents are not commissioned and therefore have no coercive power. This can give a feeling of frustration or even make staff resign in view of conflicts that can arise. Ongoing training and also discussions help to create interest and avoid resignations. Involving rangers in actions that are indirectly related to surveillance activities, such as collecting scientific data, tends to reinforce their commitment and responsabilisation", says Laurent SOURBES.

Support agents' actions

Staff assigned to do surveillance must feel protected and supported by their employer and the administration in order to limit the effects of wear or "resignation" that occur when they feel threatened in their role, especially when they are not commissioned. *"The agents who are really committed to the daily exercise of their duties, feel alone in the world and are unmotivated when they are not supported by the courts or are under pressure,"* says Nicolas GERARDIN.

Develop long term actions and find alternative solutions for sustainable funding

Political will and sustainable funding are fundamental to carry out sustained and effective actions over the long term.

Surveillance involves staff, boats and land equipment, infrastructure that can operate all year-round. All this comes at a cost, explained Laurent SOURBES: *"At NMPZ, surveillance requires permanent staff near the beaches and patrols day and night in Laganas Bay. In order to carry this out, the Park needs cars, boats, and recruits a large number of staff who do 24h surveillance for six months of the year. The costs and investment required for this surveillance are very high. The problem we face is that this cost is not borne by the State, but by European programmes without a guarantee that the programme will continue from one period to another. This poses a continuity problem. But continuity is the key to effective management: if for some reason we had to stop operating, the links would be cut and very difficult to rebuild"*.

Juan Carlos JORQUERA GAMEZ is concerned by the significant budget cuts in Spain which could result in the reserves losing the benefits from 25 years of management: *"policies must measure what could be the ecological and economic costs of the loss of these types of services in protected areas because if controls are stopped this could mean losing all the efforts made."*

This concern is shared by all; the issue of sustainable funding was mentioned by Zafer KIZILKAYA and Abdennadi ABARKACH who questioned Laurent SOURBES on the possibility of establishing a payable scheduled ticketing system to manage the MPA's carrying capacity. **Ahmedou OULD HAMADI explained here how the operation of the Banc d'Arguin National Park (Mauritania) has recently changed from a project-based funding to a trust fund mechanism:** *"the marine surveillance system in BANP was established in 1999. And since then it has been supported by projects (the current one will end in 2014). But since 2010, we started a sustainable funding mechanism through a trust fund which now totals 14 million Euros, and the interest generated from this fund will allow the institution to sustain its marine and land surveillance system. This is important because, as pointed out Laurent SOURBES, the cornerstone of marine surveillance is continuity, and continuity is dependent on sustainable funding."*

Coordination of competent institutions

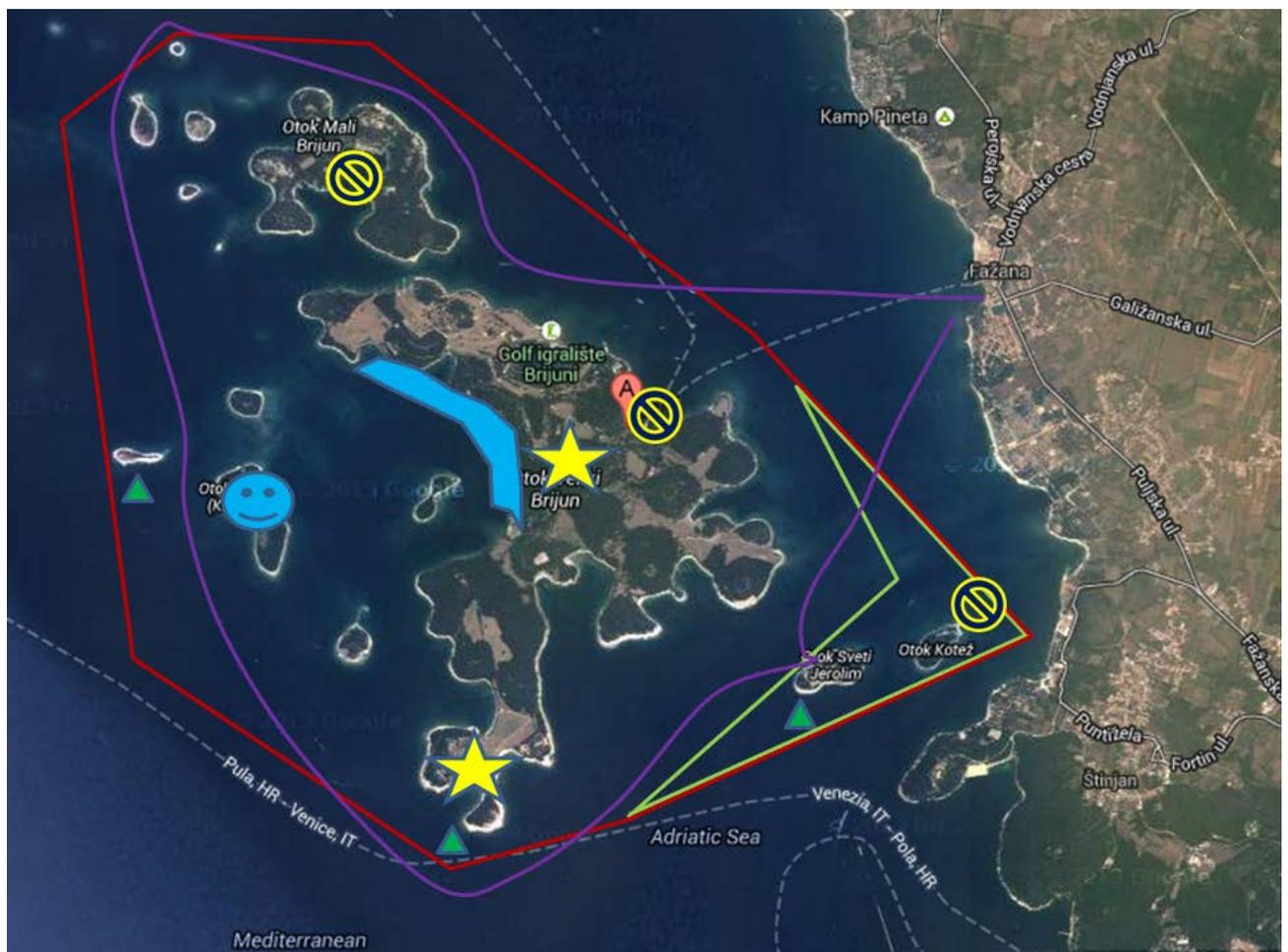
Brijuni National Park, Croatia

Presentation by **Sandro DUJMOVIC**

Moderator: Giuseppe DI CARLO

Brijuni's public institution manages the Brijuni National Park¹². Brijuni National Park covers a relatively small area (34 km²) and includes 14 islands which is a real challenge for surveillance.

The only residents on the island are the Army and Presidential Guards. However, the mainland coastline nearby is significantly urbanised with 67,000 people living in the area and they go to the islands for leisure activities: recreational fishing, swimming, boat outings... **Every year, a total of 150,000 visitors come to Brijuni.**



¹² Created in 1983 and entirely owned by the State.

Brijuni National Park: an essential interlocutor with many responsibilities

Most activities take place on the main island of Veliki Brijun, where two major players are based: the Army and the Presidential Guards who are in charge of guarding the Presidential residences on the island.

Visitors go to the island on one of the ferries that is owned and managed by the National Park. Some visitors stay in one of the three hotels that are also managed by the Park.

But the Brijuni National Park's competencies do not stop there, as it is also responsible for providing water, electricity, gas, maintaining the paths...

Given its many responsibilities and a specific island lifestyle, the National Park has to have a strong coordination and close cooperation with its partners on the island (Army and Presidential Guard), and more widely with other institutions and players who have obligations, rights or interests in the MPA. The successful management of Brijuni National Park relies on establishing agreements and contracts, but also on an informal daily communication with these stakeholders.

Agreements and contracts negotiated with the economic players in the territory

Stakeholders from the mainland consider that they have rights on some uses of the islands and surrounding sea which they used on before the National Park's creation, so the Park must negotiate. Formal agreements and contracts are made with dive centres and tourist excursion boat companies that were awarded concessions through public tenders. The Park also establishes contracts with other tour operators, defining the rights and obligations of both parties.

Sandro DUJMOVIC gives an example of the negotiations between the Park and the fishermen who switch in the summer and become tour operators: *"Like in all national parks in Croatia, professional fishing is prohibited in Brijuni. In the past, we have been in conflict with local fishermen as they entered the Park area. Six years ago, we made an agreement with these fishermen, who revert into tour operators in the summer: the Park no longer takes tourists round the islands with its boats, but leaves this activity to fishermen from Fažana and Pula (two of the nearest towns to the islands). Currently, 25 fishermen make a living from this activity in the summer. They take 10-20 people each and tour round the islands."*

Good results from a coordination with the competent authorities

Despite a permanent surveillance activity carried out by the National Park's guards who have two boats at their disposal as well as a video surveillance system, it is not easy to ensure the protection of the marine environment against illegal activities.

Given the park's proximity to the mainland, its archipelago layout, fines which are an ineffective deterrent¹³, as well as collusion that professional fishermen infringing regulations¹⁴ benefit from, it is very difficult to deal with illegal fishing.

The National Park's resources and powers are insufficient, so it is therefore essential that it can rely on other authorities who have the jurisdiction to intervene, namely the police, fisheries inspection, the port authority and the army¹⁵. The Law for the Protection of Nature (OG 80/13) defines various cooperative measures between these players and protected areas, but they are sometimes inadequate or redundant with other laws and can be interpreted differently. A formal document certifying coordination is always better for a public institution, but congenial communication and understanding often facilitates mutual coordination. **As Director of the Brijuni National Park, Sandro DUJMOVIC makes monthly telephone calls to these authorities to run through their coordination.**

Although this coordination is unofficial, it brings solutions on several levels:

In terms of surveillance, the fisheries inspection and police are based in the city of Pula which is in the immediate vicinity of Brijuni, so it is easy for them to conduct surveillance missions in the archipelago. **Police officers arrive on the island before dawn, to thwart offending fishermen's collusion with getting information on the patrol boats' position, and discreetly observe from land any possible intrusions by fishing boats in the Park area.**

On a judicial level: given the limited deterrent effect of the low fines that the park guards are entitled to give, prosecuting offenses should be dealt with in court. However, the prosecution process is complex and time consuming. **Brijuni National Park made an agreement with the police so that the latter take charge of the prosecution process when an offender is arrested by the Park's guards. This method is simpler and more secure because the police have standard procedures to bring the offender before a judge.**

*"The Park's informal cooperation with the competent authorities currently works very well, we sometimes even lend them our unmarked boats so that they are not recognised, we provide them with vehicles to patrol the island... This cooperation works. **The only problem with informal cooperation is when our interlocutors change,**" concluded Sandro DUJMOVIC.*

¹³ National Park's guards can only enforce fines of up to a maximum of €100, which is not a deterrent especially for professional fishing.

¹⁴ Some fishermen violate regulations by fishing inside the Park where the fish biomass is 6 times higher than the one measured outside.

¹⁵ The army has significant radars and videos resources available, but is not authorised to act as the surveillance authority. Thus, a formal agreement with them is not possible. However, it does provide information on illegal entries into the Park.

Recommendations

Informal, formal cooperation, a bit of both? The point is to be effective!

If, as Sandro DUJMOVIC pointed out, it is of course preferable that cooperation is within a formal framework, it is not always possible or successful.

In Croatia, the reason why inter-institutional coordination is not formalised in the management plan is because the management plan has no legal value: *"if we decide, for example, to create a no-take zone, this will be explicitly mentioned in the management plan. However, if fishermen violate this area, it will only be possible to prosecute them by applying other laws. The management plan itself is not recognised by Law,"* explained Sandro DUJMOVIC.

It is a very different situation in France for example, where, as highlighted by Jean -Marie DOMINICI *"when a MPA manager meets the prosecutor or the Maritime Affairs, he has the Law and the State's will behind him. This support, given by a structured policy and legislative framework, facilitates the formalisation of agreements to implement management policies. "*

On a Mediterranean level, the situation can of course be very different from one country to another. As Giuseppe DI CARLO observed, *"many Mediterranean countries simply do not have a structured policy and legislative framework enabling to implement a management system and regulations in MPAs. Others have a clear legislative framework, but do not have a structured operational one. Italy, for example, falls into this second category: we have specific laws which provide the appropriate jurisdictions and applicable fines, but there is a significant disconnection between the Law and the means of applying it."*

On a regional level, few countries (perhaps none) have both a legal and an operational framework sufficiently structured to institutionalise the coordination of competent authorities in implementing a management system and regulations in MPAs. Hence, Sandro DUJMOVIC pragmatic recommendation to "do one's best" depending on the local situation. Whether cooperation is formal, informal, or a bit of both, the point is that it guarantees efficiency.

Develop good relationships with the competent authorities

Whether preparing for a future cooperation or maintaining an existing agreement, it is essential to communicate, schedule meetings and build good relationships with the various competent institutions.

"At Brijuni, we invite the authorities to field trips, anniversaries, we host their guests, we distribute calendars at the end of the year... these little things often make the difference," said Sandro DUJMOVIC.

Maintaining regular contact with the competent authorities can safeguard cooperative frameworks set up between institutions beyond individual contingencies. Alain MANTE pushes the argument further, by recommending to **"always being alert to a change in situation or people, to seize any opportunity to**

make a difference. A change of interlocutor can be seen as a problem whether it is users, fishermen, the Prosecutor, the police services, but it can also be to the manager's advantage. He can take advantage of this opportunity to detect competent and motivated people to work with and build lasting partnerships.

In Marseille, where as you can imagine the criminal courts have a lot to deal with (murder, drugs trafficking...), the Prosecutor appointed a Vice-Prosecutor to be in charge of the environment. Motivated by the important challenge that the creation of a new Calanques National Park¹⁶ brings, he set up a "Calanques" task group which meets up with the terrestrial and sea police services and the Park's agents twice a year. This task group helps to move the Park's criminal policies forward. This system was implemented right at the beginning of the National Park's creation because at that time it did not have any agents, and this meant that the sea police service actions could be quickly coordinated, as the latter did not previously intervene on the environment."

Raise the judicial authority's awareness

The judicial authority's awareness of MPA issues is a crucial challenge and it was repeatedly pointed out during this workshop and in this particular working group.

Many managers observed, as indeed did Sandro DUJMOVIC, that if the fines and penalties imposed are often not a deterrent, the problem usually stems from the courts' misconception of the offenses, rather than the Law itself: *"In law enforcement, the fisherman-poacher's boat can be seized, but in practice this does not happen. We have the case of an offender who has twenty lawsuits against him, but calmly continues to fish. When speaking to police in the field, I find that they are often demotivated in having to constantly question the same 5 to 10 offenders that the justice allows to continue breaking the law with impunity. "*

The media as a tool to raise awareness:

The media is an effective way to raise the judicial authority's awareness of MPA issues and motivate police forces to participate in control operations. This is what Sandro DUJMOVIC illustrated in the Brijuni case *"media coverage of the MPA in the press, on TV, on social networks shows how the Park is important for the environment and fishing, helps to educate competent authorities and stakeholders in general. We also do a lot of environmental education with children who on returning home become good ambassadors for the Park. All these actions put together help to change attitudes and ensure the concerned authorities' commitment."*

Guillaume SELLIER thinking back on his experience at Maritime Affairs also supported this approach: *"I think using the media is the right way forward. Initially, I had the same problem as you: the courts were not convinced of the impact of illegal fishing activities. Through articles in the press, topics on TV that we obtained, the number of fines has increased by 600% in three years, and we have managed to significantly reduce our illegal fishing activities."*

¹⁶ Calanques National Park, created in 2012

Have an open discussion with the judiciary to reach an effective agreement:

Media coverage appears to be an effective strategy to raise awareness, but is not enough to guarantee good results over time. Indeed, it is essential to raise the Prosecutors' awareness on the severity of environmental offenses, but the murder, rape and other assault cases they are faced with remain a legitimate priority.

Guillaume SELLIER reflected again on his experience on this subject: *"In France, we have many prosecution proceedings, the main one being to prosecute the offender in a court. But we cannot solve every problem in this way, it is not possible. So I had a discussion with the Prosecutor in order to find an effective way to proceed, taking into account his objectives and problems and mine. He told me he wanted to help reduce illegal fishing without having to go through the courts. We managed to reach an effective agreement: a deputy Prosecutor was appointed. In this way, we managed to increase the rate of prosecutions without overburdening the courts and tackle illegal fishing, which was our goal."*

A pragmatic approach that Guillaume SELLIER further emphasised through two recommendations:

- Only transmit strong cases to the prosecutor. In order to do this, one must be fully informed on the legislative and procedural framework, so that they lead to prosecutions ;
- Initially, only transmit high profile cases to win the judiciary's trust. This trust is built over time.

Promote the fact that police powers should be given to MPA guards

Coordination between police forces and the judiciary is an undeniable asset for implementing a management system and regulations in MPAs, but several participants moderated that **cooperation can be limited when the manager does not have coercive powers**. The manager due to his lack of authority in this department is indeed subject to the whims of the competent authorities' representatives, to the hazards of changing job positions, and in general to local constraints (remoteness of administrations, priority given to immigration control in border zones, crime, etc...).

Ohn VALENCY summarised this point of view: *"It is always advisable that the manager has coercive powers because it ensures consistency with management objectives. If you win the Prosecutor's trust, but then he is transferred or you change position, everything must be started again from scratch: this is a problem. In Israel, we have coordination with other competent authorities, but we are glad that our guards have police powers. In the environmental domain, they have the same powers as other police forces. Moreover, prosecutions are environmental prosecutions¹⁷, and therefore we are not dependent on Public prosecutions¹⁸, the latter being naturally more concerned about murder, rape (...) issues rather than environmental offenses. "*

¹⁷ Environmental prosecution

¹⁸ Public prosecution

Giuseppe DI CARLO also felt, that relying on cooperation agreements and good relationships with the police for regulatory implementation is not enough in the long term: *"In Italy, the Ministry of the Environment gives mandates to Coast Guards to enforce the Law in MPAs. Therefore, there is an inter-institutional coordination on a ministerial level (the Coast Guards come under the Ministry of Defence). However, this is insufficient for various reasons, starting with the lack of resources. The coordination effectiveness between local authorities also depends on local conditions (an affinity between the governments' representatives and locals, especially in smaller communities) and the interest of individuals in positions of power. So, in my opinion, a structured regulatory tool and a clear legislative framework is not enough. **I think the only valid model is one where the guards have the authority to exercise police powers and where a MPA has the skills and resources to take responsibility of its own management.**"*

Build over time

*"We must not resign ourselves to thinking that what works in Europe cannot work elsewhere: stakeholders are the same here as elsewhere. What makes the difference is time; we cannot expect stakeholders to behave like those in Port-Cros, which is celebrating its 50th year of existence this year, and in a recently established southern Mediterranean MPA. **We must work over time with the local community**",* concluded Sandro DUJMOVIC.

Encourage voluntary compliance

Cabrera National Park, Spain

Presentation by Jorge E. MORENO PEREZ

Moderator: Chloë WEBSTER

In 1991, Cabrera National Park was the first terrestrial and marine National Park created in Spain. To ensure its conservation, regulations must be established and enforced. The managing body must have adequate human resources and equipment to ensure these regulations are complied with.

If voluntary compliance to the regulatory framework is improved, management can be simplified, resources can be reduced and conflicts between users can be avoided. The problem with promoting voluntary compliance is that *"a typical behaviour pattern' does not exist. Compliance depends on the type of users, and ultimately each person's education and attitude"*. **A communication strategy must be developed to disseminate information on the rules.**

A communication strategy using various media

This information must be made available in several different ways because some users do not use the same media. The Internet is not enough. We must consider the users on site, when they are in a boat for example.

Internet website:

The Cabrera National Park's website gives all the information required by visitors and even offers some services, such as the possibility of buying an anchorage permit and pay directly online. Jorge MORENO explained how it works: *"To enter the Cabrera National Park visitors need a permit. Leisure boats can tie up at any one of the 50 buoys at their disposal. They can stay 1-2 nights in the summer, and up to 7 nights out of season. In order to do this they need to download a permit from the website and pay online: this upfront payment policy has enabled us to find solutions in managing the anchorage area. **The advantage of this approach is that when the users make an Internet booking, we ask them to press the button "I commit to comply with the MPA regulations". This does not mean that they have read all the rules that we ask them to comply with, but at least some of them, hence the need to develop rules which are simple to understand"***.

Media coverage:

Media coverage of events such as the release of a turtle in the presence of politicians, or the King's visit in the summer can reach a wide audience through traditional media (newspapers, TV).

Information on site:

Signage is one of the essential aspects of communication: **information must be made available to visitors upon their arrival on site.** "*Cabrera is an island, so every visitor arrives by boat. Whether they come in their own leisure boats or by ferry, we strive to give them information as soon as they arrive*" says Jorge MORENO.

- **In the summer, the guards meet the leisure boats on arrival**, informing them on where the moorings are and how they work, giving them practical information (the Park office's location...).
- **Visitors travelling by ferry¹⁹ to Cabrera are informed by the ferry company**, which is required to disseminate information provided by the National Park and is stipulated in their contract.
- **The Park's information centre is located in the immediate vicinity of the quay thus visible to every visitor which also helps to give information straightaway.**

The advantage of this approach is that it shows visitors upon their arrival on site that they are in a regulated environment.

Participatory approach which guarantees an effective sharing of information

To provide information, Cabrera National Park seeks to involve the local community. The Spanish National Parks' governance incorporates this participatory approach by giving an important role to Advisory Committees. Cabrera's Advisory Committee is composed of 21 members²⁰ who annually give their opinion on the balance sheet and the Park's activity projects. The Ministry may take any final decisions; however, in 33 years not a single decision has been taken against the Council agreement.

Every six years, it also takes part in the process of revising the Park's management plan: "***the management plan's revision is based on a public consultation, via the Park's Advisory Committee in the diagnostic and objective definition phase, and in consultation with a wider group of stakeholders in the development and recommendation of solutions phase.*** Cabrera National Park's latest management plan was submitted to a list of 90 individuals and associations representing yacht clubs, every municipality on the island of Mallorca, fishermen, scientists and university ... and all were invited to give their advise on the management solutions advocated" said Jorge Moreno.

This consultation process gives legitimacy to the management plan.

¹⁹ Limited to 300 visitors maximum per day. Tour-boat companies get conditioned concessions (respecting all the MPA regulations, max 300 visitors day on boat.); they may lose the concession if not complying; Companies owing a concession are asked for a deposit to cover eventual fines and incidences.

²⁰ 4 regional administrative representatives, four State representatives, 1 from local administration, 1 from the municipality of Majorca, 3 scientific authorities, two NGOs, 1 fishermen representative, 1 police (Guardia Civil) representative, Chairman of the Park, its director, and a guard representative

The importance of feedback

The Cabrera National Park's functioning requires its partners do reporting: the transport operators who bring in visitors are required to provide an annual report on the number of tourists they have transported. Similarly, fishermen must fill in every day a form in which they account for their activities²¹.

Counting the number of visitors arriving by ferry can thus be compared to the National Park's data, and the fishermen's statements can be correlated with boat positioning and fishing gear reports made daily by the Park's staff.

Recommendations

Identify and prioritise the MPA's interests and needs

Reflecting on the Cabrera National Park's experience, **Jorge MORENO stressed the importance of "not seeking to impose rules that we cannot enforce"** because it would encourage a sense of impunity.

This pragmatic recommendation brings another: the **importance of identifying and prioritising the MPA management's interests and needs. As a result, it is also essential that important rules are simple, easy to understand and must be respected.**

A question raised by Almoktar SAIED on the strategy that Libyan MPAs should implement to solve their problems, especially in Ain Al-Ghazalah, Jorge MORENO responded with the following advice: **"You must primarily address the most important issues. In any event, you must not be in a hurry and *only move forward with the local community's agreement. And if you do not have the resources to protect, do not protect, because once you have decreed protective measures, the tourists will come. And if it isn't tourists, it will be the locals who will become curious. If you do not have the resources to fulfil your goals, you might have an opposite effect to the one intended.*"**

Involve the local community and focus on participatory approaches

Rather than trying to impose decisions from above that will not be accepted, **a good way to proceed is by always giving people an opportunity to express themselves.**

Arturo LOPEZ ORNAT explained that if locals often reject the creation of a protected area, it is because the implementation of new rules is seen as a foreign intrusion **"Local communities are generally not opposed to the idea of rational management, but to a new authority that will dictate their behaviour."**

²¹ This is an obligation under the fisheries management terms, which like the National Parks' Management Plan, is approved by Royal Decree.

Numerous testimonies back this observation. Local communities' opposition is high in countries such as Libya and Tunisia, as they are currently engaged in a process of democratic transition, but the population still remembers the old regime's methods: *"Conservation in Libya under the old regime was imposed by force. Local communities were then displaced outside the declared National Park territory"*, said Al Mokhtar SAIED. *"After the Revolution, these displaced families returned to settle in these protected areas, and we are only just starting to talk to these people. Of course they have a feeling of belonging there and consider us as foreigners from Tripoli. It will take time to repair the damage caused by the previous regime and to establish a relationship of trust, with the help of NGOs"*.

To involve the public in a participatory approach, one must win the local community's trust, learn to get to know them and understand how they operate.

Arturo LOPEZ ORNAT suggested ways for managers to initiate this process: *"You can approach the local community through informal, individual interviews over coffee. Then you can meet a dozen people from the same village to ask them for example on their perception of the fishing activity and what could be done to improve it. After a few interviews, you will get an idea of the different opinions, each person's motivations, as well as the local dynamics (who is who, who is respected, listened to, who has ideas...). You will then be able to set up informal meetings with fishermen groups, for example "anglers" or "net fishermen" where they will discuss their activity, its impact on fishing, illegal practices they have noticed... This information will allow the group to map the activity (where the sensitive areas are, problems...). **By creating these debates, you will allow the interested parties to express themselves on conservation measures to be taken, and then they will disseminate these ideas to their friends, their family. After a few months, the whole village will have reflected on these questions, and the locals will start making proposals"**.*

To help overcome the feeling of distrust that often exists between the management body of a protected area and the local community, Jorge MORENO also recommended, to the extent that financial resources are available to hire people, employing locals rather than staff from elsewhere: *"The advantage is that they speak the local community's language as they belong and they know how they operate"*.

Jorge MORENO also insisted that participatory approaches are built over time: *"The development of our fisheries management plan took 8 years. For the first two years, we observed the fishing activity and created a database to determine which fishermen made a living from the Park, which ones complied with the law..."*

This preliminary work is essential when you want, for example, to put in place a closed user list (fishermen, tourism stakeholders...): *"closed users' lists encourage voluntary compliance because those who are beneficiaries feel privileged and therefore comply with regulations and are the MPA's ambassadors. However, these lists can be risky because others will not understand why they do not enjoy the same privileges. It is therefore essential to do preliminary work aiming to identify the fishermen in the local community, who are living from the resources of their territory, and those who come from elsewhere to enjoy the reserve effect, in order to avoid conflict"* says Anis ZARROUK, himself engaged in this process on the Galite Archipelago (Tunisia).

"Ultimately, what is interesting is that licensed fishermen consider the Park as their own garden and so are vigilant against poachers and those who do not have a permit", says Jorge MORENO.

Ensure that information is available

The main recommendations that emerged from Jorge MORENO's presentation, largely focused on the communication strategy implemented by the Cabrera National Park, are the following:

- Making information accessible to all in a timely manner via various media;
- Build on partnerships with the MPA's economic players to give information;
- Establish communication/information areas on site, so that users see that the MPA is working and that they are operating in a regulated environment.

Lead by example and encourage voluntary compliance by establishing appropriate infrastructure and services

To encourage voluntary compliance, the Park must set an example, recommended Jorge MORENO: *"We cannot expect others to do what we do not do ourselves. For example, we ask visitors to take their rubbish back to the continent. For this to be a legitimate request, we must keep the Park as clean as possible"*.

Establishing appropriate infrastructure and services also guarantees the manager's legitimacy and encourages voluntary compliance: for example, the organization of an ecological mooring site, passageways on a dune site, other protective infrastructures or visitor orientation, contribute to a better management of the flow and encourage compliance with rules.

Consider voluntary compliance as a support for the manager, and not a solution in itself

"Voluntary compliance on its own is not enough. It also requires proper enforcement", says Harun GÜÇLÜSOY citing Gökova Special Environmental Protection Area (SEPA) (Turkey) as an example: *"Six no-take zones were established in the bay of Gökova to help the local fishermen community. These no-take zones were decided in consultation with these fishermen and at the beginning we had no problems. But over time, as the fish stock replenished within the no-take zones, some fishermen wanted to illegally obtain benefits. But, we did not have the resources to enforce regulations, and fishermen who complied justifiably complained that others were violating with impunity. So we needed to establish surveillance in these areas"*.

*We had a good relationship with the Coast Guards, but the surveillance of these areas was not their priority. **The Mediterranean Conservation Society (a national NGO) working locally and fishing cooperatives joined forces to set up two units of marine guards supported by the fishermen themselves.** Although they have no coercive jurisdiction, they are sworn-in as fishermen responsible for the surveillance of these areas and report violations to the Coast Guard or the Local Gendarmerie Forces.*

*This is how we solved the problem. **The lesson to be learnt from this experience is that it is important not just to rely on users, voluntary compliance, and it is essential to develop as soon as possible the capacity to do surveillance and enforce regulations**".*

Arturo LOPEZ ORNAT also supported this view, and told the experience of a reserve on the Spanish Atlantic coast, which was created on the fishermen's initiative and had a high level of voluntary compliance and was often cited as an example of success: "*The regional Government argued that the reserve worked perfectly thanks to the fishermen's voluntary compliance so they decided to cut the reserve's surveillance budget. The consequence of this lack of surveillance was the return of illegal activities and major conflicts. Today, the fisheries cooperatives are asking to reinstate surveillance or to abolish the reserve*".

These testimonies reinforce the principles put forward by Jorge MORENO, namely that we must protect only if we are able to protect, and that voluntary compliance is in any event a valuable support, but it is not enough. "*Fishermen who follow rules are worried about those who do not comply*", said another participant. "***If we are not able to implement effective surveillance and enforce regulations fairly, even those who play by the rules will eventually break them***".

Minimum standards for management: how to enforce regulations with limited resources?

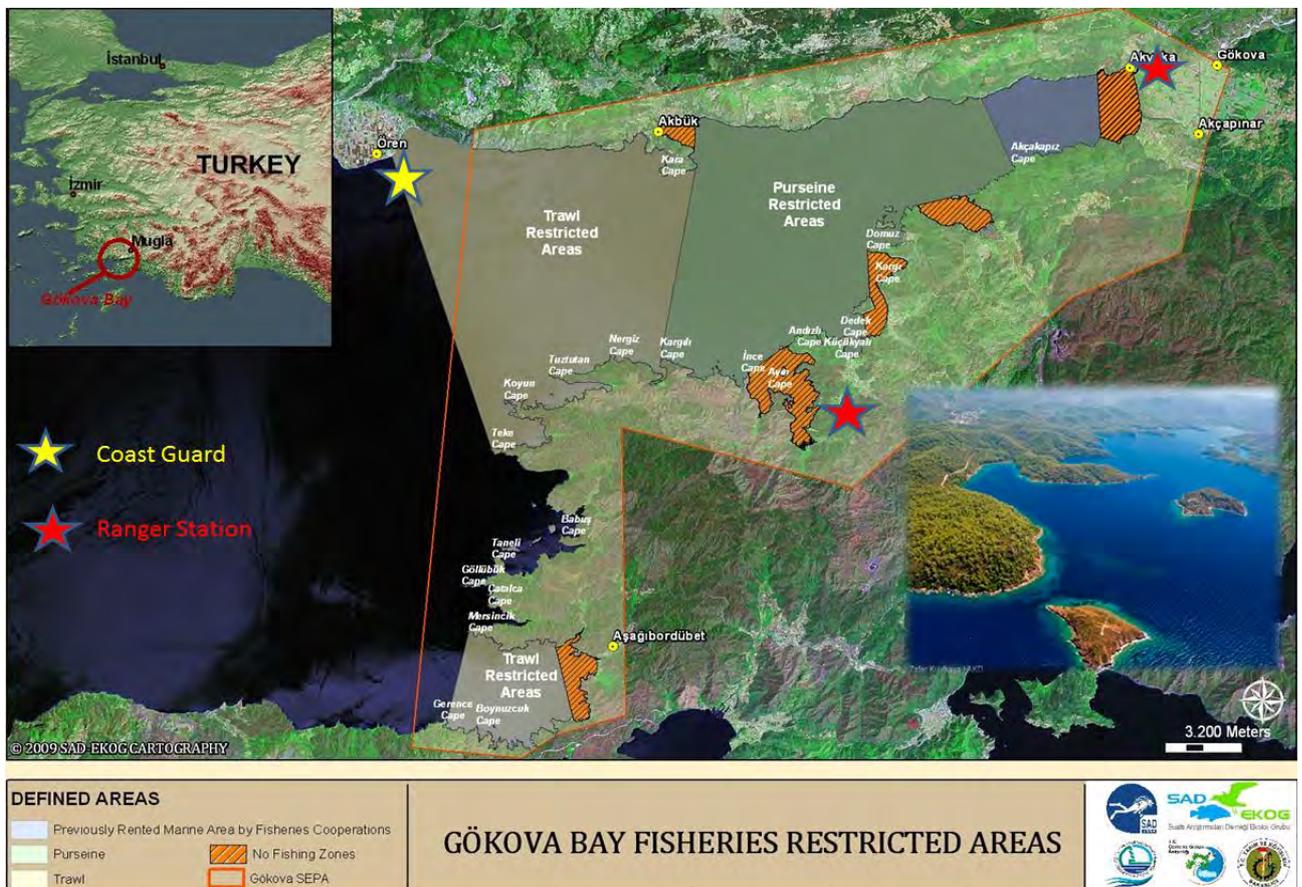
Gökova Bay MPA, Turkey

Presentation by Zafer KIZILKAYA (Mediterranean Conservation Society)

Moderator: Souha EL ASMI

Gökova Bay MPA was established in 1988 and is located in the south-western region of Turkey, in one of the largest bays in the country²². In 2009, local fishing literally collapsed because the grouper diminished and shrimps disappeared, these species alone accounted for 42% of the Gokova fishermen’s income.

The Mediterranean Conservation Society organised meetings with local fishermen and other stakeholders to suggest creating No Take Zones (NTZs), which after a while would produce a reserve effect and enable the fishery resources to be restored. **The partners agreed on the delimitation of six NTZs within the Gokova Bay MPA (in orange on the map below). This NTZ network was formally established in July 2010 to conserve marine biodiversity and several flagship endangered species²³ and restore depleted fish stocks.**



²² Gokova Bay’s surface area : 1851 Km2 / MPA’s surface area: 307 Km2 / The 6 NTZs cover a total area of 24 km2

²³ *Monachus monachus*, *Posidonia oceanica*, *Epinephelus marginatus*, *Carcharhinus plumbeus*, *Caretta caretta*, *Chelonia mydas*, etc

In addition to the six delimited No Take Zones (NTZ), trawling and purse-seine fishing was also restricted in the Gokova Bay MPA to prevent excessive pressure from fishing and protect spawning areas.

The surveillance and regulation enforcement issue

The MPA's only competent enforcement authority is the Coast Guards based in Oren which is on the northern side of the bay (yellow star on the map).

The Ministry of Environment and Urbanization regulates activities on the MPA's terrestrial part. But neither the Ministry of Environment and Urbanization or the Directorate General of Fisheries and Aquaculture have enough personnel or management staff to ensure surveillance at sea.

As Oren's Coast Guards have other priorities which include controlling the illegal immigration traffic in the Aegean Sea, the surveillance of the recently established NTZs within the MPA was not effective.

The Coast Guards also had difficulty in controlling illegal fishing activities because of the NTZs geographical location and their size: the Coast Guard's boat could be heard from a distance or be easily identified by illegal fishermen when it was in operation.

Furthermore, there was no signage or public information showing the NTZ regulations or boundaries.

An increase in illegal fishing activities

An increase in illegal fishing activities was observed, especially by spear-fishermen (at night using a torch)²⁴ and some opportunistic fishermen who took advantage of loopholes in the NTZs surveillance. Moreover, during the summer a lot of visitors and recreational fishermen who were not aware of this area's protection status continued to fish.

This unfair competition meant that the local fishermen's income fell even more. The lack of management and regulation enforcement in this NTZ network rightfully aroused discontent among the local law-abiding fishermen who had agreed to give up some of their favourite fishing spots to safeguard fish stocks.

Towards a community run marine surveillance in the Gokova Bay NTZs

In 2012, the Mediterranean Conservation Society suggested to members of the community who really knew the area and the sources of illegal fishing activities to establish a community run marine surveillance of Gokova Bay's NTZs.

²⁴ Taking advantage of this wild coastline, criss-crossed with small roads giving access to remote locations, divers can catch up to 300 Kg of Groupers in one night which they sell to restaurants. The local fishing cooperatives sell the Grouper to restaurants for \$ 60/Kg whereas spear-fishermen sell them for \$ 30/Kg. Therefore, fishing cooperatives fail to sell the fish at its real value and suffer from this unfair competition.

The main obstacle was the legitimacy of local community guards to do surveillance and regulation enforcement, seeing as this is normally done by government agencies: *"At first, the Coast Guards were fairly dubious of our ability to implement this surveillance system and select guards among the local community. Moreover, the Coast Guards and the local Department of Fisheries and Aquaculture (second competent authority to enforce regulations, but they do not have a boat or any financial resources) questioned the legitimacy of this initiative. So we went to Muğla and met the Mayor of this sector to explain the situation, the distrust and disappointment among the fishing community, and the urgent need to do surveillance and enforce regulations effectively"*, said Zafer KIZILKAYA.

Following several meetings with the authorities concerned, the Mediterranean Conservation Society convinced the Mayor of the city of Muğla to establish a community run surveillance system in cooperation with the Coast Guards and officials from the Directorate General of Fisheries and Aquaculture.

The Mediterranean Conservation Society, with a small budget of \$ 50,000²⁵ annually, recruited guards among the community and developed a training programme and a patrolling plan for the NTZs in collaboration with the Coast Guards. Marine guard training modules were developed to provide theoretical knowledge as well as useful training to enforce regulations in the NTZs: local fishermen recruited were able to be trained on a variety of themes from patrolling techniques in protected areas and safety at sea, surveillance of marine biodiversity and awareness strategies.

Marine guard units were equipped to ensure surveillance and regulation enforcement in the NTZs and the first surveillance base was established in the middle of English Bay (red star on map).

The community guards do not have the authority to impose fines, but they collect video evidence of offenses (with GPS positioning) which they give to the Coast Guards so that the latter can initiate a prosecution. The community marine guards started by giving a warning to users who were violating regulations before reporting crimes to be prosecuted and punished.

This community run marine surveillance system works so well that the Coast Guards completely trust the community marine guards now, who currently work alone in the most important NTZ İngiliz Limanı (Coast Guards now allow them to seize fishing gear).

The Mediterranean Conservation Society, thanks to the Whitley Fund Award (\$ 50,000), has extended this community run marine surveillance system to the other NTZs : two boats and four marine guards are now responsible for the surveillance and regulation enforcement in four main NTZs and a new surveillance base was established in Akyaka (red star on map).

Other awareness raising and capacity building actions are led by the Mediterranean Conservation Society and aimed at the local fishing community, the general public and the government to improve compliance and facilitate regulation enforcement in the Gokova Bay MPA:

²⁵ Funded by the Fauna Flora International and Whitley Fund for Nature (WFN) - <http://whitleyaward.org>

- Putting up information notice boards and placing buoys delimiting the NTZs, marine guards distribute brochures (in Turkish and English) with detailed information on the NTZs' regulations to leisure boats who visit the bay.
- Cleaning the NTZs seabeds as part of the "Ghost Net Hunters" project: the Mediterranean Conservation Society in collaboration with the Gokova Sailing Club retrieve abandoned fishing gear and ghost nets attached to rocks.
- The Mediterranean Conservation Society financially supports the community of fisherwomen in the Bay of Gokova and trains them in sustainable fishing and conservation of the marine environment²⁶: the Bay of Gokova has some fifty fisherwomen, working alone or with their husbands. Most of them work more than 300 days a year at sea, have no social security and are not even taken into account in the fishing cooperatives' statistics or the Department of Fisheries and Aquaculture. They are key supporters of the project.
- Within a socio-economic monitoring study, the Mediterranean Conservation Society studied the economic impact of the Puffer Fish (*Logacephalus sceleratus*)²⁷, the most harmful invasive species in the eastern Mediterranean and which has caused considerable damage to small scale fisheries.
- For almost a year now, the Mediterranean Conservation Society has been working on alternative income-generating projects for the cooperative: tourism linked to traditional fishing methods (Pesca-tourism) has great potential in the area and could generate an alternative sustainable income for the local community. The first tourists will be taken out in June 2014.

These projects, run in parallel, reinforce the conservation efforts in the Bay of Gokova and are welcomed by the local community and government stakeholders, as Zafer KIZILKAYA demonstrated: *"We share our experience with local stakeholders who appreciate this system. The local community is happy because it is engaged in its own conservation"*.

Results

Today, surveillance and regulation enforcement are effective in 4 out of 6 NTZs within the Gokova Bay MPA. The main restricting factor in this project is the cost of fuel (Turkey has the most expensive petrol in Europe). The staff consists of two full-time marine guards and two part-timers. The Mediterranean Conservation Society also trains volunteer marine guards who help the full time staff to raise awareness, this remains a key focus: *"Between April and September 2013, in just one area, the marine guards informed 56 locals who did not know that it was a No-Take Zone. They also arrested 12 professional fishing boats and 20 spear-fishermen"*, said Zafer KIZILKAYA.

Since the patrols began, the marine guards give daily reports indicating the presence of monk seals, sea otters, dolphins, turtles and other unusual species: valuable sets of data on surface observations.

²⁶ "Fisherwomen Project"

²⁷ Puffer fish

The Mediterranean Conservation Society has initiated a monitoring programme in the Bay of Gokova MPA and its NTZs to understand how a successful implementation of regulation enforcement and an effective surveillance can benefit marine resources.

One must not forget that in 2009 the fishery resources were depleted in Gokova Bay. In 2008, a study on fish biomass was led in 32 MPAs on the Mediterranean's northern shore (from Spain to Turkey); Gokova came in last position as the MPA with the lowest biomass.

After three years of surveillance and almost a year of regulation enforcement, monitoring studies in the NTZs and the surrounding areas shows a significant increase in fish biomass. In the largest No-Take Zone (Ingiliz Limani), where the community surveillance system has been well adopted, there has been an increase of up to 40 fold in Grouper sightings compared to 2008 data. The Grouper is an important commercial species in Gokova, as it contributes to 30% of the local fishing community's revenues.

The increase in fish biomass and rising revenue recorded by the local fishing cooperative is a clear sign of the advantages brought by the NTZs. The cooperative members' income has increased by 53% according to the Akyaka Fishery Cooperative's statistics, due in part to the recovery of fish stocks, but also because some members of the community who used to fish part-time have now ceased their activity.

At a recent meeting on the area's conservation, all the government representatives expressed their satisfaction with the successful implementation of conservation laws by the community in the NTZs.

In 2014, the Mediterranean Conservation Society will provide funding for the community surveillance system, and has started to explore the most appropriate sustainable funding strategies for the NTZs management and surveillance over the long term: "*The bay has many small islands that are among the most visited in Turkey. The most popular one welcomes 150,000 visitors every year. It is the world's oldest artificial beach which welcomed Cleopatra and Mark Antony 2000 years ago. We would like to benefit from this income generated by tourism*", suggested Zafer KIZILKAYA.

Today, the Turkish government is working on a new fisheries management law and consults the Mediterranean Conservation Society on some issues. In this context, the Mediterranean Conservation Society suggests applying dissuasive fines for illegal activities in MPAs, and supports the legitimacy of regulation enforcement by fisheries cooperatives. The Mediterranean Conservation Society's ambition is to create a successful example of MPA co-management by fishermen in Turkey. This example of No-Take zone management could be replicated in other eastern Mediterranean areas.

Recommendations

Understand the local community's needs and build over time a relationship of mutual trust

Asked by Ahmedou OULD HAMADI (Banc d'Arguin National Park, Mauritania) on the secret of Gokova's success, Zafer KIZILKAYA responded by emphasising the importance of mutual trust that has been built over time between the local community and the manager:

"We did not arrive explaining to the locals what to do. We have been working with them for 10 to 15 years now. We support them and try to help them in their daily lives; with all the problems they face (health problems and others). We are like a family.

This trust was built all along this journey together: after we had declared together the No-Take Zones, but before we had a solution to enforce regulations, some poachers from elsewhere took advantage of the situation, the local fishermen came to me to express their dismay. I felt uncomfortable and obliged to act quickly, above all because I was their friend. So I asked them if they would like to do the surveillance of their territory themselves and some of them take on a marine guard role. They said yes and that they were ready.

The total operation (from analysis to implementation) has cost \$ 100,000 (including wages, boats, etc...): a very modest operating budget. Everything has been possible thanks to mutual trust".

The NTZs are now protected and controlled and deliver results. Another key element for Zafer KIZILKAYA is to share the results with the community: *«monitoring carried out in the NTZs shows an important number of Groupers which has never been seen before. I filmed this and I showed it to the community because it is important to share these results. **This is the key to success: we share everything**".*

In order for the NTZs community surveillance system in the Gokova Bay MPA to work, it was also essential to promote a trust between the fishing community's marine guards and the Coast Guards.

"The Coast Guards were initially quite reserved towards these people from the fishing community, not knowing if they could be trusted. The Mediterranean Conservation Society asked young volunteers to shadow the marine guards during the summer and report on their activity. We then sent this very positive report to the Coast Guards who now trust them and give them greater autonomy in their mission" reported Zafer KIZILKAYA.

Agreeing with these recommendations, Arturo LÓPEZ ORNAT in turn stressed **"on the importance of trust, which is earned over time, little by little, and is built on very concrete steps to avoid giving false hopes.**

In Gökova, available resources did not allow complete management of the area, and the effort was therefore focused on six relatively small No Fishing Zones; the good results have created trust. A lesson learned is that they preferred to prioritize a few things but really solve them. Trust from the community is essential but it has to build on solid steps; field results and small success stories are essential."

Build on local expertise

In Gokova, all the marine guards are from the local fishing community²⁸. They really know the area and its users (who comes, at what time, and why?). This is why the Mediterranean Conservation Society chose to entrust them with the surveillance of the NTZs in Gokova Bay MPA, bypassing the Coast Guard's recommendation of recruiting personnel with a higher level of education (English speaking, etc...).

"The locals know this territory better than anyone, this is why they were the right people to do surveillance," said Zafer KIZILKAYA illustrating with an anecdote: *"a small island with a lighthouse is located in a No-Take Zone. Renovations were done to the lighthouse. Taking advantage of this opportunity, one of our marine guards had the idea to circulate a rumour among the local community that a camera had been installed on the lighthouse during the works, to monitor the whole area. Everyone believes it now. This story shows how important it is to understand the local community's needs and how it functions."*

A key to Gokova's success story has been to involve the local community by going beyond the few fishermen who have become marine guards, and also involving fisherwomen, older people and users in establishing and managing the MPA and its NTZs.

A camera ready to film is as effective as a weapon ready to be fired

The guards at Gokova are not sworn-in, but as long as they produce evidence (photos and geotagged videos) proceedings may be initiated.

Zafer KIZILKAYA explained the deterrent effect of this method: *"At the beginning we faced numerous death threats. The Coast Guards advised us: "do not argue and do not try to negotiate with offenders. Take photos and videos, send them to us, and leave the rest up to us". After a few incidents, some offenders were referred to the courts for death threats. What we see today is that a camera ready to film is as effective a deterrent as a weapon ready to be fired."*

During the numerous testimonies at this session and during the workshop itself we heard that the use of photos and videos is now increasingly common during surveillance missions. Juan Carlos JORQUERA GAMEZ (Directorate General of Fisheries and Aquaculture, Spain) or Ahmedou OULD HAMADI (Banc d'Arguin National Park, Mauritania) explained **how effective it is to confront the offender with his own photo.** Ahmedou OULD HAMADI reported for example the case of a boat taken by surprise using a monofilament fishing line²⁹ (a net internationally banned) by a Park adviser who was not sworn-in, but took a photo: *"We summoned the offender who did not protest and paid his fine because he knew that the photo would be used in evidence before the Public Prosecutor, and that he would probably pronounce a more severe penalty."*

²⁸ Some full-time staff have a fixed salary, others hired part-time still continue fishing or do another activity.

²⁹ http://en.wikipedia.org/wiki/Monofilament_fishing_line

Social networks can be useful to gather evidence...

The examples are not lacking in today's judicial world of careless offenders displaying their "exploits" on Facebook or Youtube. The information published on social networks is therefore increasingly examined by investigators. A monitoring strategy that can pay off, even for MPAs as shown in an incident told by Zafer KIZILKAYA: «the Coast Guards arrested one night a spear-fisherman (prohibited) in Gokova. When the Coast Guard's boat approached, the diver dropped his speargun and his catch, so nothing was found on him. The Coast Guards took his contact details (name, address, email...). The next day, they checked his name on Facebook and found that the diver had displayed on his page photos of the fish he had poached the previous day in Gokova. They immediately contacted the attorney to report the situation and the diver was prosecuted. "

Capacity Building: involve fishermen in exchange visits

Gokova's experience can probably be replicated elsewhere in the same type of MPA (objectives, economic activities, geography, size...).

Reflecting on "fairly positive" experiences in some French MPAs (mainly overseas) who also gave the opportunity to fishermen (and sometimes former poachers) to become marine guards, Alain PIBOT (MPA Agency, France) emphasised the importance of involving fishermen in exchanges to "*convince those who are not convinced.*"

To export Gokova's experience is Zafer KIZILKAYA's stated ambition: "*From our experience in this area, we want to create a perfect example of community management and enforce it on a national level. We invite our government representatives to go into the field with our marine guards to gain experience. We would also like to do the same with other countries.*"

A proposal to which Essam BOURAS (Environment General Authority, Libya) responded to, explaining the difficulties that Libyan MPAs encounter (including dynamite fishing) and suggesting an exchange visit where Libyan fishermen would be invited to Gokova to meet fishermen from the local community and interact with them, "***They have the same interests and will mutually trust each other***", he concluded.

Regulation enforcement of recreational activities

The Natural Reserve of the Strait of Bonifacio, France

Presentation by Félix SANTARELLI and Marianne LAUDATO

Moderator: Laurent SOURBES

The Natural Reserve of the Strait of Bonifacio (NRSB) was created by decree on 23rd September, 1999 and is managed by the Environment Office of Corsica (E.O.C.) under the Corsican Regional Authority's supervision. It is the biggest reserve in metropolitan France and has a team of 28 agents which includes:

- 10 marine guards who are divided into three operational teams working in three areas (east, far south and west), these teams are increased from June to September by hiring seasonal staff;
- 2 lawyers.

Although mainly focused on surveillance, the tasks assigned to NRSB guards are diverse and varied; they are also faced with the challenge of working in an area of 80,000 ha (including 12,000 ha classified as strict protection areas and 1 200 in no-take areas). It is a highly popular tourist destination and a victim of its success with a significant number of visitors (20,000 people per day on the Corsican side of the Straits of Bonifacio, 250,000 people per year in some renowned natural sites, 33,000 divers per year).

Surveillance and regulation are closely linked, the aim is to optimise actions on the ground and ensure sustainability, by responding to specific constraints:

- take into account the various users' concerns and reconcile the activities in place to avoid usage conflicts;
- ensure the conservation of the natural environment (protection of *Posidonia* seagrass meadows, fish stock management, islands' preservation...).

In this context, the NRSB emphasises a collaborative and adaptive management of its territory as it is the only way to ensure positive and sustainable solutions to the problems encountered. This consultation is applied via numerous meetings with key stakeholders (State departments, socio-professional groups, recreational users...) and also shown through the reserve's Advisory Committee.

Special measures have been put in place due to multi-annual administrative procedures in order to improve the management of sea traffic in sensitive areas, such as:

- marked out areas at Lavezzi, Piantarella and the Bay of La Rondinara, to organise water activities which take place in the summer (adopted under municipal and prefectorial orders);
- sea anchorage sites reserved for diving clubs and boat tours at sea (adopted through individual applications asking for authorization to temporarily occupy the public maritime domain and organised anchorage sites and light boat equipment) who have adhered to a partnership charter with the EOC.

Due to the increase in tourism and recreational activities in the NRSB's territory, special efforts are also made every year to regulate recreational fishing, in close consultation with the competent State departments, and their results represent a major development:

- since 2004, a prefectorial order regulating underwater fishing limits catches to 8 fish per angler per day;
- after many consultations conducted with State departments, recreational fishermen associations and Bonifacio's prud'homie³⁰, a prefectorial order regulating recreational sea fishing endorsed this declaration practise; wherein a certificate is issued which must be presented when controlled. A catch of up to 5 kg is allowed per fisherman per day (this limit does not apply to squid, conger, moray eels and Sarans). In addition, recreational fishing is prohibited in 3 areas. However, for scientific research purposes, a quota of 300 registered permits may be exceptionally issued by the Corsican Prefect.

This implies a complex regulatory mesh which is difficult to enforce in such a vast area, where the guards are the main guarantors. In fact, they ensure regulation compliance and a respect of zones defined by the initial decree establishing the nature reserve, as well as additional prefectorial orders regulating multiple usages in the area. These are diverse and include recreational sea fishing, recreational navigation, scuba diving or tourist traffic (landing on the islands) and flying over.

Apart from the multitude of regulations to enforce, many other constraints bear a burden on the guards' daily life:

- after regulatory changes, they need to receive regular training to refresh their knowledge (fishing police...) and/or get new training on the transfer of powers (navigational police, sea signalling police...);
- they need to adapt to an increasing workload due to high number of visitors, new regulations being issued (implementation of signage plans, adoption of laws regulating recreational sea fishing ...), in an inadequate staff context (10 guards for a surveillance of 80 000 ha) and a cut in the State's resources for actions at sea.

Finally, a legal experiment is currently underway within the framework of the European Grouping of Territorial Cooperation - Bonifacio International Marine Park (G.E.C.T.-P.M.I.B.B) which was set up between the EOC (in its capacity as manager of southern Corsica's protected areas) and La Maddalena Archipelago National Park in December 2012, in order to put in place a transborder surveillance body with the authority to prosecute offenders whether they are in French or Italian territorial waters in this international strait.

In addition, the European Grouping of Territorial Cooperation - International Marine Park of the Straits of Bonifacio (EGTC – IMPSB) now needs to ensure coherent regulations, on both sides of the strait, which apply to specific collective issues in these amalgamated protected areas (recreational sea fishing, anchorage...).

³⁰ Association of fishermen

Recommendations

Favour a collaborative and adaptive management

The NRSB favours a collaborative and adaptive management of its territory in order to meet both its demands, on the one hand taking into account the concerns of all the different users and reconcile the activities present (usage conflicts), and on the other hand fulfilling its mission of conserving natural habitats.

This approach is based on:

- **Internally, aligning the departments in charge of surveillance, regulation and communication.**
- **Externally, consultations** (meetings, Advisory Committee) with the major stakeholders (State departments, socio-professional groups, recreational users) to implement special measures, partnerships (charters), and endorse specific and adaptive regulations.

Encourage a close collaboration between the departments in charge of surveillance, regulation and communication

Regulatory changes require the implementation of communication campaigns along the NRSB's perimeter. **The reserve's communication team, the guard coordinator and legal services design many brochures together** (brochures on the NRSB's main regulations, regulations on recreational sea fishing, on signage...).

This operating system is based on close collaboration of the departments in charge of surveillance, regulation and communication and is a guarantee of an effective surveillance and regulation: the guards are indeed the guarantors of messages diffused in the field (distribution of information leaflets) and regulation enforcement. They also provide feedback as they are in direct contact with all the players.

This method of organization allows in particular to:

- Develop and implement communication campaigns on existing regulations or new regulations;
- Write draft orders jointly, which are then validated by the State departments and stakeholders in technical and advisory committee meetings.
- Anticipating the advent of new activities (e.g. recreational submarines and beach parties) by implementing existing regulations or adapting new regulations.
- The implementation of computer based tools (legal tool for monitoring regulations and guard skills, monitoring commissioning and training, monitoring enforcement proceedings) and other functional equipment (laminated police fact sheets) which can facilitate the guards' daily work.

Support for socio-professional groups through charters, special measures, and specific and adaptive regulations

In NRSB, a dialogue with socio-professional groups and field players in general (associative, institutional, scientific) is organized through numerous meetings and as well as the reserve's advisory Committee which meets twice a year to discuss the problems encountered and measures needed to meet them.

The solutions implemented within this dialogue approach are intended to be sustainable and designed to give support to socio-professionals by:

- **Establishing special measures:** e.g. anchorage sites reserved for diving clubs and ferry boats. The NRSB comply with the MPD's³¹ authorization procedures to implement organised mooring zones, or ask for individual AOT³² to develop strictly professional facilities.
- **Formalising partnerships through charters:** the NRSB agrees "codes of good conduct" with diving clubs and ferry boats in exchange for dedicated facilities which they can use free of charge to run their activities (e.g., specific anchorage just for diving clubs and ferry boats).
- **The endorsement of specific and adaptive regulations** (which evolve in time with feedback from one season to the next), and are complementary to the prefectorial orders in the establishment decree of the NRSB, which are specific to professional fishing, recreational fishing, organising delimited sea areas and navigation rules.

Isabelle MONVILLE (Urban Community of the French Riviera) asked Marianne LAUDATO to clarify on how the charters agreed with diving clubs operate: *"the signatory clubs undertake to use the anchorages provided on some sites and regulate their divers' behaviour (information on the reserve's regulations, awareness of good practices such as the ban on feeding fish). **The guards carry out an important awareness raising effort by going to the clubs and explaining regulations, so that this information is then given to a wide public**".*

Give priority to economic activities that add value rather than those linked to leisure activities

At the professional fishermen's request and in agreement with the recreational fishing associations, **the NRSB has developed an innovative measure designed to mitigate competition between professional and recreational fishing:**

- A restrictive regulation based on fishing quotas: catches limited to 5kg of fish per day and per fisher on the reserve's perimeter.
- A registering system: each person wishing to fish in the NRSB must register and obtain a fishing certificate from the reserve's guards and be able to present it on demand.

³¹ Maritime Public Domain

³² Authorisation to temporarily occupy MPD

- Three zones (in areas of reinforced protection, bordering no take zones) where professional fishing is permitted are limited to a maximum of 300 recreational fishermen holding a personal derogatory authorisation granted by prefectural order. To be allowed to practice recreational fishing in these zones, recreational fishermen must submit an application to the DIRM department (French Inter-regional Direction of the sea) to get authorization and fill out an annual monitoring report of fishing trips and catches, that will be handed over for study to the NRSB scientific team.

Marianne LAUDATO explains the concept of this approach: *"These restrictive measures were put in place on the professional fishermen's request. They are in areas where they fish regularly and where recreational fishing is popular and thus competes with their business. **We carried out scientific monitoring in these areas which showed that recreational fishing has a significant impact on the environment and on professional fishing. There is also a problem with poaching and illegal trade, a source of conflict between recreational and professional fishermen.** The professional fishermen have a legitimate point as recreational fishermen are not controlled or regulated in the same way while professional fishermen make a living from their activity. It is thus fair to consider the problems they encounter."*

Laurent SOURBES (Zakynthos National Marine Park) also considers that this is a legitimate approach and that the restrictive measures taken by the NRSB on recreational fishing is an interesting tool: *"This is an approach that we also use in Zakynthos: **we always give priority to an economic activity that adds value rather than a leisure activity. Thus activities are prioritised and regulation is adapted to specific economic priorities.**"*

Marianne LAUDATO highlights the difficulties encountered during this consultation, which would not have succeeded without a strong involvement from State departments (support from the region's Prefecture, especially the Sub-Prefect who took on this task "head on").

Provide the means to react quickly to the advent of new activities

A good cooperation between the NRSB's guards and legal unit, reinforced by a constant collaboration with the appropriate State departments, ensures a good level of responsiveness to new problems which the reserve's manager faces on the ground ("beach parties" organised on the public maritime domain, use of recreational submarines...).

Marianne LAUDATO explained how this type of collaboration was useful to respond to the appearance of recreational submarines for example, *"Submarines are allowed to operate on the surface. To dive they need an authorisation from the maritime authority, in France this is the Maritime Prefect. It is a legal text and not a specific regulation in the reserve, but we were not aware of it as this was the first time that we were confronted to this kind of leisure activity. It was initially observed on the Côte d'Azur. Due to this inter-regional collaboration, established by the State departments, we were able to obtain information on relevant texts and prepare our troops."*

Laurent SOURBES emphasised the importance of responding quickly to the advent of harmful activities so as not to give them time to get established: *"**We must be creative and find solutions quickly to avoid a new activity, deemed harmful by the manager, to start operating. Once it becomes established, everything becomes more complicated and we get into a situation where influences and sometimes even politics play a role and are exerted to maintain these activities.**"*

The development of jet skiing in the Mediterranean is a good example of the problem pointed by Laurent SOURBES. This leisure activity has become in some places a strong economic issue and often results in a circumvention of the Law, as shown by Jean -Marie DOMINICI in the case of the Scandola Natural Reserve: *"On the French Mediterranean coast, legislation stipulates that personal watercrafts (such as jet skis, scooters) are not allowed in the 300 m zone. Only their departure from land out to sea (and vice versa) is permitted following a route parallel to the shore and at a speed of less than 5 knots (Maritime Prefect order). Scandola Nature Reserve is located in the 300 m zone, so in principle Jet Skis going parallel to the coast is prohibited. The Prefect Order is abused, as jets skis also have the right to navigate in the 300 m zone in case of failure (mechanical or another problem). However, it is not possible to know with certainty whether the jet ski really does have a problem. Rental companies and individual users therefore use this legal loophole. **We are currently preparing a Prefect Order, supported by scientific arguments, specifying a total ban on jet skis in Scandola.**"*

A strategy that Guillaume SELLIER supports (Port-Cros National Park), who recalled *"by virtue of the powers conferred by the 6th February 2004 decree, **the Maritime Prefect in France can put in place navigation measures based on the preservation of the marine environment. If the preservation of the marine environment measures warrants it, the maritime Prefect can therefore totally prohibit the use of jets skis in the 300 m or 600 m zone.**"*

These testimonies show that one of the keys to reacting quickly to new threats lies in good knowledge of the applicable legislative and regulatory system. In view of this, the NRSB's legal unit has developed a computer tool to record the applicable regulations in the reserve, the follow-ups on the proceedings initiated on the reserve's perimeter (statements, fines, warnings) and manage the commissioning of skilled guards. Factsheets giving details of these agents' police powers have been drawn up and laminated; these include an appendix with all the applicable laws and regulations.

Develop a collaboration with State departments and the judicial courts

The NRSB organises regular consultation meetings with State departments involved in policing the sea. These consultations lead to implementing surveillance missions in collaboration with the ONCFS (National Office for Hunting and Wildlife) or D.D.T.M. (Departmental Office of Territory and Sea). Similarly, an ongoing collaboration with the Navy provides access to the semaphores La Chiappa and Pertusato for surveillance missions ashore. This partnership is formalised through the adoption of multi-annual agreements (ONCFS, Navy, projects with the DDTM and the Customs), in order to maintain these operations over the long term. A partnership has also been established with the Ajaccio Courts, though it is still subject to uncertainties due to their services being restructured and it involves ongoing efforts in terms of consultation and raising their awareness on issues specific to the NRSB. To overcome this problem, a draft agreement is currently being drawn up.

Even if conventions are important insofar as they are a way of maintaining a collaboration between administrations in order to cope with changes in interlocutors, the participants however, emphasised that *"it is the human touch that makes the difference"* (Jean-Marie DOMINICI).

On the issue of the courts' awareness for prosecuting violations, Marianne LAUDATO explained the NRSB's procedure *"Prosecutors and substitutes are usually posted to Corsica for a maximum of 3 to 4 years. **To counter this rapid turnover problem, the NRSB implements a lobbying policy: every year we involve the courts and explain the reserve's regulations, we invite the public prosecutor and the deputy public***

prosecutor on the ground so that they get away from their assassination cases and see beautiful things; to explain to them and show them that Corsica is like this too, and people who work in the field need them for their work to be worthwhile. "

The Scandola Nature Reserve and Port-Cros National Park follow this strategy too: ***"The MPA manager must establish a public action strategy which he implements in partnership with the judiciary, professionals (who, in some cases, can be allies), law enforcement (including the administrative authorities) and civil society. To convince a Prosecutor who is a key element in the process, we must invite him to come on site to get to know the marine area so that your mission becomes his. This is a deeply human process,"*** explained Guillaume SELLIER. The Director of the Port-Cros National Park also recommended that at the beginning of this judicial awareness process to only involve them in important cases (dismantling a poacher network, for example) in order to be taken seriously and to engage the Prosecutor.

Guillaume SELLIER pointed out a more general point of view, ***"for the MPA manager's mission to be legitimate in the eyes of the population and authorities, he must lead a public policy in a criminal sense, that must differentiate among offenders depending on the seriousness of infringements: that is to say, he must do communication, information and educational actions, and simultaneously conduct police operations (light police actions but also strict regulation enforcement)."***

In Laurent SOURBES' (Zakynthos National Marine Park) opinion ***"cooperation is defined depending on the legal framework, on the State and its institutions' way of functioning, and resources available. So if you do not have an effective legal framework, or if the authorities do not exist, we will focus on involving the civil society in surveillance."***

In any event, personal relationships are very important to ensure that there is an effective cooperation in place. In most MPAs a local coordination is sufficient to meet all the problems encountered, but in some cases (e.g. Tunisia); one must intervene on a national level to get the competent authorities to intervene.

Mobilise users to do a sea watch

Users can be involved in a participatory type of surveillance, particularly through the use of new existing technologies which are available to everyone. This view is defended by Enrico BARRO (MEDUSE Project³³): ***"the vast majority of users visiting MPAs are people who respect rules and the environment. These are an important number of people who can keep an eye on the sea. They can be involved in surveillance measures through surveys, warnings, information on potential problems or illicit behaviour. This type of approach has proven effective in many areas (road safety...) and today is rapidly growing in social networks and could be adapted to MPA needs. To reiterate, the technologies exist, are cheap and available."***

In the NRSB case, new technologies are used to communicate with the public on rather complex subjects, such as signage layouts (available on Smartphones with Navionics³⁴) or identifying Posidonia meadows so that recreational boats do not anchor in these areas (also a Smartphone project). Mobilising users to be sea watchers has not yet been tried for surveillance itself, but a number of networks have been used (Posidonia surveillance network, Caulerpa alert network). ***"This interaction between recreational navigators and***

³³ <http://www.meduse-project.eu/>

³⁴ <http://www.navionics.com>

marine stakeholders demanded by these networks gives a valuable source of information on what is happening in the territory," says Marianne LAUDATO.

Prevent work overload and the resignation effect which arises from it

For NRSB, like other MPAs which are important tourist destinations and where a large number of recreational activities are available, the price of success is work overload. Laurent SOURBES (Zakynthos National Marine Park) recommended that *"only take on an initiative when it is possible to manage it from a human resources perspective. Otherwise, one can be confronted to a number of resignations."*

Enforcement and compliance with fisheries regulation

Blue Coast Marine Park, France

Presentation by Marie MONIN

Moderator: Catherine PIANTE

The Blue Coast Marine Park (BCMP) is a joint association³⁵ established in 1983 between the towns of Martigues, Sausset-les-Pins, Carry-le-Rouet, Ensues-la-Restores and Rove, the province of Bouches-du-Rhône and the region Provence-Alpes-Côte d'Azur, also closely involving professional artisanal fishermen. These local government authorities have no or little jurisdiction at sea (municipalities have legal competences in the 300 meters from the coastline).

The BCMP is situated between Marseille and Fos with a concessionary use of the maritime public domain (MPD)³⁶, it covers an area of 10,000 ha which includes nearly 5,000 m³ of artificial reefs used for production³⁷ and protection³⁸.

The BCMP has two strict nature reserves/closed fishing areas³⁹, one of 85 ha and the other of 210 ha (which represents about 3% of the Marine Park's surface area, but 7.5% of the shallow waters from 0 to 50 meters, that are the most productive and contain the most sensitive habitats – Posidonia meadows and coralligenous). These reserves were established in 1983 and 1996 respectively (a 10 year Ministerial Decree prohibiting any type of fishing, reinforced by a prefectorial decree prohibiting anchorage, bottom trawling, and scuba diving). **These two protected areas, which were created for the purpose of fishing resource management and co-built with professional fishermen, are also subject to a vote of the fishing Prud'homies⁴⁰** (Prud'homies of Marseille and Martigues). This area also includes a Natura 2000 area of about 19,000 ha under the Habitats Directive, which overlaps with the SPAMI part of the Marine Park declared in 2012.

These two reserves do surveillance both from land and sea using two boats. Three permanent staff and three seasonal ones share the surveillance which corresponds to an equivalent of 1.5 full-time over the year. **The BCMP's permanent surveillance agents have special ranger's status under police responsible for the protection and conservation of the maritime public domain. However, they most often intervene on sea fishing offenses which does not fall within the scope of their commission. For this reason, they cooperate with the municipal police, the Gendarmerie (maritime and terrestrial) and the Maritime Affairs.** Information reports which are drafted in a statement format are sent to the administrative

³⁵ A joint association is an intermunicipal cooperation system which was created in France by the 30th October 1935 decree-law, to enable local authorities to join forces together or with public institutions.

³⁶ Domaine public maritime. http://fr.wikipedia.org/wiki/Domaine_public_maritime

³⁷ Artificial reefs to increase the production of fish resources.

³⁸ Protective artificial reefs to preserve the seagrass meadows in particular from coastal trawling (given that in France trawling is prohibited within 3 miles of the coast).

³⁹ "Cantonement de pêche" : a defined area at sea established in the French legislation, in which the capture of marine species is either prohibited or limited in time or restricted to certain fishing gears or vessels. The establishment of these areas aims to better management of fisheries resources.

⁴⁰ Prud'homies are very old jurisdictions in France: Since 1312, Mediterranean fishermen in France are organised within prud'homies. Prud'homies were the only organisations responsible for resolving internal and external conflicts between professionals regarding both access to fishing areas as social conflicts. Nowadays, these committees of professional fishermen have legal, regulatory, disciplinary, and judicial powers. However, Prud'homies are not independent from the Court administration and cannot be considered as tribunals in the strict sense within the meaning of Article 234 of the Treaty establishing the European Community. The French Prud'homies are very similar to the Cofradías in Spain.

authority (County Authority of territories and sea⁴¹). They can launch a defendant's hearing before the maritime police officers or to the coastal Maritime Affairs Unit (ULAM), but they are often used as additional elements within the State authorized agents' procedure.

The surveillance of these two marine protected areas serves as a deterrent, which means there is a very strong presence on the ground throughout the year and it is highly visible to users. Thus, more than half of the offenses (= immediate response) are discouraged before they have even started. This presence is ensured by both the BCMP's permanent staff and seasonal guards. **Most violations result in a warning, full information on the regulations is given, and the vessel's registration and/or declared name and address are recorded.** In 2013, the BCMP's agents patrolled for more than 2,300 hours in the field including 300 at night (between 10pm and 5am).

Official statement of offenses are drafted for cases of large catches, deliberate acts of poaching, night offenses, and illegal professional fishing along the coastline, including offenses occurring outside the protected areas (especially trawling and purse seines).

Actions in the field can be carried out jointly with different control units (particularly municipal police and national police for night offenses on the coast).

The most important number of recorded offenses is from recreational fishing in the summer and from professional fishing (trawling gears) in the winter. The surveillance boats available are well suited to operations in the 1 mile nautical zone, but not for winter operations in difficult weather conditions. **Professional fisheries have been associated with the project since its inception, and it was on their initiative that the second reserve was created. They are the BCMP's associates and sit on its various management committees.**

Studies on professional and recreational fishing were conducted between 2008 and 2011 as part of a research programme (Liteau Pampa).

The studies' results on professional fishing show that all fishermen know the BCMP. Around 87% feel sufficiently involved in the BCMP's decision-making processes and 81% think that the reserves' regulations are appropriate. In answer to the question "*Do you think the reserves' regulations are complied with?*" 50% believe that they are not and 33% said yes. According to them, 77% feel that the level of control exercised by the State's authorities is insufficient (only 11% found it adequate and 6% too strict). Therefore, fishermen believe there is a lack of surveillance from the State's authorities as well as the Marine Park's agents, especially in winter when there is an abundance of noble fish (e.g. European Sea bass, *Dicentrarchus labrax*).

Artisanal fisheries' general perception of the reserves' effect is rather positive. 53% believe the reserves to have a positive impact on their business, and 72% of them think they have a positive effect on the environment. This reserve effect perception rises to 94% for professional fishing in general. So even if they think that the effect is not necessarily perceived on an individual level, it is important on the profession as a whole.

⁴¹ Direction départementale des territoires et de la mer - DDTM13

The studies' results on recreational fishing show that 58% of the people interviewed know the BCMP, but the percentage varied depending on the type of activity (on-foot fishing, spear-fishing, shore angling and boat fishing). 66% believe that the regulations are appropriate (10% inadequate and 3% too strict). But 44% believe that they are not complied with. Finally, 82% consider that they are not involved in the BCMP's decision-making process. However, this study was conducted prior to drafting the Natura 2000 objectives document and consultations with users. This study also showed recreational fishermen's lack of knowledge on the size limits for catches.

Despite mixed perceptions on the reserves' regulations compliance and their impact on fisheries, 30% of them believe that the best solution to support fishing is the creation of new reserves.

This study also showed that the tonnage taken by professional and recreational fishing is almost the same, with the exception of two species (sole and whiting) which are exclusively targeted by professional fishermen. However, if you compare professional and recreational fishermen's catches, the former catch fewer and larger fish, whereas the latter a higher number of fish, but smaller.

In conclusion, even though professional and recreational fishermen as well as residents of the Blue Coast were partially reluctant to the creation of marine reserves, these local communities have now well accepted the principle of these managed areas.

Recommendations

Conduct surveys on professional and recreational fishing: consider the context to find the right method

Marie MONIN was asked about the approach to follow when conducting fishing surveys, knowing that professional fishermen are generally reluctant to give details of their activity (species and quantities caught, fishing spots...); she described the method used in the BCMP's case "*the study on professional fishing was conducted as part of a thesis. **Three times a week, a person went to the ports and met the fishermen, weighed their catch boxes and discussed the fishing sites, the fishing effort, the species caught.** There were also excursions with fishermen, measuring and weighing each fish, as well as a questionnaire on their activity.*"

Marie MONIN indicated that **the BCMP had guaranteed beforehand that the fishermen's data would remain confidential, particularly regarding information provided on the quantities caught and fishing sites.** She also recalled BCMP's specific context (co-built reserves and renewed every 10 years by the fishermen themselves) which is conducive to a mutual trust between fishermen and managers, and therefore to this type of approach.

Regarding the BCMP's study on recreational fishing, data was collected by surveyors that went out and met fishermen in the field by boat and on foot (shore anglers, spear-fishermen, boat anglers). The survey was

done on a cross-section of around 1,800 recreational fishermen, via a questionnaire and as often as possible doing fish size and weight recordings.

Raise prosecutors and authorities awareness on the need to comply with European regulations that impose that every professional fishing vessel declares its catches

Monitoring the professional fishing activity can be done through surveys based on fishermen doing voluntary reporting. For countries in the European community, it can also **rely on the Community's regulations which impose that every professional fishing vessel declares its catch at every outing:**

- Using the fishing logbook, which is mandatory for vessels over 10 meters long (they have to make a daily record of any catches over 50Kg and send the report to the State departments within 48h for data analysis).
- Vessels less than 10 meters long are required to submit a monthly summary of every species and quantities caught.

In France, this regulatory approach has been chosen by the County Authority of territories and sea (DDTM)⁴² in the Var county, as vouched by Jean-Luc CERCIO (DDTM) "*if fishermen did not comply with this regulation, data was obtained through repressive measures: a 2,000€ fine was given to people who did not send their monthly catch report (an offense punishable by fines of up to 22,500€).*"

In the Var county, data collected by the County Authority of territories and sea was then compared with those collected by IFREMER (via SIH⁴³), by the local Fisheries Committee, and with data found in studies like the one conducted by the BCMP or by associations for the protection of the marine environment.

Alain MANTE (Calanques National Park, France) recommended that prosecutors and County Authorities of territories and sea (or authorities concerned in other EU countries) are shown the need to impose this approach which is stated under European legislation: "In a region like the Bouches du Rhone for example, where there are several MPAs, there could be a collective request from MPA managers. This would help MPAs to obtain data on professional fishing and establish reference points. "

Enforce the obligation of marking fishing gear

Another requirement under European regulations⁴⁴ is to mark fishing gear. **It is essential that the MPA manager can identify the owners of fishing gear set in the MPA, and it is also useful for fishermen. This measure makes it possible to ensure that the equipment is the property of professionals and consequently prevents poaching.**

⁴² Direction départementale des territoires et de la mer (DDTM)

⁴³ Fishery Information System. <http://sih.ifremer.fr>

⁴⁴ Regulation EC No 356/2005 of the 1 March 2005 Commission setting out detailed rules for the marking and identification of passive fishing gear and beam trawls. Repealed on 1 January 2012 by the Regulation (EU) No 404/2011 of the of 8 April 2011 Commission setting out detailed rules for the implementation of Regulation (EC) No 1224/2009.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:112:0001:0153:FR:PDF>

In France, the Var County Authority of territories and sea (DDTM) used these arguments to raise the fishermen's awareness, Jean Luc CERCIO reported: **"We did a lot of prevention work by explaining the reasons for this regulatory action. For those who objected, we decided to remove their unmarked nets from the sea (in collaboration with a boat equipped with a wheel and a crane) and to fine offending fishermen when they came recovering their nets on the quay. Today, they mark their nets."**

The BCMP's procedure also involves removing unidentified gear from the sea, but with the prud'homie's help, Marie MONIN explained *"If we fail to identify the owner of fishing gear set in the reserve, we contact the prud'homie asking them to identify it. If the fisherman cannot be identified, the prud'homie will give a professional fisherman the authority to come with us and lift the nets which are set in the reserve. We then keep them and announce it through the prud'homie so that the owner comes forward."*

Cooperate with artisanal fishermen and use commissioning and sworn-in powers of Prud'homies

Cooperation between MPA manager and fishermen is inherent to the functioning of the BCMP, whose reserves are co-built with the fishermen. Small-scale fishery represents about sixty fishermen for a total of fifty ships, thirty of which are active all year round. These artisanal fishermen form a majority in the prud'homie (which also includes trawler fishermen, shellfish farmers, fish farmers...).

Cooperation with artisanal fishermen is an approach favoured by other Mediterranean MPAs, as testified by Mohamed JABRAN (High Commissariat for Water, Forests and Desertification Control, Morocco) giving the example of the Al Hoceima Park in Morocco: **"We must work with the artisanal fishermen as they know well the environment and also understand that reserves must be created for the future, as well as to ensure an effective control on trawling. There are about 500 artisanal fishermen boats in Al Hoceima National Park. We are currently working with the IUCN on a new zoning for the park in consultation with the fishermen."**

In Morocco, the MPA/Fishing cooperation is also a question linked to the legal and regulatory framework of managing MPAs: Al Hoceima National Park's management body (Water and Forests Administration) does indeed have jurisdiction over the park's terrestrial part, but not on the marine part (which is under the Ministry of Fisheries, the Royal Navy, and police's jurisdiction): *"to solve this problem, the Ministry of Fisheries is currently working on the concept of MPA, which is quite recent in Morocco (4 MPAs have been created since 2012). The idea is to classify the marine part of Al Hoceima National Park as a MPA under the Ministry of Fisheries. The Water and Forests Administration will then have to work in co-management with the Ministry of Fisheries, which has all the relevant regulations for the marine part. Certain restricted areas will be exploited by the fishermen."*

In France, the cooperation with artisanal fishermen via their prud'homies offers solutions for enforcing regulations in strict nature reserves/closed fishing areas⁴⁵ like those of the BCMP.

Even though strict nature reserves/closed fishing areas (called "cantonnements de pêche") help to restock the sea and improve the exploitation of living resources, they are not yet recognised as MPAs by the French Environmental Code. Thus, the BCMP agents have little legal power, explains Marie MONIN: *"We do not have many legal means at our disposal: we are neither a national park nor a nature reserve, or a regional*

⁴⁵ Cantonnement de pêche

park, but a joint association, and so unique among all MPAs. The BCMP is only considered a MPA because it obtained a SPAMI classification in February 2012. And today we are looking for solutions that will ensure that our guards get a status, by trying to obtain a commission and being sworn-in by fishing prud'homies, as kind of sworn fishery guardians."

Indeed, the prud'homies have commissioning and sworn-in powers in these reserves, that is to say a true empowerment to record and punish offenses.

Jean-Luc CERCIO highlights how useful these commissioning and sworn-in powers are by sharing the experience of a fishing reserve on the coast of the Var county: *"In the Var county we have a fishing reserve. This reserve was put in place 10 years ago and it has been highly effective in recovering species. Nevertheless, there are poaching incidents and agents in charge of surveillance and giving information are rebuffed by professional fishermen who do not take them seriously (as they have no judicial powers to record and prosecute offenses).*

To address this problem, prudhommes fishermen (local fishermen leaders who are sworn-in to report their peers) are now fully involved in surveillance with the reserve's guards (by doing shifts outside of their professional fishing activity).

And this year, the Maritime Affairs dealt with three proceedings from the prudhommes who reported on other professional fishermen. It should be noted that prudhommes did not use the prudhomme jurisdiction which they could have done (they have the possibility of reporting the offense directly to an inter-fishing court), but submitted proceedings to Maritime Affairs using the rural and sea fishing code.

As prud'homies are sworn-in, their statements were used as they are a valid violation statement, and the following penalties were given:

- *an administrative penalty with a 1 month license withdrawal;*
- *a 3700€ fine for rigging a net in the area.*

This shows how we now have an internal coordination between rangers, Maritime Affairs and sworn-in fishermen. This also proves that the latter were not afraid to report on their peers."

Cooperate with competent authorities to secure the procedures

In BCMP's case, agents are not authorised to draw up a statement. Their intervention aims to stop the offenses, to estimate the level of damage on the environment, and if necessary to report and transmit them to Maritime Affairs who will summon the offender to a hearing.

Marie MONIN gives the example of illegal trawling, where it is important to collect tangible evidence of the offense: *"For illegal trawling, we will always go out to sea and take a GPS reading of the trawler's position, estimate its route and take photos of the trawler with the coast in the background to prove that it is fishing in a prohibited area. A detailed report on the intervention is then transmitted to Maritime Affairs."*

For more serious offenses, however, it is essential to coordinate the response with the appropriate authorities to ensure that procedure is secured in order to have a greater chance to succeed: "For offenses which are considered recurring or actual poaching, we do not intervene alone. We coordinate with municipal police officers or the gendarmerie, so that they intervene directly. We also work with the Navy, as

we are lucky to have a semaphore in the area, which helps for night-time watches (especially in winter when trawlers go out in difficult weather conditions and are sometimes caught in the reserve)."

The value of protective artificial reefs against illegal trawling in coastal areas

Mohamed JABRAN (High Commission for Water, Forests and Combating Desertification / Al Hoceima National Park, Morocco) asked Marie MONIN about the use of artificial reefs in the BCMP. Marie MONIN emphasised how useful protective reefs have been:

"The protective submerged reefs on the Blue Coast have worked well: in the 1980s, we had a big problem with trawling in the 1 nautical mile band. A study was carried out in the Cap Couronne with the help of the semaphore; it recorded trawler traffic over a whole year before and after the creation of the reserve and its obstacles, and showed a sharp decline in the passage of trawlers."

Not underestimate the impact of recreational fishing

A study carried out by the BCMP showed that recreational fishing catches are comparable to those of the small-scale coastal fishing activity *"if we ignore two fish species specifically targeted by professional fishermen⁴⁶, recreational fishing catches in the coastal zone are the equivalent of those taken by professional fishing in the BCMP (52,6 and 60 tons respectively collected per year),"* said Marie MONIN.

A study by WWF and the Port-Cros National Park, which summarised all the studies conducted on recreational fishing in Mediterranean MPAs⁴⁷, confirmed this trend, as Catherine PIANTE (WWF France) explained: ***"even if we do not have accurate figures, the trend that emerges from the ten or so studies considered is that recreational fishing and coastal professional fishing are generally comparable particularly in terms of quantities taken."***

It is important to note that these studies compare the activities of recreational fishing and professional fishing in coastal areas (the study in BCMP did not take into account trawlers and purse seiners). When you take into account offshore fishing, the comparison between professional and recreational fishing is no longer valid, as shown in a study conducted by IFREMER⁴⁸, which pointed out that the quantity of recreational fishing catches in France represents 5% of professional fishing's.

It is important to implement appropriate management measures as the impact of recreational fishing is similar to small-scale fisheries in many MPAs.

⁴⁶ The study conducted in BCMP did not take into account whiting and sole, species targeted by professional fisheries which alone account for half of the small-scale fishery tonnage in this area.

⁴⁷ Recreational fishing in Marine Protected Areas in the Mediterranean.

⁴⁸

Pay close attention to the issue of the illegal sale of catches

Surveillance must pay special attention to the illegal sale of catches by certain "recreational" fishermen. This is a recurrent issue reported right across the Mediterranean⁴⁹: *"On the Blue Coast, the majority of recreational fishermen are seniors who do inshore navigation and fish for their own consumption. **However, we also find big "predators" that capture large quantities of fish to sell illegally.** Professional fishermen denounce this unfair competition and the pressure this poaching puts on certain species: sea urchins fairs ("Oursinades") are excessively promoted by restaurants along the Blue Coast and they require a large amount of sea urchins, far above what professional fishermen can provide."*

The sale of illegal catches is a fact on the Blue Coast, however Marie MONIN emphasised that this practice remains relatively insignificant when compared to other places where it is more widespread and publicised, like in Marseille for example, or in many other places in the Mediterranean. Ohn VALENCY (Nature and Parks Authority, Israel) mentioned that in Israel, it is estimated that half of the allegedly recreational fishing catches are resold. A phenomenon which currently benefits from the high market price of certain species such as the Grouper: *"The main problem we face in Israel is illegal spear-fishing. Its impact is much greater than previously thought. There are more and more skilled free divers who descend to 25 metres and in just one day can cause significant damage, particularly to Groupers."*

Crackdown, information, codes of good conduct: bring appropriate responses according to offenses encountered and offenders' profile

The main offenses encountered in recreational fishing in the BCMP are boat and shore angling, and occasionally spear-fishing. As Marie MONIN stated, there are two types of offenders who must be distinguished in order to provide the appropriate response:

- **Genuine poachers who come into the area at night during the summer:** these are the "big predators" already mentioned, some of which sell their catches. As previously indicated, in order to stop these types of offenders a coordinated action with the competent authorities (municipal police, gendarmerie) is required to ensure proceedings.
- **Recreational fishermen who often find themselves in breach of regulations due to their ignorance of the protected area:** the BCMP agents inform these recreational fishermen that they are in a protected area, ask them to stop their activity, and if fish have been caught to throw them back into the sea. While from a regulatory point of view they have no power to enforce, the uniform and the threat of an intervention from the State's authorities is generally enough for users to comply.

The BCMP's study on recreational fishing revealed that only 37% of shore anglers know the regulations. This is low when compared to spear-fishing, as Marie MONIN illustrated *"Spear-fishermen are targeted by French legislation, in particular for fishing certain species such as the Grouper, or spear-fishing competitions. But among users, spear-fishermen are knowledgeable on minimum fish size regulations for example, and do not represent a significant problem in the BCMP."*

⁴⁹ See : Study on surveillance and enforcement of regulations in Marine Protected Areas in the Mediterranean.

To overcome the lack of knowledge on regulations, the BCMP focuses on giving information and implementing codes of good conduct. Again, good knowledge of users and ways to give them information will ensure that these approaches are successful: *"Currently, we are in discussion with fishing federation representatives to define codes of good conduct and find solutions to reduce their impact. There are already measures in place to do catch reporting based on a voluntary participation; these are used to collect data.*

We also give a lot of information to nautical companies; we inform them about texts, documents that exist, to make sure they are informed on changes in size and species concerned. It is essential for us to give this information because recreational fishermen who are present in the Blue Coast are people who do not use the Internet," said Marie MONIN.

Optimise surveillance and monitoring by using new technologies: the example of CyberTracker

In Israel, natural parks have equipped their agents with the CyberTracker application⁵⁰: an open source based Android application (and therefore freely available, adaptable, and that can be installed on a Smartphone). CyberTracker is a valuable management tool for monitoring and surveillance of natural protected areas.

Ohn VALENCY (Nature and Parks Authority, Israel) explained how it works: *"The manager, guard, or ecologist who has this tool enters their name, and from a very intuitive menu gives information to a database, reporting straight from the field with details of their mission and observations. This information is transmitted directly to the database. So there is no need to transcribe field surveys which can induce errors. Data is standardised, and once transmitted is processed to establish ecological statistics, infringement statistics... This amazing tool has completely changed our organization."*

This highly flexible tool whose features can be tailored to any type of protected area can be downloaded for free from the CyberTracker website: www.cybertracker.org

Exchange visits

Almokhtar SAIED (Environment General Authority, Libya) highlighting BCMP's positive experience judged that it would be very beneficial if it could host exchange visits with Mediterranean MPAs, *"What you have been able to achieve with fishermen is very difficult to obtain elsewhere in the Mediterranean, and it is very important to communicate this experience"*, he concluded.

⁵⁰ <http://www.cybertracker.org/>

RESTITUTION OF CASE STUDIES WORKSHOPS

Case study workshops put managers around a table to get them to deal with a specific situation presented by one of them. These sessions brought together working groups of 10/15 people.

Following a short presentation in which the speaker gave background information and focused on the main difficulties encountered in his MPA, participants were invited to interact, with the aim to collectively provide some solution avenues to the problem raised.

Duration: 120 minutes

Objective: collectively provide solutions to a particular problem and make recommendations for capacity building.

Palm Islands and Tyr coast Nature Reserves

Lebanon

Presentation by Jalal HALWANI & Mohammad ZAHER

Moderator: Abdennadi ABARKACH (High Commissariat for Water, Forests and Department for the fight against desertification, Morocco)

Lebanon

Located on the eastern side of the Mediterranean Sea, Lebanon has a 210 km long coastline and is 50 km wide covering an area of 10 452 km² with a population of 4.5 million.

Despite being small in size, the country is characterised by a great diversity in its ecosystems due to very different environmental conditions. Lebanon's mountains, rivers and climatic zones have created fantastic landscapes which are unique in view of the wide variety of species that inhabit it.

Lebanon currently has 9 classified nature reserves: 7 forests and 2 marine sites which are remarkable for their beauty and biodiversity: the Palm Islands Nature Reserve (121/92) and the Tyr Coast Nature Reserve (708/98) are both included in the SPAMIs list⁵¹ and in the Ramsar list of wetlands of international importance⁵². Both Lebanese MPAs are important nesting sites for sea turtles (loggerhead and green turtles). They are also located on the major migratory routes of internationally important bird species.

Lebanese MPAs are managed by Committees acting under the Ministry of the Environment. These Committees are made up of State, Municipal, NGO representatives and local people. The members of the Board of Directors and Management Committees are volunteers. The Committees have recruited permanent staff through an annual grant from the Ministry of Environment. However, Lebanese MPAs still do not have real management programmes because of inadequate funding.

Lebanon's international agreements and commitments:

- The Barcelona Convention for the Protection of the Mediterranean Sea against pollution.
- The Convention on Biological Diversity (CBD).
- The Ramsar Convention on wetlands of International Importance.
- The African-Eurasian Water Birds Migratory Agreement (AEWA).
- The Agreement on Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS).
- The UNESCO Convention on the Protection of Cultural and Natural Heritage.

⁵¹ during the Barcelona Convention's COP17 (Paris, February 2012)

⁵² RAMSAR Sites No. 980/1999 and No. 1079/2001

Tyr Coast Nature Reserve

Tyr Coast Nature Reserve (TCNR) was established by Law No. 708 on 12th November, 1998. The reserve is a coastal and marine site in the immediate vicinity of the historic city of Tyr (UNESCO World Heritage) in southern Lebanon. It covers an area of 400 ha and is characterised by its **great diversity of ecosystems specific to the Mediterranean**: the reserve has a beach and sand dunes, a wetland of international importance (Ramsar Site No. 980), fresh water springs and agricultural land. The spring water flows into the sea and creates a mixed fresh and salt water environment.

The TCNR is considered to be an important area for migratory birds and endangered sea turtles (*Chelonia mydas* and *Caretta caretta*) nesting sites.

The reserve is divided into three areas: a conservation area, an agricultural and archaeological site and a tourist area.

It is managed by a Committee consisting of five members who represent the various stakeholders, and act under the Ministry of the Environment's supervision. The site is managed daily by a team of 6 permanent staff.

Palm Islands Nature Reserve

The Palm Islands Nature Reserve (PINR) is 5.5 km from the Tripoli/El Mina coast. It is about 4 km² (including a 500m sea perimeter around the islands). It is made up of three islands: Sanani (4 ha), Ramkine (1.6 ha) and Palm Islands (20 ha).

The Palm Islands are public property. They were declared as a protected area under the Act 121 of 9th March 1992. The reserve is managed by a committee of 7 volunteers appointed by the Minister of the Environment for a 3 year period; they are representatives from the Tripoli and Mina municipalities, the Lebanese University, and environmental NGOs.

The reserve is included in the list of Wetlands of International Importance under the Ramsar Convention of 03.08.2001 (Site No. 1079), specially protected area and important area for bird conservation.

It is a typical Mediterranean reserve, and is of great importance to many species:

- The list of regionally protected species under international agreements includes three marine plants, 11 mollusc species, 3 turtles, 13 bird species and 3 species of mammals.
- The whole reserve is a stopover site for 156 species of migratory and hibernating birds that use it for food, to rest, as a shelter and as a gite. Among these species are globally threatened ones that need to be preserved.
- The islands have sandy beaches composed of shell fragments. The islands' beaches are clean and safe, ideal for nesting turtles, especially as such perfect conditions do not exist on most coastal beaches.
- The islands have 83 plant species (two endemic), which in the past were widespread along the coast, but have now disappeared due to population pressure. The rocky island habitat is an

essential breeding ground for gulls. It is the only place in Lebanon where seabirds breed and in this eastern Mediterranean region.

Despite PINR being uninhabited it is popular for leisure activities (swimming, sunbathing, diving and hiking), teaching and research. Fishing and hunting are not permitted.

4 types of human activities have an impact on the reserve:

1. limited illegal dynamite fishing near the reserve's islands. This affects the island's outlying rocks which are prone to cracking and submerging;
2. illegal shell collection by divers from neighbouring villages near the islands for commercial purposes. This type of collection destroys the food chain around the reserve and in all likelihood in it;
3. the large number of visitors during the summer months can create pollution and destroy the vegetation in the supralittoral area, including plants that play an important role in holding the dunes, and a considerable number of boats anchoring in the summer have destroyed the lower shore area;
4. rabbits introduced in 1982 cause a continuous degradation of vegetation cover, which leads to an exceptional repeated progressive vegetation dynamics;

Main difficulties encountered

An inadequate regulatory framework which is difficult to implement

The regulatory framework available to Lebanese MPAs today does not allow them to meet their management needs: in the case of TCNR, regulations on fishing, maritime transport, and pollution are still not set. For the Palm Islands, a change in the regulations would be necessary to manage the recreational activities properly.

Both reserves still do not have a marine management plan.

There is no legal representative among the Stakeholder Committee representatives appointed by the Ministry of Environment, which is responsible for the management of Lebanese reserves, does not have a. This type of governance hinders them in achieving their objectives.

Inadequate and precarious budget

The Reserves' funding is ensured mainly by an annual grant from the Ministry of the Environment, it is often paid with a considerable delay. This means there is a recurring problem of paying the wages.

The financial support from other public and private organizations is virtually non-existent, despite that Jalal HALWANI managed to get the Tripoli City Council to award a grant to the PINR.

In addition to the ministry annual contribution, TCNR receives annually a percentage of 45% of the investment revenues of the touristic zone by the municipality of Tyre during summer season.

Due to the Finance Act and the Committees' legal status, the Reserves cannot collect entrance fees from visitors or users either.

The lack of budget prevents hiring permanent and seasonal staff to do surveillance, buy boats, diving equipment, signage, and automated surveillance technology. The budget does not cover the fuel and maintenance costs which daily patrols would induce.

Insufficient cooperation with relevant institutions and authorities

The PINR stresses that there is an insufficient cooperation with municipalities as well as military and naval authorities. This lack of dialogue gives rise to different interpretations of the Law by both sides and then creates conflict with these stakeholders.

So, Jalal HALWANI emphasises the importance of clarifying the powers and duties of each entity (army, maritime police, municipal police) thus removing any ambiguity which could be a source of conflict: "*For example, the Mina Al municipality argues that Tripoli has no jurisdiction over the islands, which it regards as a logical extension of its own territory. This is therefore a conflict where only the clarification of the Reserve's status, its representation, and stakeholders' skills can resolve*".

In general, it is difficult to convince Lebanese authorities to get involved in these Nature Reserves, given the country's safety and social problems which are the priority.

Newly, since spring 2014, the Municipality of Tyre is conducting marine patrols in cooperation with the army against illegal fishing techniques and dynamites in order to allow growth and reproduction of marine resources.

Also, the project "Sustainable Fisheries Management for Improved Livelihoods of the Coastal Fishing Community in Tyre – Lebanon" funded by Drosos Foundation in partnership with IUCN and ADR (Lebanese NGO) was launched in February 2014.

Hopefully, this activity will pave the way for the MPA in Tyre.

A lack of awareness among tourists and locals

The PINR suffers from a lack of awareness among holiday makers and leisure boats who arrive in force in the summer months and on Sundays and because there are no controls in place, cause significant damage to the environment.

The PINR also faces the local population's incomprehension, which does not see the environmental benefit of the Reserve and the importance of preserving biodiversity.

Across the country in general, the climate of insecurity and political instability hinders an effective Law enforcement. Laws are violated on a daily basis and it is difficult, in this context, to convince people of the nature reserve's legitimacy.

Training required

TCNR staff need to be trained on the regulation and surveillance side, including:

- In regulations for fisheries, anchorage, boat tours, diving, beach usage, licensing and concession measures;
- Surveillance: implementing maritime patrols, controlling pollution and illegal fishing.

Pollution issues

The PINR has an important pollution problem caused by marine litter from ships (ballast, waste) or brought by ocean currents. This problem is compounded by the presence of numerous dumps along the Lebanese coast.

The TCNR meanwhile stresses the emergence of new pressures linked to the future exploitation of natural gas in southern Lebanon. In addition comes the solid waste pollution coming from the sea and thrown by people on the beach in the touristic zone: efforts are being made to clean every day, but this problem requires the implementation of a program of public awareness.

Recommendations

On an international level, highlight the importance of Lebanese nature reserves

To compensate for the lack of local and national commitment, Jalal HALWANI emphasises the need to promote the exceptional nature of Lebanese Nature Reserves to environmental authorities on a Mediterranean and international level.

Ahmedou OULD HAMADI (Banc d'Arguin National Park, Mauritania) supports this idea, suggesting that the Lebanese authorities try to get the two reserves awarded World Heritage status, thereby facilitating access to funding. However, he reminded that taking this step assumes that the Lebanese reserves already have operational management plans in place and are applied, as these are two of the eligibility criteria to be on the World Heritage listing. Ahmedou OULD HAMADI also stresses that raising the municipalities, State representatives; public authorities' awareness must be continued over the long term.

Campaign for the municipalities' involvement

In view of this international strategy, Christel GEORGES (City of Marseille, France) argued that elected officials who sit on the Reserves' Management Committees should be able to vote small budgets:

"In Marseille, we took over the conservation of our own islands by becoming co-financiers: it enabled us to develop a management plan and hire staff. Only then did the Ministry of the Environment take part and the creation of the Calanques National Park began. Today, we are considering a participation from the City of Marseille's in operating the National Park, which however falls under the State and in principle does not require a community intervention. But perhaps this is the solution to ensure its sustainable management. It seems to me that a commitment by the territory's local municipalities remains a priority, even though we do not of course have the same financial or organizational issues as you."

Edouard CHÉRÉ (City of Agde - Cap d'Agde Posidonia MPA ex ADENA Association) also agreed. Drawing attention to the need to mobilise public opinion in influencing local policies, he mentioned Cap d'Agde Posidonia MPA's experience: *"I represent a municipality that has recently taken over the management of its marine environment (the MPA was run by an association before). This town, Cap d'Agde, is a seaside resort whose priority over the last forty years has been to develop mass tourism. For many years the MPA was managed by an association and the community was opposed to it. But the demand for a more qualitative tourism (a quality environment, beaches, water...) and a change in the local population's perception led the council to change direction and to be concerned about the marine environment. Today, the MPA is run by the city"*.

Continue awareness actions undertaken and give them media coverage

Campaigning for the municipalities' involvement also suggests that communication and public/voter awareness is a strong strategic focus.

Jalal HALWANI pointed out the problem with this recommendation, noting that the Palm Islands' context is very different from the Calanques National Park in Marseille and Cap d'Agde Posidonia MPA: unlike these examples, it is not a suburban park or an inhabited MPA. There are therefore no voters on the Palm Islands, which is the reason for the lack of political support.

To raise the public's awareness, you have to show what happens on these remote islands: give media coverage and communicate on the cleaning of beaches, for example, which the PINR could get schools involved in, this would be an effective way to mobilise public opinion suggests Mathieu IMBERT (Calanques National Park , France).

School children should be mobilised because all kinds of social backgrounds are found there, the future voters and environmentalists, explains Christel GEORGES, it may be useful to also broaden public actions towards others: "Bring, for example, the inhabitants of El Mina (paying their trip) to participate in cleaning up operations. We do this every year in Marseille: then everyone gradually becomes aware of the existence of others (because these operations involve different types of users: fishermen, divers...) and they realise the **importance of preserving this common territory**".

"In terms of awareness, the priority is that people get to know and take the reserve's ownership" reminded Edouard CHÉRÉ.

Establish a transparent penal policy to ensure proper enforcement

Lebanon's Nature Reserves, the control and booking powers are under the responsibility of approved bodies (military and maritime police). The Reserves' guards do not have jurisdiction to record an infringement and take a statement. Over the last 10 years, the Palm Islands' infringements have never been penalised. The law enforcement in Lebanon, as is the case in other countries, is often obstructed by offenders resorting to special privileges.

Newly, the Ministry of Environment opened the opportunity for the rangers of the nature reserves in Lebanon to be trained by the Internal Security Force on how to record infringement and on the existing related laws and regulations. The ministry will follow up on giving the rangers the right to record infringements.

Ahmedou OULD HAMADI cited the example of the Banc d'Arguin National Park which applies a transparent criminal policy that ensures a fair and impartial enforcement of the Law: **"In Mauritania, we of course encounter similar problems, but there is a big difference: everyone must comply with the Banc d'Arguin National Park's regulations. They cannot be waived for anyone.** When an infringement is recorded, a statement of the offense is sent to a commission under the Ministry of Fisheries (Consultative Commission on transactions). This committee then meets up and discusses the statement, taking into account a number of parameters (number of people on board the boat, the captain's behaviour, fishing gear...) which are each

given a number of points. **This is just mathematics and transparent.** The Committee then contacts the offender and suggests a fine transaction. The law offers the offender a compromise; he can accept or reject the transaction: but in 99% of cases, offenders accept because they do not want to see their work tool (boat) laid up. The offender pays his fine to the Treasury which issues a receipt, then the PNBA hands out a liberation order that allows him to recover his boat. The Law ensures that a portion of the fine (34%) is paid to the Park: once the fine has been collected by the Treasury, the Treasurer General distributes it (52 % to the State's budget, 14% is an incentive payment to the agents who recorded the offense, 34% for the Park). This law has been applied since 2013 and there is already € 20,000 in the Treasury's account".

Reinforce staff training by offering exchanges

Mathieu IMBERT and Christel GEORGES, highlighting the similarities between their territory and the Palm Islands (both islands, popular with tourists in the summer, surveillance problems...) suggested putting in place exchanges between the Calanques National Park/City of Marseille and PINR/City of Tripoli (the cities of Marseille and Tripoli are twinned and thus already linked by cooperative agreements).

Returning to the needs expressed during this workshop and given the City of Marseille with the Calanques National Park's involvement, this exchange format would enable the Lebanese partners to get feedback from both the managerial and administrative side "on how we can urge politicians and decisions on the one hand and use the media to cover small operations which the population is involved in on the operational side," says Christel GEORGES.

Jalal HALWANI believes that these twinnings could help not only with the exchange of experience (training sessions), but also with equipment (donation to the MPA of renewed equipment).

These cooperation programmes could be set over the long term by being based on existing cooperative agreements (such as those between the cities of Marseille and Tripoli).

In addition to the prospect of an exchange between the Calanques National Park/City of Marseille and PINR/City of Tripoli, **the Lebanese MPAs also showed a strong interest in organising practical exchange visits with MPAs (in particular in developing countries such as Morocco, Tunisia, Malta and Algeria), who have a successful experience in the field of surveillance and law enforcement, or other management aspects.**

Telašćica Natural Park

Croatia

Presentation by Milena RAMOV

Head of Inventory and Monitoring Section of natural and cultural values

Moderator: Zafer KIZILKAYA (Gökova SEPA, Turkey)

Telašćica Natural Park is in the middle of the Adriatic coastline, south of Dugi Otok Island. It was established in 1980 as part of the Kornati National Park and was given a Natural Park status in 1988. It is managed by a government body with 24 permanent employees and up to 50 seasonal staff. Telašćica Natural Park covers 7000 ha and has about 100,000 visitors per year.

Legislative framework

Conditions and measures for the protection, conservation and promotion of the Park are based on the Law for the protection of nature and are defined by internal regulations. Following an update on the Law for the protection of nature, new internal regulations are currently being drafted.

In addition to the Law for the Protection of Nature, many non-environmental laws also apply to protected areas like the Fisheries Act which posed serious problems for Telašćica between 2010 and 2013.

The government body adopted a management plan in 2012. It is a strategic document that was devised by many stakeholders, and provides all the Park's activities for the next 10 years. The zoning of the protected area set out in the Management Plan identifies three sub-areas, which are mainly concerned with regulating fisheries. This zoning only exists to date on paper and should be adopted in the new internal regulations.

Telašćica Natural Park Zoning

- strict protection zone;
- zone of aimed protection which covers the largest part of the Park;
- area of human activity (red dots on the map)



Main difficulties encountered

Contradictory legal framework

The Fisheries Act adopted in 2010 did not recognise that Natural Parks have a specific law until recently. So there was a conflict between the Law on the protection of nature and the Fisheries Act. This inconsistency has led to an increase in illegal fishing (trawling previously prohibited) over the last three years which has had an impact on several of the Park's management objectives (Posidonia, fish stock, coralligenous...).

The problem was on a government level, but the government body in charge of managing Telašćica Natural Park did not have the authority to resolve it⁵³. **The Park had internal regulations prohibiting professional fishing, but was faced with a law authorising it.**

The Fisheries Act was finally changed in 2013 and now allows Natural Parks to establish specific regulations via their internal regulations. But the damage caused to protected marine habitats during this period was significant. The feeling of trust between the Park and locals has also been altered. New fishing regulations will be established in the new internal regulations. Informing and educating fishermen on these new regulations will be an essential factor for success.

Limited power to intervene and a lack of co-operation from the competent authorities

Despite an increased surveillance effort and satisfactory number of staff and boats⁵⁴, the Telašćica Natural Park is struggling to curb illegal fishing activities. The guards note down offenses (over 40 repeat offenses observed for one trawler!), register the quantities of fish caught and fishing zones, but their powers are insufficient. When fishermen refuse to let the guards onboard, **they have to call the police or the Fisheries Inspectorate, they alone have powers to enforce and sanction. Unfortunately, these authorities are understaffed and only rarely intervene**⁵⁵.

The government body which manages the MPA has issued a proposal to convict the trawler which repeatedly offends based on all the offenses officially recorded, but the court rejected this proposal. **To raise the judges and prosecutors awareness on the importance of environmental protection will be essential in order that the damage done to the MPA is taken seriously.**

⁵³ The Department of Fisheries consider that fishing activities in Natural Parks can only be regulated by the Fisheries Act, and these parks internal rules must comply with it; The Ministry of Environment and Law for the protection of nature deem the conservation of nature is *lex specialis* in protected areas.

⁵⁴ 5 guards all year round + 2 extra during the summer, 10 boats

⁵⁵ In Croatia, each county/province has its own police. But Telašćica itself is vast and has an insufficient number of police officers. Added to this is the fact that the territory has a lot of islands, which further complicates the problem of sea patrols.

Hope and uncertainty pending new regulations

For the time being, the spectre of illegal fishing in Telašćica is fading. The Fisheries Act passed in 2013 which recognises Natural Parks and the current internal regulations renewal process which is in progress, is sufficient to deter fishermen operating in the area.

Following the vote on this Fisheries Act and a new Law for the protection of nature, **the Ministry of Environment has established a working group to discuss fishing activities in Croatian MPAs.** The Telašćica Natural Park's internal regulations which are currently being drafted will incorporate the results from this working group.

The regulations now allow professional fishing in the Park, but with restrictions. The government body in charge of the Park's management is represented in the working group and requested that the size of nets, their meshing, and fishing gear is regulated. It hopes to be heard on these proposals which were made jointly with local fishermen and NGOs.

Another request from the Park, during a working group session, is that its guards' power be reinforced, so that they have authority to conduct controls and if necessary to give sanctions. Telašćica Natural Park is also waiting to hear on this point.

Recommendations

Rely on all applicable laws, particularly the European Directives

Returning to the case of the persistently offending trawler (with over 40 offenses!), Zafer KIZILKAYA observed that even if it had taken advantage of the legal uncertainty caused by inconsistencies in the Fisheries Act and the Park's internal rules, it may nevertheless be in breach in terms of other legislation:

- **Trawling regulations generally prohibit fishing within a certain distance from the coast** (within a 3 nautical mile limit from the shore or 50 meters isobaths under EU legislation⁵⁶). The map recording the violations showed that the trawler was fishing near the shore, therefore in breach of the terms of this Act, applicable in Croatia even before it joined the EU in July 2013.
- **The EU also bans trawling in posidonia meadows⁵⁷ and coral habitats⁵⁸,** these were specifically damaged by the persistent offending trawler. Today, the Telašćica Natural Park has mapped these habitats and transmitted the data to its government.
- **The Telašćica Natural Park's classification as a Natura 2000 zone now enables it to be backed by both its national legislative framework and the EU Directive.** Vladislav MIHELIC pointed out that Croatian MPAs have only recently become Natura 2000 sites (July 2013), but stated that this

⁵⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994R1626:fr:NOT>

⁵⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994R1626:fr:NOT>

⁵⁸ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:409:0009:0080:FR:PDF>

classification will be beneficial to them in the future in terms of surveillance and enforcing regulations: the police will be able to rely on the directive to do their reporting and judges will probably be very strict in applying it.

Encourage co-ordination among the sea police

Telašćica Natural Park's request that its guards have increased powers to control and if necessary sanction is of course legitimate. It would guarantee efficient regulation enforcement.

In any event, it is also essential that the Park manages to co-ordinate control operations with the other competent authorities, namely the police and the Fisheries Inspectorate. Other Croatian MPAs get an active co-operation from the police. This is the case in Lastovo for example, as testified Jelena MATOKOVIĆ "In Lastovo like Telašćica, the guards cannot board offending boats or book them. But we have good co-operation from the police, and it really helps us."

According to Milena RAMOV, **one of the main obstacles to developing a well organised co-operation between the competent authorities is the lack of knowledge of all the current laws applicable to MPAs:** "I think that there is a lack of knowledge on the part of the MPA guards, maritime police, the Fisheries Inspectorate, on this set of current laws applicable to MPAs. **I think we need to increase the various authorities' knowledge.**"

Raise the judiciary's awareness

It is essential to raise the judges and prosecutors awareness in order to enforce the law and that infringements against the environment are not filed away and forgotten.

If the authorities vested with police powers do not have the time, or sufficient boat and human resources to go out every time an infringement is reported, it is important that the courts to take into consideration the evidence collected by the guards, as is the case in many other places in the Mediterranean.

Zafer KIZILKAYA recalled the Gokova MPA case in Turkey: "Our guards do not have coercive powers either. However, they have video cameras. In court, videotapes of the offenses are sufficient."

For Milena RAMOV, now that the legislative framework has been clarified, it should be possible to use this kind of evidence in a Croatian court.

Inform and make fishermen aware of the new regulations

The government body in charge of managing Telašćica Natural Park has already made significant efforts to convince fishermen of the MPA's benefits. Fishermen have participated in workshops on zoning and an exchange visit was organised where they met their counterparts in Cabrera National Park in Spain. Telašćica's fishermen have understood the importance of No-take zones for fish reproduction.

Telašćica Natural Park's priority, when its new internal regulations and zoning enter into force, will be to start an information campaign aimed at fishermen. Indeed, professional fishing was not allowed in the Park before, but under the new regulations being written this activity will be regulated.

To provide an appropriate response to possible offenses committed by fishermen, it will then be necessary to determine if they act deliberately or in ignorance of the rules:

- In the event that they would act in breach of the regulations and zoning, a good approach would be to inform and then warn in case of a repeated offense, the Park's guards will collect evidence to prosecute them;
- If they deliberately break the law, the Park will need to co-operate more efficiently with the police to sanction them.

Telašćica Natural Park has a former fisherman among its guards who will be a valuable asset in creating a good relationship because this person knows the community and its way of operating.

Anticipate solutions to enforce these new regulations and zoning by all users

Once the new regulations and zoning are established, the main surveillance and enforcement problem which Telašćica Natural Park will face will be compliance of the no-take zones. The Park receives 100,000 visitors a year. It will therefore not only regulate professional fishing, but also be prepared to deal with similar recreational offenses in these areas.

To manage the flow of tourists on its territory, Telašćica Natural Park has a number of assets and tools and plans to implement new solutions:

- **Entrance fees:** all visitors to Telašćica buy an entrance ticket; including leisure boats arriving by sea (the guards approach them). **A map of the Park and information are printed on the tickets.**
- **Fishing licenses and other admission fees are required:** Recreational fishermen must purchase a license to practice their activity in the Park. In general, every activity which takes place in the Park (diving, recreational fishing...) generates entry fees for the Park. Apart from the self-financing it provides **this function enables a strong monitoring of its uses. It could be improved in the future by relying on applicative technologies based on the use of GNSS (Global Navigation Satellite System) services, such as those tested during the European MEDUSE project**
- **The Manager is planning to build a new surveillance station at the entrance to the park, so that the guards can identify every boat coming in.**
- **He is also planning on using CCTV equipment.**

Prepare convincing arguments

The government body has collaborated with NGOs and the Croatian Institute for Fishery in several studies showing the impact of trawling on protected habitats. These studies' results were used in political lobbying actions and to influence a change in the law to ensure a better protection of the marine resources and habitat.

The manager must continue preparing convincing arguments. Zafer KIZILKAYA particularly recommended doing **a socio-economic study on fishing in Telašćica**: to ascertain the contribution that fishing makes to the local economy compared to tourism activities, which species are targeted by fishermen, find out their sale potential once the summer has gone, who do they sell to and how they survive; are all valuable elements to support an argument in a meeting at the Ministry, for example.

National Marine Park of Alonnisos Sporades North

Greece

Presentation by Grigorios KARAMITROS

Director of the National Marine Park of Alonnisos Sporades North

Moderator: Jorge E. MORENO PEREZ (Cabrera National Park, Spain)

The National Marine Park of Alonnisos Northern Sporades is one of two marine parks established in Greece and, to date, **is the second largest Marine Protected Area in Europe** (2,260 km²).

The NMPANS was founded in 1992 by Presidential Decree with its **main objective being the protection of the Mediterranean monk seal (*Monachus monachus*) and its habitat**. The Marine Park is home to other endangered species, such as red coral (*Coralium rubrum*) and Posidonia (*Poseidonia oceanica*).

The NMPANS' management was established in 2003 by a common ministerial decision⁵⁹ which specifies the management framework of the area. The management body is made up of 10 members, which includes representatives from national, regional and local authorities, as well as professional associations and environmental NGOs.

Over the 2010-2015 period, 90% of NMPANS' funding is provided by the "Environment and Sustainable Development" Operational Programme.⁶⁰

Despite its isolation, the area has significant anthropogenic pressure. The main activities are professional fishing (small scale) throughout the year, then recreational fishing and tourism in the summer. In view of this situation, the NMPANS is divided into two areas with different levels of protection (Zone A: 1587 km² / Zone B: 678 km²)⁶¹. It also has a complex legislation which determines different restrictions according to the type of users.

Main illegal activities :

- **Professional fishing in no-take zones or with unauthorized fishing gear:** around 50 small artisanal fishing boats are based in Alonnisos and work in the Park. These professional fishermen are allowed to fish everywhere except in the core zone (but with restrictions⁶²). Fishermen from other islands also frequent the area, mainly in the summer. Even though monk seals feed themselves from the fishing nets they are not targeted by fishermen, as penalties are very dissuasive.

⁵⁹ Ministries for the Environment, Agriculture, Merchant Marine, and Development

⁶⁰http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=GR&gv_reg=ALL&gv_PGM=1076&LAN=9&gv_PER=2&gv_defL=3

⁶¹ See map (slide 4)

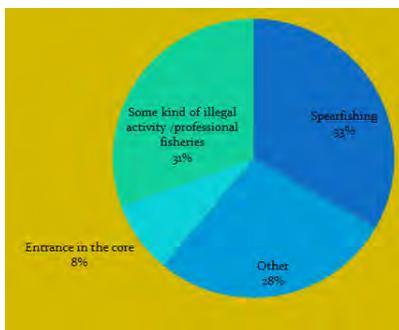
⁶² Specific regulations governing lines and nets

- **Recreational fishing:** The MPA is very crowded in the summer and recreational fishing is practiced by leisure boats. Regulation is stricter for recreational fishing than professional fishing (no-take zones only for recreational fishermen, limiting the number of hooks per line...). Spear-fishing is also very popular and is a significant problem because of its high impact, especially scuba diving at night.
- **Illegal anchorage, entry in prohibited zones, offsite camping and lighting bonfires on islands:** NMPANS is very popular in the summer with leisure boats, yachters and tourist boats coming from other islands and numerous violations of protection zones are to be deplored.

To cope with these pressures, the Management Body has established since 2007 a patrolling system using speedboats and guards. From 2007 to late 2012, NMPANS' boats have covered almost 50,000 nautical miles in order to inform park visitors, identify illegal activities and enforce regulations. Currently, two NMPANS boats do daily patrols with a limited workforce and fuel budget.

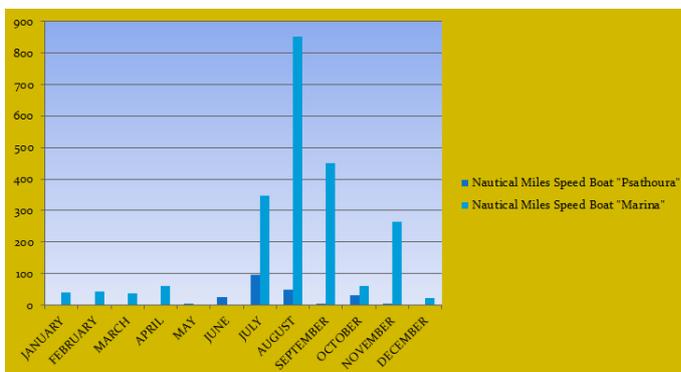
Registered illegal activities:

36 offenses were recorded in 2012. However, NMPANS agents believe that this figure is far from the reality, given the limited means of control in their possession.



Nautical miles covered each month by NMPANS boats:

The virtual lack of patrols from January-June is due to equipment being in for maintenance and periods of bad weather, a regrettable absence of surveillance when we know that poachers go out whatever the weather is.



Main difficulties encountered

The size of the surveillance zone

The size of the area (2260 km² of open sea) is in itself a problem which compromises the effectiveness of the MPA's surveillance system: given the distances to be covered (35 nautical miles between the MPA's northern and southern borders), boats can cover up to 70 nautical miles on any patrol day. This means significant fuel consumption and a high technical maintenance costs.

There is a loss of surprise element because of a lack of port infrastructures and only basic means of surveillance

The area only has one secure port (Patitiri Port at Alonissos), the NMPANS boats are docked there. Locals can easily see if the boat is on patrol or not.

Lack of infrastructure, for both financial and security reasons, makes it also difficult to deploy resources and surveillance staff to the most remote islands in the MPA. This also affects the patrols' effectiveness as they can be seen from a distance, and thus loses the surprise element.

Insufficient human resources and boats

NMPANS' boats and human resources are insufficient given the size of the area to be controlled:

- **The NMPANS is understaffed with just two guards to keep an eye on 2,260 Km²:** obviously they are incapable of patrolling 24hrs a day or 7 days a week.
- **The Park currently has two boats:** 'Marina' (8.2 m / 400 hp) and 'Psathoura' (6.5 m / 150 hp). Both boats are equipped with GPS, and the larger one has radar.
- **The maintenance cost of the equipment is very high in view of the distance** covered which particularly shortens the engine's life. The Park has a speedboat, 'Alonissos' (14 m / 700 hp), but it has not been operational since 2010 due to a lack of funds to repair it. Putting this vessel back in service would allow the guards to go to currently inaccessible parts of the site.
- **Since 2010, the port police who operate in the NMPANS have no boats** and therefore cannot patrol.

Surveillance of such a large area requires a higher number of staff and boats, as well as a flexible patrolling strategy: in particular, building facilities to house the guards on several islands in the archipelago which would then allow them to ensure a better surveillance of the territory.

Local opposition to installing remote surveillance

The use of remote surveillance technologies, such as radars, cameras, GPS, would enable a more efficient management of existing surveillance resources (guards and boats). This project faces strong opposition from locals. The fact that some islands in the archipelago are privately owned also complicates authorization procedures for installing radar antenna.

The NMPANS at present relies on free methods of getting real-time information on the movement of ships (AIS tracking of boats with MarineTraffic)⁶³. But this type of system cannot be used on small vessels which are the bulk of the fleet that frequent the area.

Complex legislation and limited skills to apply it

The NMPANS has complex regulations and so they are difficult to implement as there are different rules for different types of users: Alonnisos professional fishermen, professional fishermen from neighbouring islands, recreational fishermen, spear-fishermen, tourists...

NMPANS' management plan makes recommendations, but has no legal authority and the guards do not have legal jurisdiction to register the offenses and sanction them. They report offenses to the port police, the only competent authority on the matter.

To work around this problem, compounded by the fact that since 2010 the port police has no boats to intervene with, **the NMPANS takes police on-board their boats to do joint patrols.**

Finally, the penalty fines are not sufficiently dissuasive when compared to the profits which can be made from poaching.

Recommendations

To cope with the problem of the MPA's size, the NMPANS management body must maximize its monitoring programme's effectiveness by following several axes:

⁶³ <http://www.marinetraffic.com/>

Favour an approach using technological means to have an "intelligent" surveillance strategy

Given the MPA's size, surveillance cannot be effective enough with just boats and staff (as they cannot be everywhere at once).

Using remote surveillance technology (radars, cameras, GPS) would enable a more effective and efficient management of existing resources (being in the right place at the right time, thus saving on maintenance and fuel costs, as well as human costs).

This requires an advisability and feasibility study to be done beforehand.

It also means overcoming the negative attitude shown by the local population for such surveillance methods. In view of this situation, Jorge MORENO (Cabrera National Park, Spain) advised making alternative proposals to implementing radar systems: installing day and night vision devices on the islands would maybe be easier and more acceptable. **In any event, the implementation of these surveillance systems must be initiated on the basis of extensive consultations with local stakeholders.**

Ohn VALENCY (Israeli Authority on Nature and Parks) suggests that the **use of drones (considering the accessibility of these technologies today) would also be an effective surveillance method in such a large area.**

Strengthen NMPANS co-operation with the competent authorities

Strengthening NMPANS co-operation with the competent authorities to control activities within the MPA is the way forward to improve surveillance and enforcing regulations. **In particular, the principle of joint patrols involving NMPANS guards and maritime police officers increases the procedure's efficiency.** Joint patrols also allow a more sound management of conscience cases frequently encountered by the guards, especially on the islands, when they are faced with offenders from the local community, which they are part of themselves, and with who they rub shoulders with every day.⁶⁴

Encourage the NMPANS Board of Directors to understand better the realities in the field

It is essential that fieldworkers get an active commitment from the NMPANS Board of Directors (Ministry of Environment, Ministry of Agriculture, port police, municipality, province, region, national NGO MOM⁶⁵).

⁶⁴ Grigorios KARAMITROS tells the story of a NMPANS guard who caught his brother: without a police officer present it would have been difficult to report the offense.

⁶⁵ <http://www.mom.gr>

The development of a licensing system for professional fishing boats entering the MPA should be maintained

NMPANS put this system in place in 2010 and it allows the manager to monitor each individual fishing boat's activity.

Tremiti Islands Marine Nature Reserve

Italy

Presentation by Stefano PECORELLA & Pasquale SANTORO

Moderator: Laurent SOURBES (Zakynthos National Marine Park, Greece)

Tremiti Islands Marine Nature Reserve was established by decree in 1989 by the Ministry of Environment, in agreement with the Ministry of Merchant Navy. The Reserve covers a marine area of 1,466 hectares. It includes the islands of St. Domino, S. Nicholas, Cretaccio, Caprara and Pianosa, over 20 km of coastline.

The management of Tremiti Islands Marine Nature Reserve is provided by the Gargano National Park Authority⁶⁶, established by Presidential Decree in 1995. The terrestrial parts of the Tremiti Islands are incorporated in the National Park.

Due to their natural interest, the Tremiti Islands are recognised as a Site of Community Importance (SCI IT9110011) under the "Habitat" Directive 92/43/EC of the European Community and Special Protection Area in part of the "Birds" Directive 79/409/EEC.

Tremiti Islands Marine Nature Reserve is divided into three protected areas:

- Zone « A » : wilderness area with a surface area of 180 hectares ;
- Zone « B » : general reserve with a surface area of 268 hectares ;
- Zone « C » : partial reserve with a surface area of 1018 hectares.

Activities	Zone A	Zone B	Zone C
Scientific research	authorized	authorized	authorized
Navigation	prohibited	authorized	allowed
Swimming	prohibited	allowed	allowed
Anchorage	prohibited	prohibited	allowed
Diving	prohibited	authorized	allowed
Apnea	prohibited	authorized	authorized
Commercial fishing	prohibited	authorized	authorized
Recreational fishing	prohibited	prohibited	allowed
Underwater spear-fishing	prohibited	prohibited	prohibited

NB: "authorized" refers to activities which the MPA authorises; "allowed" refers to free activities where it is not necessary to have the MPA's authorization.

Activities in the MPA are regulated under the following measures:

- Decree at the MPA's creation (1989);
- Law 394/91 on protected areas;

⁶⁶ Law No. 394/91, Art. 19, paragraph 2

- Provisional Regulations on authorized activities in MPAs (2011).

Tremiti Islands Marine Nature Reserve has State funding of about € 176 000 (average over the last 5 years). These funds are used in accordance with the Annual Management Plan which includes operating expenses and expenses linked to scientific interventions required for the purposes of protection and conservation..

However, the daily management is hindered by systemic constraints and by a continual conflict with the island population. Gaps in the current regulations, inadequate governance, limited financial and human resources, inadequate co-operation with the competent authorities and the lack of surveillance are all restrictions which jeopardise it achieving management objectives.

Main offenses committed in the MPA:

Recreational fishing	Violation of the ban on fishing in zones A and B Use of unauthorised gear Unreported catches Capture of protected species Illegal selling of catches Underwater fishing
Tourism	No trespassing violation in zone A Extra large groups No authorization from the MPA to do certain activities
Locals	No trespassing violation in zone A Use of unauthorised fishing gear Illegal selling of catches
Professional fishing	No authorization from the MPA to do the activity Use of unauthorized fishing gear in zone B Failure to declare the <u>equipment/gear</u> used

Main difficulties encountered

A state of conflict with the local population

"**Our first obstacle is cultural:** the local population is not yet aware of the protection and conservation issues of the Tremiti Islands natural heritage. They do not realise that this protection and conservation will give future benefits to all", explains the Chairman of the Gargano National Park before continuing: "The Tremiti Islands Marine Nature Reserve was founded in 1989 and it took 22 years for regulation (provisional) to be put in place. This too is a cultural problem!"

Since his election as Chairman of the Gargano National Park, Stefano PECORELLA has organised regular meetings with the island's population (400 residents in the summer, around a hundred in winter) and involves stakeholders at every stage of the management plan's implementation. But he reminded everyone that nobody in the National Park had ever previously exchanged with locals "Tremiti was an abandoned archipelago. These 20 years of inaction and lack of contact between the National Park and the island's pop

A non-existent regulatory framework

The MPA was founded in July 1989: it was expected that it would have regulations within 60 days. **In 2013, the MPA still has no regulations.** In 2011, the current governing body approved an interim set of regulations, which still needs to be approved by the Ministry of Environment and the Tremiti Islands' Community.

Inadequate governance

The MPA's management body is a public organization which is subject to particularly rigid and restrictive regulations (e.g. inability to recruit staff), which hinders an optimal use of human and financial resources and handicaps the management's effectiveness.

In Italy, MPAs which are in public/private consortium (like Torre Guaceto for example) have greater management freedom, which means better efficiency.

Limited financial and human resources

The administrative management of Tremiti Islands MPA is carried out by Gargano National Park's staff. But budgets and staff are low due to the current economic crisis and a lack of awareness of the wealth that MPAs can bring to local economies. **This lack of staff is exacerbated by a law that penalises short-term and part-time contracts, which impedes meeting business needs.**

The remoteness of competent authorities and difficulty in coordinating their actions

Surveillance in Tremiti MPA is done by the Coast Guards⁶⁷ from Termoli Port, 25 nautical miles from the islands. The Coast Guards are only present in the Tremiti area in the summer (from 15th June to 15th September).

On top of the geographical distance issue, there is also no real co-operation between the MPA and the Coast Guards. Despite many attempts, it has not been possible as yet to establish a direct relationship in order to have an institutional collaboration.

Unfortunately, this is a very common problem in Italy. **A lack of co-ordination between authorities is not only due to geographical or regulatory constraints, but it is also cultural. These invisible boundaries between (civilian or military) organizations that in fact pursue a common goal prevent the pooling of human resources and a sharing of expertise and knowledge.**

⁶⁷ Law 394/1991

Inappropriate surveillance

Therefore, the MPA's surveillance is a systemic problem which is difficult to overcome without a strong inter-institutional collaboration.

The current legislation does not give the Gargano National Park the skills or staff to do surveillance in the MPA. As pointed out earlier, this is the difference with MPAs operating in a consortium, they are able to recruit staff to carry out these surveillance activities.

Surveillance in Tremiti MPA thus falls within the Coast Guards jurisdiction, but they are only present in the summer. **To compensate for the lack of surveillance for the rest of the year, the MPA has subcontracted a local company to do a "Monitoring and Surveillance" Service and whose mission is to provide surveillance in the MPA (without police powers) and inform visitors of regulations in place.**

Recommendations

Implement regulations

As mentioned above, the current governing body has approved an interim set of regulations, which still needs to be approved by the Ministry of Environment and the Tremiti Islands' Community. **Needless to say that establishing these regulations, awaited for 22 years, must now be finalised as quickly as possible.**

Communicate, raise awareness, inform, and educate to change behaviour

The difficulties encountered by the MPA are primarily linked to the Tremiti Islands local community's lack of awareness and knowledge of environmental issues. The manager identified this as being a cultural barrier. Communication, awareness raising, environmental education actions and training the population and local stakeholders should therefore be continued.

Given the 20 years of inaction and lack of dialogue between the National Park and Tremiti island's population, communication is of course a priority and Stefano PECORELLA stated: **"communication is a key issue to enhance our management action and overcome these cultural barriers by involving all the stakeholders"**.

Alain MANTE (Calanques National Park, France) also stressed the importance of communication **so that the local community gets to know its natural heritage and make them aware that they are**

the custodians. He explained the case of Marseille's Riou archipelago and their approach: "LIFE funding enabled us to develop our communication where we highlighted how these islands are our natural heritage; they were previously considered as an uninteresting pile of stones. We are thus able to change the local users' perception and raise their awareness and show them that this heritage belongs to them".

Tremiti MPA is also focusing on the next generation, by doing educational projects with schools (2,500 students have already participated).

Create local synergies

Regular meetings with the general public and stakeholders and implementing actions which involve the local people promotes a better sharing of issues and as a result regulations.

Stefano PECORELLA gave as an example the offense identifying programme which the Tremiti Islands Nature Reserve involves the locals in each year (spring and summer). He stressed the importance of sharing the results of these operations with the entire local population, as most people are unaware of what zones A, B or C mean, and what is or is not prohibited.

One recommendation is also to clearly identify and use potential "allies" (NGOs, local associations, federations...) in order to create synergies which can provide immediate and effective responses to problems.

Asaf ARIEL (Eco-ocean, Israel) recommended that the manager uses the strength of civil society by associating these NGOs to its educational and public awareness actions, as well as some aspects of the MPA's management.

Think of alternative solutions

The situation of conflict between Tremiti Island's population and the MPA is according to Laurent SOURBES (Zakynthos National Marine Park, Greece) "**fairly typical of local economies, which are either based on very lucrative illegal activities or based on activities of mass production (mass tourism) where the quantity creates the income.** Therefore, as what we propose is not mass and instant income, it is refused point blank. There is even no possibility of discussion. In a context of widespread conflict, we must be able to get around the problem by using other means, without necessarily relying on our traditional approach of sustainable development. We need to find arguments that will help to find a way to communicate".

These alternative solutions may include implementing educational projects on the environment, or for example give support to diversifying tourist activities.

Also, one should not be automatically against proposals of activities or the development of some, which theoretically seem at odds with management objectives, but that could, if their development is

controlled, establish tools which structure the local economy, and consequently become social healing factors.

Thwart local political pressure by resorting to higher level legal frameworks

In the case of projects which, despite being a major threat, receive local political support (like the one mentioned on building a marina on a Posidonia meadow in a Natura 2000 site), a useful option would be to go directly to the appropriate level (EU, State). For example, Barthélémy GONELLA (MPAA, France) who told us: "In France, if complaints are not dealt with in a national court, some NGOs do not hesitate to go straight to the European court."

Find new financial resources

Make the best use of the opportunities offered by programmes (particularly the European calls for proposals) and funding from Foundations, to compensate for the announced decrease in operating budgets which are already significantly low.

Alain MANTE (Calanques National Park) mentioned how important the LIFE funding programmes had been in developing the Riou Archipelago Natural Reserve in Marseille: "A LIFE programme on seabirds has allowed us in just a few years to go from a small budget to a much larger one. For €1 invested locally on management actions for seabirds, we received €1 from the State and €2 from Europe. Local decision-makers are therefore in favour to set up this type of project, as there is no additional cost for them".

Choose a gradual implementation of surveillance

On islands, to optimise surveillance when resources are limited, it is useful to define a gradual strategy, by initially establishing a land-based surveillance of the marine area. This type of approach means that even with low resources the presence of the manager is noticed and it makes him visible to the local community, whilst promoting exchange and reinforcing relationships with users. **Once land-based surveillance has been established and understood, it is easier to set up surveillance at sea.**

Alain MANTE (Calanques National Park) came back to the Riou archipelago Nature Reserve's personal experience: "Historically in Marseille, the protection of the islands began on land and then spread out to sea. This "step by step" strategy is interesting for many cases: start by putting in place a management plan for the terrestrial part in order to have a relevant and recognised operational management tool, then in the second stage start working on the marine environment in a more effective way. Knowing that the issues on the terrestrial part are often limited to tourists, while the marine environment issues are numerous and more complex."

Promote co-ordinated action from the competent authorities for the MPA's surveillance

Tremiti MPA must continue to try and convince of the importance that the Coast Guards and other competent authorities (police, Fiscal police) have in co-operating and to continue organising technical meetings.

For Robert TURK (Institute of the Republic of Slovenia for the guardianship of nature, Slovenia), MedPAN's exchange of experience workshops should also promote this co-operation, and in order to do this one must contact the various authorities and competent institutions and NGOs who can contribute to the management of MPAs.

In addition to Tremiti's specific situation, Laurent SOURBES also emphasised the need to co-ordinate existing resources to meet the management needs of Natura 2000 sites in particular. Today, 25 % of Greece, and nearly half of Croatia is classified as Natura 2000 zones (to just mention the case of these two countries as they were discussed during the workshop). Therefore, one cannot imagine how it is possible for each Natura 2000 site to have a management body. "So we need to focus on what we have, ensuring that State mechanisms are put in place and acted on in an organised manner. Greece, as well as Croatia and other countries have institutions on a regional level that will be responsible for managing and coordinating the various authorities and institutions (police, maritime affairs ...) to ensure the Natura 2000 sites' protection. **One of the roles of a network like MedPAN is to pass on managers' knowledge to the governments themselves. MPA management should not be confined to management bodies, but must be integrated into State operations.**"

Galite Archipelago

Tunisia

Presentation made by Anis ZARROUK

Moderator: Jean-Marie DOMINICI (Scandola Nature Reserve, France)

The Galite Archipelago is in the extreme north of Tunisia, 35 nautical miles from the nearest port. It consists of one main island, The Galite and 5 smaller islands: The Galiton, The Fauchelle, Gallo Gallina and Pollastro. The archipelago is an exceptional natural heritage due to its landscape, cultural and archaeological features and this incited the Tunisian government, in 2002, to make it into a Marine and Coastal Protected Area (MCPA).

The archipelago's geological characteristics, its geographical remoteness and erratic weather conditions means it is a challenge to manage, both in terms of scientific monitoring and infrastructures, control and surveillance.

However, since 2006, the start of an effective management of the MCPA, logistics and suitable infrastructure were put in place to allow the Management body (APAL) to optimise its operations. In recent years, a number of large-scale initiatives have been carried out on the Galite Archipelago.

The only residents on the archipelago are the MCPA's Management body, Navy representatives (Ministry of Defence) and National Guard (Ministry of Interior). The latter is responsible for policing the sea. The MCPA is used by fishermen and during the summer leisure boats and holiday makers come too.

Due to a lack of deterrent legislation and the fact that APAL agents can only intervene, take a statement and limit violations; their control and surveillance work is restricted to field observations and a lot of public awareness. The most serious offenses are reported to the National Guard and sometimes the Navy, who are key partners in the MCPA's management.

The Law governing Marine and Coastal Protected Areas⁶⁸ will solve this problem, but will only be effective following the enactment of enforcement decrees under this law, especially the one linked to the Galite Archipelago MCPA.

⁶⁸ Law No 2009-49 dated 20/07/2009

Main difficulties encountered

An area of great biological wealth threatened by poaching and illegal fishing activities

Located around forty kilometres from the Tunisian coast, the Galite Archipelago is a place where Tunisian fishermen shelter and have a break. Most come from Bizerte (80 kms away, 5 hours by fishing boat) and they fish there throughout the year, weather permitting.

"Galite is primarily a place to take shelter for them, a stop before they move on to their favourite fishing site which is another 8 hours away from the archipelago. They also use La Galite as a natural holding zone: fishermen keep lobsters they have caught elsewhere in cages there," says Anis ZARROUK.

There are also twenty regular fishermen on site (small 12/14m long boats with small engines). Every year in May/June there is a large number of Blotched Picarel (*Spicara maena*) in the area which attracts extra fishermen from elsewhere. There are around sixty fishing boats on Galite at this specific time of year.

Even if fishing is prohibited by decree within a 1.5 mile radius around the archipelago, and the site is not targeted by fishermen for its fishery resources, APAL agents still record small offenses which they report to the National Guard: these are often in winter due to weather conditions and for economic reasons, some boats even fish in prohibited areas.

Anis ZARROUK explained: "The northern part of Tunisia where the fishermen come from is quite impoverished in comparison to the rest of the country. Fishermen often get trapped because of the very changeable weather: they arrive at La Galite, but cannot go beyond. Thus, in order to minimise their losses they take small catches around the archipelago. As there are very steep depths there, they often leave behind ghost nets which do significant damage."

These small scale fishermen thus "almost involuntarily" violate fishing regulations in prohibited zones, but recreational fishermen however come on purpose to La Galite because they know they will find fish.

They are mainly Italian and come specifically in the summer to do spear-fishing: "they come in large numbers, one or two days maximum, and have more modern equipment than we do (very fast boats). So they are stealthy and difficult to locate (you have to cover a lot of distance to do surveillance on them)" says Anis ZARROUK.

Another source of pressure on La Galite is the frequent presence of factory ships (European, Japanese ...) which take large quantities of fish in the area, and the APAL and the National Guard are powerless: "particularly on days where there are big storms, we look on helplessly at these factory ships because we do not have the right equipment to go out to sea. **These industrial poaching activities, which are out of our control, undermine the consultation work we carry out with fishermen**" stated Anis ZARROUK.

Increasing human pressures which are still insufficiently regulated

In the summer, there are a high number of boat anchorages which cause a lot of damage (this peaks in July/August with 90% of Italians). Based on observations and data collected in the field, an anchorage area has been established in the MCPA and a proposed zoning which has been approved by partners.

However, the anchorages are not yet within a legal framework and zoning will only be formalised once the decree linked to the MCPA is enacted. Therefore, today these measures are still just an incentive: "Our goal is that there is at least no anchoring around the islands, as these are the most fragile sites (bird populations). We have a rat problem on these islands; if we do an extermination campaign and the boats continue to approach, this may create a risk of recolonization. At the moment, we are preparing the ground: we are raising the users' awareness in order to prepare them to comply with future regulations" said Anis ZARROUK.

This MCPA which the manager has talked about at length is today a victim of its own success: other than Italian leisure boats, every year there is an increasing number of Tunisian holiday makers arriving by their own means or through diving clubs, and wanting to camp on site. "Scuba diving is an activity that is gradually developing and today we need to anticipate how to manage the influx this generates. A next step will be to open several dedicated diving sites on La Galite which has already been discussed with government bodies and fishermen" said Anis ZARROUK.

Constraints (and advantages) of its isolation

The archipelago's geographical isolation and its typically difficult weather conditions have strongly contributed to the preservation of its heritage: the Galite Archipelago is a good example of how the Mediterranean once was.

But the archipelago's insularity and location also means that there are constraints for the manager.

Despite appropriate infrastructure and equipment which allows people to be permanently on site (team rotations every 2 or 3 weeks when sea conditions permit), APAL agents on La Galite are "disconnected from the world" with no GSM network or technological support, except satellite support.

Patrol operations are limited by security constraints and a low number of staff: "There are currently three agents and a boat which is not always on-site (we also have another small boat). However, the island's geographical distance requires a team rotation system. This is an important constraint, as for security reasons, a sea outing requires two agents on the boat and a third on the ground" said Anis ZARROUK.

Also, maintenance of the equipment is made very difficult by its remoteness. Any breakdown causes days of inactivity.

APAL agents (Ministry of Environment) share their island daily life with representatives from the Navy (Ministry of Defence) and National Guard (Ministry of Interior) who are stationed there and also operate on site. The archipelago has no other residents and the only civilians to frequent the area throughout the year are fishermen.

This feeling of isolation and the difficulties associated to this situation creates strong fraternal ties between the residents and fishermen using the area.

Anis ZARROUK explains how the fishermen's attitude towards the APAL agents changed when the latter settled on the island: "When we only went occasionally on site, fishermen perceived us as scientists doing their job and then leaving. The fishermen were suspicious of us and did not speak to us. **Everything changed when we settled on La Galite and we shared their everyday lives, the storms and difficulties... Today, we know practically all of them and have virtually become a family.** We help each other; we exchange things (like bread, materials for repairing engines...)."

A common problem among islanders is that this closeness/dependence is a source of ambiguity and hinders a rigorous enforcement of the law: "In winter, we sometimes have to stay on the island for 2 or 3 months without seeing anyone. The National Guard itself can be short of food or equipment and so **the fishermen supply us. When we then find the fisherman in an infringement situation it becomes difficult to punish them.**

There is still a fragile co-operation between the Managing Authority and other authorities present on site

The **National Guard currently polices the sea around the archipelago** as they are present on La Galite all year round. When the APAL ecoguards discover an infringement they take photos and take down useful information and report the offense by VHF to the National Guard so that the latter can join them on the infringement site.

As Anis ZARROUK explained, VHF which is used for both security and surveillance reasons also has a deterrent effect: "**The channel we have chosen to use to communicate with the National Guard is also heard by fishermen: the latter thus hear that we work in cooperation and are discouraged from committing offenses.**"

However, the boat resources available to the National Guard on La Galite⁶⁹ are insufficient given the size of the area to control and the important number of fishermen, leisure boats and holiday-makers, which is increasing every year. The National Guard and the Army also have large ships which are constantly patrolling around the site, but these are not suitable for controlling leisure boats or small fishing boats.

APAL's management body is waiting to be sworn-in which will then allow them to intervene directly when there is an infringement⁷⁰. But to obtain this formality, the MCPA creation decree enactment needs to be finalised which is not the case as yet.

Meanwhile, APAL (under the Ministry of the Environment) is addressing various ministeries in order to **obtain a greater involvement from the National Guard and Army on La Galite.**

⁶⁹ a 5,2 m, 50 HP rigid inflatable

⁷⁰ APAL is authorised to intervene all along the Tunisian coast, including the islands.

Recommendations

Develop a coordinated action strategy between the three administrative departments active on La Galite and the judicial courts to fight against poaching

In Guillaume SELLIER's (Port-Cros National Park) opinion, **it is essential to identify accurately beforehand the different types of poaching (frequency, areas, time, types of vessels) in order to respond appropriately.** What are their methods? What time of year and time of day do they operate? Where? It is also particularly important to distinguish them from factory trawlers, whose surveillance requires important State resources (the Army and National Guard's ships), and small time poachers or leisure boats doing spear-fishing.

To have an effective coordination, the three administrations must each be individually willing to take part (media coverage during control operations, involved in developing the management plan, written reports on the three administrations' effective coordination sent to the ministries...).

Guillaume SELLIER shared his experience at Maritime Affairs on this subject: "When we started working on coordinating these administrations, we wondered what could motivate the police and maritime police to work with Maritime Affairs. Every year, we conducted high-profile intervention operations on recreational navigation. During these operations, we decided to put the police and maritime police in the limelight, rather than the Maritime Affairs (an administration that I was part of). In this way, we made these partners interested in working with us, especially as we also brought them an expertise in marine fisheries that they did not have, and which they had been looking for".

Coming back to the widely shared view that cooperation between administrations is based primarily on humans, Guillaume SELLIER said: "Yes, human relations are essential to establish and make inter-governmental cooperation function, but it does not just come down to maintaining good relations. **It also means determining, as a MPA manager, what I can give these authorities for their own interests**". Jean-Marie DOMINICI also supports this recommendation and added that it is important to involve administrative partners as co-managers, to the extent that management objectives cannot be achieved without their intervention.

A third key point in developing a coordinated intervention strategy is to raise the courts awareness on the site's importance and its challenges. Guillaume SELLIER reminded, "a poacher is a businessman. He will go out if he calculates that his revenue will be superior to the risk he is taking". An increase in court convictions with severe fines is likely to deter poachers.

Raising the courts awareness can be done through presentations, or as Jean-Marie DOMINICI and Guillaume SELLIER recommended by inviting the Prosecutor or even the President of the Tribunal on site, possibly to dive, so that they become aware of the need to act. **Once the court is aware, it then becomes possible to work on a poacher booking strategy.**

Finally, it will be essential to implement exemplary control actions to make a big impression, so that "users and poachers realise that a policy change is underway", says Jean-Marie DOMINICI. One must therefore identify one or two control actions which will be taken up by the courts. In order to do this the future operational and procedural measures of the control actions will need to be defined.

Coordinate an action strategy against large fishing vessels' illegal fishing with the support of important State resources

On large factory trawlers, control operations can only be carried out with important State resources available. Here Guillaume SELLIER pointed out a rule: **"At sea, the resources used must be consistent with the offenses committed:** we cannot pursue a poacher in a semi-rigid boat with a 40m vessel! It makes no sense, even in terms of navigation (manoeuvrability, inertia...). Similarly, we cannot control a large Japanese longliner with a 5m zodiac."

A first step could be to take photos to raise the Army and the National Guard's awareness in order to mobilise them to conduct operations at sea against these industrial poaching actions which nullify the implementation of the MPA's management plan, the consultation effort with fishermen and harm the Tunisian heritage.

We must develop an action plan to carry out controls with these partners. Guillaume SELLIER gave an example of similar control operations which yielded results: those conducted by France in the French Southern and Antarctic territories to counter Asian trawlers from fishing the Patagonian Toothfish.

Raise the economic players and population's awareness in preserving this site

Victoria RIERA (Cap de Creus Natural Park) reminded that "we can only protect what we know", and highlighted the importance of raise awareness and educational campaigns on the environment. Jean-Marie DOMINICI argued the use of complementary approaches, coercive on the one hand, and raising the population's awareness on the other of "the development potential generated by preserving this asset which this biodiversity represents".

Partnerships with fishermen and diving clubs can be considered by promoting the logical mutual gains in conservation and development.

Farwa Lagoon

Libya

Presentation by Essam BOURAS

Head of Protected Areas & Biodiversity Section - Nature Conservation Department, Environment General Authority, Libya

Moderator: Marie MONIN (Blue Coast Marine Park, France)

The Farwa Lagoon MPA is located to the west of Libya, in between the Tunisian border and Abu- Kammash in the east. Its surface area is 32 km² and includes the Libyan side of the Gulf of Gabes, which is known for its important fisheries production, but also for its vulnerability to pollution and other anthropogenic threats to the marine and coastal environment.

Farwa can be considered as western Libya's largest marine and coastal site because it has a rich biodiversity, which has been attested by years of study and research.

The area is outstanding for its fishery resources, artisanal fisheries and aquaculture, for its seagrass meadows and the marine birds it shelters. This is also a nesting site for sea turtles. The Farwa region also has unique landscape features, particularly because it is one of the few regions in the Mediterranean to experience active tidal movements.

Farwa MPA's biodiversity includes many species of economic benefit (sponges, shrimps, fish) and certain endangered species, hence its importance in terms of protecting larvae and juveniles.

The Farwa Lagoon protected area, which was established in 2009, is managed by the Marine Biology Research Centre (MBRC). However, the management of the area is made in collaboration with the Environment General Authority (EGA). The elaboration of a management plan, including a zoning plan, is underway. The zoning plan should take into consideration Posidonia meadows, seabirds and sea turtles nesting areas.

This elaboration process should, from its very beginning, involve all the stakeholders and seek with them solutions for the current problems in the area (e.g. creating alternative income activities, building a trustful relationship among all stakeholders, etc.).

The main users of the area may be presented as follows:

- Fishermen: Almost all of the fishermen working in the Farwa area don't use prohibited fishing gears, as the dynamite and others. The main problem is that they fish inside the lagoon which is a major spawning (eggs) and nursery (larva) area, and do not usually respect fishing seasons.
- Hunters: They mainly hunt the migratory water birds during their migration period.
- Local community: They use the area during the summer period for some recreational activities, which may be unsustainable.

- NGOs: NGOs active in the area may be rather considered as an advantage for the MPA, but, most of the time, are lacking capacities to deliver actions in a proper manner. Apart from periodic cleaning campaigns, it is worth to mention their initiative aiming at the setting-up of a biodiversity monitoring station in the area and also their collaboration with NGOs from Tunisia in view of the future creation of a transboundary protected area between Libya and Tunisia (Farwa Lagoon - El-Biban Lagoon).

Main difficulties encountered

Lack of resources and qualified staff

Libya's MPAs have recently been established and lack qualified staff. Currently, two officers in both Libyan MPAs have been trained in management by the MedPAN South project. The capacity building process must be accelerated.

The lack of financial resources means that it is impossible to implement compensatory measures or an investment logic to make the required changes happen: for example, at a fishermen's workshop it was suggested that their small port, which is currently in the lagoon, be moved outside it. This proposal did suit them, but only if the MPA manager took the responsibility of building the new infrastructure. But due to a lack of resources this project could not be implemented.

Inadequate legislative and regulatory framework which is also not applied

There is no specific legislation for MPAs in Libya so far. In this regards, a draft law is presently under preparation, thanks to joint efforts between EGA and the Regional Activity Centre for Specially Protected Areas (RAC/SPA) of the MAP/Barcelona Convention.

However, Farwa MPA does have fishery regulations (restrictions in terms of fishing periods, ban on using dynamite...), but the MPA staff have no power to enforce this law, so those who use dynamite do it openly.

In Farwa as in other areas in Libya, codes of conduct have been established by the locals themselves. Although these codes are not recognised on a national level, it gives the community a possibility of taking charge of their environmental issues and preventing those who are damaging their ecosystems. These illegal activities can be stopped by wise elders as everyone respects them, as well as other influential locals (such as Imams).

Overfishing and the use of dynamite

Around thirty vessels work in the Farwa lagoon. Most fishermen use non-destructive fishing techniques. The main problem is that they work outside authorised fishing periods, like when the fish return to spawn in the lagoon.

Experienced fishermen do not use dynamite, but the local community's youth find it a simple and inexpensive way to catch fish.

Other poachers come from Tunisia and the Libyan Coast Guards do not have sufficient resources to control this traffic from both sides of the border. This is a common problem in MPAs bordering the southern Mediterranean, and local fishermen are very reluctant to accept no-take periods and other restrictions on their activity, as they feel that their bordering neighbours will not respect them.

Lack of communication with the local population and stakeholders

It is complicated to rally stakeholders when they were not consulted before the MPA's creation, even if they are likely to benefit from it.

The land once belonged to the fishermen. Since the revolution, they feel that they are now entitled to this territory. Fishermen and other locals who go to this area (for recreational purposes in the summer) agree on its uses. But their common concern is not conservation, due to a lack of knowledge on the issues.

Another problem is the remoteness of the MPA's management bodies' representatives (EGA and Marine Biology Research Centre) who are based in Tripoli, which is far from the field (Tripoli is 170 Km from Farwa). The local population regard them as foreigners, do not trust them, and feel that they do not need their advice to manage this territory.

Industrial mercury pollution

A chemical plant near the MPA is releasing toxic substances into the environment (particularly mercury). The Libyan government is currently seeking a solution to this problem (moving the plant or treating the waste).

Recommendations

Ensure that the law on MPAs which is currently being written gives MPA managers legal jurisdiction over fishing in their territory

Giuseppe DI CARLO (WWF / Ustica MPA) forewarned the Libyan General Authority for Environment representatives on the need for a clear legal framework to prevent any overlapping powers between jurisdictions (a problem encountered in Croatia for example). He stressed that developing a management plan (in collaboration with WWF) would resolve this issue.

Involve fishermen in the MPA's management

Fishermen will only manage their fisheries sustainably if they are stakeholders in the MPA and convinced of the benefits that they can get from it. **Essam BOURAS (EGA) was particularly interested in the Gokova MPA's (Turkey) experience in community management⁷¹**. Other management experiences involving fishermen were discussed during this session:

- **the Blue Coast Marine Park (France) has 30 years of experience** in an active and permanent collaboration with Local Committees and Marseille and Martigues' fishing Prud'homies in the Park's management. Marie MONIN particularly stressed **that this experience has been co-jointly made with fishermen through the mutual commitment of a manager and the fishermen, both convinced they can benefit from working together**. After a 3 year trial period, fishermen wanted to continue this collaboration, discovering that this management method brought an **increase in stock and fish size**, a reserve effect in which they were the beneficiaries.
- **Bonifacio Nature Reserve's (Corsica, France) experience**, working with fishermen on several levels: by encouraging them to diversify their activities (pesca-tourism⁷² for example), or by involving them in scientific monitoring programmes where they are paid (this participatory approach allows them to see for themselves the changes in populations over the long term). Marianne LAUDATO also mentioned **that work is currently underway in Corsica to establish fishery reserves managed directly by fishermen who are members of an organised committee: "Could fishermen having the responsibility of managing be an option for Farwa MPA?"**

⁷¹ November 13 Workshop "Management standards: how to apply regulations with limited resources? (SEPA Gokova, Turkey)

⁷² Fishermen who take tourists onboard and show them traditional fishing activities.

All participants emphasised that **involving fishermen in Farwa MPA's management would require them to be organised into committees, which is not the case today**. This last point should be considered as a recommendation in itself.

Encourage fishermen in the Farwa Lagoon to set up a Committee

In Libya, fishermen from a village work with common rules under an elder's authority. **To change from this informal setup to a legally recognised representation would allow Farwa Lagoon fishermen to be involved in the MPA's governance via a co-management**. Souha EL ASMI (RAC/SPA) suggested that these fishermen could form a NGO (with an attractive name like "Farwa Lagoon fishermen"). This NGO would be the fishermen's official voice and could certainly benefit from small grants from international organization programmes (e.g. MedPAN's small projects).

Rely on NGOs and teachers to develop communicative, raising awareness and educational activities

To overcome the lack of time and resources, as well as the problem of distance from the field, it is **essential that the manager works with local NGOs and teachers in developing communicative, raising awareness, and educational activities**. The workshop participants made more specific recommendations along these lines:

- **Making educational materials available to teachers:** Many tools identified in the previous regional MedPAN exchanges of experience workshop dedicated to environmental education are available. Chloë WEBSTER gave as an example an educational kit used in France by schools which is currently being translated into Arabic and English. Joël DOTTORI reflecting on actions taken by the city of Marseille for eco-citizenship reiterated that "the message gets across to parents through their children."
- **Get help through local NGOs by training them beforehand on conservation issues:** some NGOs work locally on waste management for example, but are not trained in the field of conservation. It is important to involve them in future workshops. WWF is planning a project to build NGOs capacities.
- Working with a Tunisian NGO to raise awareness on the problem of the Tunisian fishermen crossing the border and fishing illegally in the Farwa lagoon: Sami DHOUIB (WWF Mediterranean) recommended that the Libyan manager approach the *Association of Fishermen for the Development and Environment of Zarzis*⁷³, a member of the OAPA Artisanal Fisheries Association

⁷³ Association le pêcheur pour le développement et l'environnement de Zarzis
Tél : 00 216 75681684/00 216 97207313
Chairman of the Association: Kamel Romdhane
www.facebook.com/pages/Association-le-pêcheur-pour-le-développement-et-l'environnement/485904718129567?fref=ts

platform (established by WWF and FAO). Such collaborations could pave the way for a transboundary protected area project between Tunisia and Libya, to serve as a model of South-South co-operation.

It would also be useful to mobilise the media, whether it is mainstream media which has an audience right across North Africa, thus making the authorities aware of the cross-border issues, or local media (very active in Libya since the revolution) to raise the profile of WWF workshops for example. This media exposure will make people aware of the importance of MPA issues.

Not underestimate the problems of industrial waste and possible mercury pollution

Sandro DUJMOVIC (Brijuni National Park, Croatia) forewarned the representatives of the Libyan General Authority for Environment that the industrial waste problem may be far more important than the one posed by fishermen (see: Minamata Bay Disaster in Japan⁷⁴).

Despite the fact that a study was conducted there around ten years ago, he recommended (as did several other participants) that research should be continued on the level of mercury found in the sediment and fish, to detect any possible contamination in the food chain.

Given the importance of the health issue, a study could be done in collaboration with a medical university (rather than a Department of Oceanography). This monitoring could also involve fishermen, who would be paid to catch specific species for the study's purpose.

Such an approach should generate public support, naturally concerned about the health risks that it incurs. It can be an awareness raising tool with the fishermen's collaboration. Almokthar SAIED from the Libyan General Environmental Authority recognised that by managing to stop this factory's polluting activities would be a good argument to rally locals to the MPA's cause. As long as there is of course an alternative for those who might lose their jobs if the factory closes.

Anticipate the pressure from developing tourism

Libya has one of the wildest and most unspoilt Mediterranean coastlines, which will surely attract tour operators in the years to come. The Libyan General Authority for Environment's committed co-operation with the Ministry of Tourism in preparing an integrated coastal management strategy must continue.

⁷⁴ http://en.wikipedia.org/wiki/Minamata,_Kumamoto

Capacity building

Libya has hosted and participated in several workshops and training in recent years within the MedPAN South project⁷⁵. These capacity building actions must be continued over the long term.

The workshop participants stressed the importance of exchange visits where fishermen are involved.

Along the same lines, Marianne LAUDATO talked about Bonifacio Strait Nature Reserve's experience "we hosted delegations of fishermen and businessmen from Algeria and Tunisia. We held meetings with fishermen from our territory and we let them talk: they explained that in general they were initially opposed to fishing restrictions and safeguard measures, but after discussions with reserve managers they understood that they would benefit from being stakeholders in the MPA and that they would reap the benefits. These exchanges between fishermen helped to change the view of those who came from elsewhere, who were not convinced at first. Thus, it is interesting to confront them with successful experiences."

Sandro DUJMOVIC (Brijuni National Park, Croatia) also recommended this strategy to Libyan managers **"take Farwa fishermen to see an example of good practice in Turkey, France or Italy, and then sit down with them and invite them to do the same by starting with a small area which you agree together to be declared as a no-take zone. Commit together to a 3 year trial period. If at the end of this trial period the results are there, then it will become possible to build a broader approach."**

Essam BOURAS particularly encouraged the idea of an exchange visit to Gokova in Turkey, which would involve Farwa's managers and fishermen: the experience of a successful community management in Gokova⁷⁶ could bring to light a number of problems in the Farwa lagoon and enable to identify possible solutions.

⁷⁵ General principles of MPAs in 2011, an exchange visit to Miramare (Italy) in 2012, stakeholders' participation in 2013

⁷⁶ see: November 13 Workshop "Management standards: how to apply regulations with limited resources (SEPA Gokova, Turkey)

RESULTS OF THE STUDY ON THE “SURVEILLANCE AND THE ENFORCEMENT OF REGULATIONS IN MARINE PROTECTED AREAS IN THE MEDITERRANEAN”

Introduction

This summary presents the preliminary results of a regional study about the enforcement of regulations in marine protected areas (MPA) in the Mediterranean. The document will be finalized after the MedPAN Mediterranean exchange of experience workshop (12-14 Nov. 2013) which will focus on this topic.

This study aims to **provide an overview of the surveillance and enforcement of regulations in the Mediterranean MPAs, as well as recommendations for managers’ capacity building in that field**. The assessment does not get into the actual detail of laws and regulations.

Data were collected with two types of questionnaires. The first one -focused on legal aspects and regulatory implementation- was sent to 16 national MPA authorities⁷⁷ and 13 responses were collected. Another larger questionnaire (59 questions) -focused on procedures, operation, compliance, resources and capacities- was sent to 45 MPA managers in 17 countries⁷⁸ (+ Pelagos Sanctuary). 41 responses were collected in 15 countries. MPAs were chosen considering their equitable distribution across the Mediterranean sub-regions and countries, and covering the different types of MPA governance.

The survey is focused at the regional level and does not aim to evaluate any particular countries or MPAs. However, given the regional disparities and in order to analyse the results, countries may be clustered into 4 “sub-regions”: Northern Africa; Eastern Mediterranean; EU1 (Greece, Croatia, Slovenia); and EU2 (Italy, Monaco, France, Spain).

Most MPAs have terrestrial parts, usually larger and better enforced than the marine parts, but this assessment is **focused strictly on the marine part**, except for the ground-based activities related to marine control and compliance (public accesses, beach services, fishers landings, beach and harbour infrastructures, marine patrolling from land..).

Results: legal and regulatory background

Previous assessments in the Mediterranean found that in some countries the laws on protected areas do not specifically address MARINE protected area needs, and show confusion of competency or fragmentation of responsibility in the enforcement of regulations in MPAs. The results of this survey have been the following:

⁷⁷ Algeria, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Malta, Morocco, Monaco, Slovenia, Spain, Tunisia, Turkey

⁷⁸ The same countries plus Lybia

- MPAs have a **specific legal status** -different from that for terrestrial protected areas- in only 2 of the 13 countries questioned (France and Spain).
- The **marine zoning** established by the MPA authority is sometimes (20%) not legally recognized by other authorities with competences in the marine area (such as fisheries, transport, tourism..).
- Besides the existing sector-specific legislation (on fisheries, transport, pollution, etc), **specific marine regulations** inside an MPA have been developed in many MPAs, particularly for **professional fisheries** (EU 85%, Eastern Med 57%, North Africa 29%), **recreational fisheries** (77%, 43%, 29%), and **marine-based tourism** (88%, 43%, 14%) but seldom cover aquaculture, pollution or noise. Overall about 1/3 of the different activities considered in this study have been specially regulated Mediterranean MPAs (eg. 50% in the EU and 20% in N. Africa);
- MPA management plans do not necessarily rule over different institutions.

Institutional competences and coordination

The MPA authority is directly **competent (or consulted) in issuing permits** or licenses, for scientific research (78%), local fisheries (63%), diving clubs (55%), recreational fishing (54%) and recreational aquatic activities (53%). In all other cases, other sectorial authorities are issuing permits for the use of these resources inside the MPAs. Consequently, also the **control and follow-up** of activities such as aquaculture, transportation, water pollution from boats or land-based resources, transport of hazardous substances, are not assigned to the MPA authority. Concerning fisheries, sometimes the MPA authority is in charge of its scientific follow-up but is not competent in its regulation and control.

Sea patrolling is done either only by the MPA authority (31%) or only by other institutions (31%). In all other cases (38%) patrolling is done by both, particularly in the EU1 (71%), whereas this is rarely the case in Eastern Mediterranean (17%) and never in North Africa (0%). Regionally, the MPA authority seems to have more competence in **land patrolling** of marine interest (55% of cases); in the Eastern Mediterranean and Northern Africa, land patrols may be conducted by the MPA authority or another institution, but never by both. **Port control** usually falls within the competence of the MPA authority in EU2, but elsewhere it is the competence of another institution.

The most frequently involved authorities in marine surveillance are the **MPA authority, Coast Guard, Police, and Fisheries authorities**, which either record infringements or prosecute (arrest, seizure, penalties). In North Africa the MPA authority is entrusted with coercitive powers in only 14% of cases, but here Coastal Agencies play an important role in marine surveillance. For the whole region, the **recording** of infringements is the competence of three authorities on average ; and the **prosecution** of infringements falls with two different authorities.

<i>Main authorities involved in marine surveillance inside MPAs</i>	MPA authority	Coast guard	Fisheries authorities	Police
Recording infringements	68%	55%	53%	40%
Prosecuting	30%	68%	40%	58%

Given the dispersion of marine competences, many MPAs show interest for institutional coordination: 42% of the MPAs have a **written agreement to coordinate the enforcement** of the regulations in their marine part, and another 21% have planned for it. Also, a majority of MPAs (57%) have a formal coordination body

to coordinate the institutions with competences in their marine part at national level, and **79% have such a coordination body at local level**. When asked about the quality of the coordination⁷⁹, a great majority of MPA manager estimate that it needs “to be improved” (assessment of local coordination is slightly more positive).

When asked about how to coordinate for enforcement objectives, about **25% mention the existence of a specific enforcement plan for the coordination between the institutions with juridical competences in their marine part**; many of the rest underline the importance to move from verbal agreement and informal coordination to a more structured approach. **All these results underline the importance of operational coordination between these authorities.**

Details on surveillance and control

A consequence of the **fragmented competences** in the field of enforcement is that not all MPAs keep a record of prosecutions (North Africa 0%, Eastern Mediterranean 33%, EU1 86%, EU2 58%). Regionally, the exchange of information between MPAs and surveillance units is considered “good” in just about 1/3 of cases. In fact, when other institutions record infringements and prosecute, the MPA Managers only receive timely information in 13% of cases.

Apart from this fragmentation of competences, it is clear that MPAs are **generally understaffed** for surveillance. Even that our sample of MPAs was selected between those with a longer history, still **19% have no staff at all for marine surveillance**. In those MPAs with staff, 69% have at least one person in charge of marine surveillance from a boat, and only 40% have marine surveillance staff based on land. Again, these figures hide important subregional differences, because 80% of the MPAs in the EU have surveillance staff from boats while this percentage falls to 40% in North Africa and 25% in the Eastern Mediterranean. All around the region, about 50% of all this surveillance staff is sworn (lower in EU1).

The majority of MPA managers consider that sanctions are “*only partially*” dissuasive and recommend to make them more strict and dissuasive. Some MPAs have never imposed a sanction (up to 30% in N. Africa and EU1). Sanctions have been imposed gradually after a period of information in around a 40% of the MPAs.

General assessment of the situation in the field

When asked to make a general evaluation of their surveillance capacities, **only 6 out of 45 MPAs consider it “sufficient”**. A large majority of the questioned MPAs believe that their marine surveillance “*needs to be improved*”⁸⁰. The average in the four sub-regions is quite similar.

At the regional level most of the offenses are cited for:

- **Artisanal-professional fishermen** (92%) with very few sub-regional differences.
- **Recreational fishermen** (87%), in this case being higher in the EU (97% vs. 62%). They may use illegal gears, fish in closed seasons, but most widespread they sell the catch.

⁷⁹ On a scale from 0 to 3 : inexistent / to be improved / sufficient / very good

⁸⁰ Regional average is 1.1 («to be improved») on a scale from 0 to 3 (Inexistent / Needs to be improved / Sufficient / Very good).

- Marine users coming **from outside the MPA** (68%): mooring on *Posidonia*, entering strictly protected areas and polluting are the most common infringements in all the region.
- **Marine-based tourism providers** (66%) such as diving clubs and tour boats not respecting the zoning or anchoring regulations.
- **Land-based offenses** affecting marine ecosystems (53%), mostly pollution.

In general, all these results show very few sub-regional differences.

When MPA managers are asked about the main causes of the offenses to the regulations the most cited are:

- **Ignorance or misinformation** (35%), particularly between the recreational fishermen (68%) and private boat owners (61%);
- **Economic interest** (33%), particularly between the professional fishermen (66%) and boat tour operators (50%);
- **Weak surveillance** (29%), particularly between the fishermen;
- **Weak enforcement** (26%), particularly for polluters.

MPA managers were asked to consider if the different stakeholders are being affected positively or negatively by the MPA. In general, on a rating scale from -2 to +2, the average impact of MPAs at regional level for all uses is 0.8 , so “*slightly positive*”.

At the regional level, scientists and NGOs are consistently cited as the most collaborative and **positively affected by the MPAs**. Other actors positively impacted are diving clubs and individual divers, as well as owners of tourist boats, hotels, restaurants and beach services also benefit from the reserve effect. Even professional fishermen are impacted positively, not only for increased fish stocks, size and catches, but because the MPA in many cases preserves from trawlers, recreational fishermen and poachers. The only users that sometimes show a general opposition to the MPA are professional and recreational fishermen, but only in 21% of the MPAs. The users most significantly impacted in a negative way are recreational fishers.

These results are consistent with the collaboration received from these stakeholders. For example, some of them may be informally participating in surveillance; particularly the scientific community collaborates in 83% of the cases, while the professional fishermen (individuals) and diving clubs (when existing) also inform about offenders in 50% of the questioned MPAs.

Voluntary compliance and involvement of stakeholders

The way to better compliance with rules not only depends on sanction and surveillance but also on the rules themselves and their adaptation to each local situation. Also, incentives and non-regulatory approaches can be considered to encourage voluntary compliance and a culture of self-enforcement of rules by user-groups. Enforcement is likely to work best in a context that encourages mutual trust, informed public participation, education and awareness.

In the questionnaires, all the participants underlined the importance of the stakeholder’s willingness to cooperate. In general, the MPA **regulations have been consulted** with the stakeholders in 50% of the cases.

The most common answers are "*discussed, but agreement not satisfactory*" or "*not fully agreed, but just enough for the time being*". At the regional level the regulations that get the highest level of consultation and agreement are those related to diving, commercial fishing, zoning, and boat tours, in this order.

Institutions different to the MPA authority may also **participate in the decision-making**, most often the municipalities (62% of cases), universities (51%), fisheries management institutions (47%) as well as the Coast Guard and the Army (46%). Again there are some sub-regional differences, for example the Coast Guard and the Army are involved in decisions in over 70% of cases in North Africa and the Eastern Mediterranean, but under 40% in the EU. MPA managers underline that frequently (62%) these stakeholders are also **involved in implementation**, particularly the Coast Guard and the Army (82%), municipalities (68%), scientists (65%), fisheries institutions (56%), local NGOs and civil society (56%), and professional fishermen organizations (53%), with very little sub-regional differences.

However, the level of understanding of the MPA regulations by non-institutional stakeholders is still considered "*low*" to "*medium, just enough*", with slight sub-regional differences: in most of the region the best understood regulations are related to fishing, diving and mooring; in Northern Africa it is the use of beaches and the mechanisms for the allocation of licenses and concessions. More needs to be done to explain the MPA values and regulations in most of the region; communication and education activities are taking place "*seldom*" (once a year) or "*sometimes*" (2-5 times per year), and these actions are reinforced seasonally in only 28% of the MPAs.

It is interesting that some MPAs have developed "codes of good conduct": half of the MPAs in the EU, 14% in the Eastern Mediterranean, although none in North Africa for the time being. These cover many different activities: diving clubs (10 MPAs), tourism operators (7 MPAs), recreational fishing (5 MPAs), scientific research (5 MPAs) and professional fishing (4 MPAs).

Evaluation of human and material resources

When asked about the **human and material resources** the overall regional answer is halfway between "*insufficient*" and "*medium, just enough*". As expected, however, important subregional differences are found: in a rating scale from 1 (*very low or inexistent*) to 4 (*satisfactory*), the EU2 countries have a mean of 3 ("*fair enough*"), the EU1 group is in 2.3 (*insufficient*), while the Eastern Mediterranean (1.6) and Northern Africa (1.4) fall between *non-existent* and *insufficient*.

As mentioned elsewhere, permanent surveillance staff is considered *insufficient* in the whole region, including the EU, and almost "*inexistent*" in Northern Africa. As per material equipment, the GPS is the resource more evenly distributed around the basin: a rather anecdotal success, which is probably due to the fact that this technology is affordable. In all the region the next most common equipment are in this order: safety equipment, land vehicles, boats, and engines, but everywhere except in the EU2 countries this equipment is considered "*insufficient*".

The situation is also weak about passive equipment: except for the EU2 (82%), the boundaries of marine areas are marked only in 29% of the MPAs. Surveillance technology such as radars, vessel identification systems, night vision equipment is virtually *inexistent* in North Africa and in the Eastern Mediterranean, and remain *insufficient* in European MPAs.

Summary of the main needs and gaps identified

Competences:

- Many MPA management plans do not rule over other institutions.
- The MPA authority is only directly **competent in issuing permits** or licenses in about a 50% of the user activities (specially for scientific research, local fisheries, diving and recreational activities); but does not generally control and follow-up activities such as aquaculture, transportation, noise, water pollution from land-based resources or from boats.

Inter-institutional coordination:

- 42% of the MPAs have a **written agreement to coordinate the enforcement** of the regulations in their marine part, and 25% reveal the existence of a **specific enforcement plan** between the institutions that have juridical competences in the marine area. Frequently involved in marine enforcement are the Coast Guard, Police, and Fisheries authorities.
- For the whole region, the **recording** of infringements is the competence of three authorities on average; and their **prosecution** falls with two different authorities. In fact, when other institutions record infringements and prosecute, the MPA Managers only receive timely information in 13% of cases.

Many MPAs underline the importance to move from verbal agreement and informal coordination, to a more structured approach

Surveillance and resources:

- MPA surveillance staff is considered "*insufficient*" in European MPAs, and "*inexistent*" or "*insufficient*" in the rest of the region. 19% of MPAs have no marine surveillance staff at all.
- Half of MPAs consider that sanctions need be made more strict and dissuasive.
- When asked about surveillance capacities, **only 6 out of 45 MPAs consider it sufficient.**
- The boundaries of marine areas are only marked in 1 of every 3 MPAs.
- Surveillance technology such as radars, vessel identification systems, night vision equipment are virtually inexistent in North Africa and in the Eastern Mediterranean, and remain insufficient in European MPAs.

Compliance:

- The level of understanding of the MPA regulations by non-institutional stakeholders is still considered "*low*" to "*Medium, just enough*".
- Codes of "good conduct" for different activities have been developed in half of the MPAs in the EU and 14% in the Eastern Mediterranean, but none in North Africa for the time being.
- Ignorance or misinformation is the main cause of offense in users from outside the MPA.
- Altogether, communication and education activities take place "*seldom*" (once a year) or "*sometimes*" (2-5 /year). These actions are reinforced seasonally in only 28% of the MPAs.

More effort needs to be done to explain the MPA values and regulations

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FOCUS ON THE MEDPAN CALL FOR SMALL PROJECTS: SURVEILLANCE AND RAISING AWARENESS IN THE MARO-CERRO GORDO MPA

MedPAN's call for small projects

Within MedPAN's 2010-2012 Action Plan and axis 2 of MedPAN's new 2013-2017 strategy⁸¹, three calls for small projects have been launched to support Marine Protected Areas (MPAs) in implementing concrete actions, create synergy actions, develop tools which are useful to other MPAs and reinforce their management's effectiveness.

The call for small projects' principle is interesting for MPA managers as it allows a relatively quick and easy access (from an administrative point of view) to a source of funding for projects with a small budget. But these projects can quickly implement key actions in MPAs and thus reinforce their management's effectiveness.

Three Calls for Small Projects were made between 2011 and 2013. The third Call for Projects, which had a 6 month maximum development timeframe enabled to select three small projects.

Acantilados de Maro-Cerro Gordo

In July 1989, the "Acantilados de Maro-Cerro Gordo" was officially declared a Nature Park, it is located in Southern Spain. This Nature Park is managed by the Andalusia region. The total size of the protected area is 1,815 hectares, 1,421 of which is a marine area.

The small project

The Andalusia Region proposed a project for *Sea surveillance and awareness raising in the of Maro-Cerro Gordo Protected Area* in MedPAN's 3rd call for Projects.

⁸¹ Reinforce the vitality of the network, interactivity between members and building their capacity for an effective management of MPAs with other local stakeholders.

This project had a total budget of € 23,680 and it was awarded a fund of € 17,680 by MedPAN. The project lasted two months.

The project's aim was to achieve concrete results; namely to reduce illegal fishing and improve the environmental behaviour of its visitors, as well as improving the future management of the protected area.

Context

The Maro-Cerro Gordo Protected Area is under a lot of pressure because of a significant economic development, mainly due to tourism. Some of the issues that the Park faces are an increase in the number of visitors during the summer season, some sites attracting a lot of visitors, a rise in the number of recreational boats, illegal fishing, offsite camping, etc.

Illegal fishing in the Park's no-take area with particularly destructive trawling fishing practices is regularly done by a small group of offenders. However, the Park's technical resources to do surveillance and enforce regulations are inadequate.

The park has staff doing surveillance in the area, but it has inadequate funding to equip staff with simple ways of doing land based surveillance and continuous surveillance at sea.

Surveillance at sea activities

This project's activities were firstly, to control vessels such as trawlers in the Park area and secondly, to reduce illegal fishing activities.

In order to control trawlers in the Protected Area's perimeter, basic equipment was purchased. This equipment corresponded to the Park surveillance agents' needs.

On the marine side, the project funded:

- repairing the Park's boat, a key element in their fieldwork for the control and surveillance activities in the Protected Area,
- wetsuits for the Park's Environmental agents, appropriate equipment for sea outings.

Launching the boat requires the presence of 3 to 5 people which caused some logistical constraints. This seriously limits the number of sea outings. For this reason, surveillance from the coast is essential to fight against illegal fishing.

The project provided funding for camera equipment:

- a telephoto lens to take better photos of offending trawlers and therefore identify them,
- a waterproof camera to record and document crimes committed underwater,
- a pair of binoculars to accurately identify the vessels in the Park area,
- and a rangefinder.

During the project, the Park's Environmental agents did around 300 hours of surveillance and made three trips out to sea. During these surveillance hours, 83 offenses were reported including 5 for illegal trawling in the Park area.

For the trawler offenses, the Park works with information provided by the "Centre for Monitoring Fishing Vessels", an organization which is part of the Ministry of Agriculture, Food and Environment. This organization provides the Park with a list of the boats' exact positions. With this information and the photos taken by the Environmental agents, complaints are formally filed.

The Park's technical resources for surveillance are limited, but have been reinforced by this project. Additional surveillance equipment has been acquired: binoculars and telephoto lens to identify large vessels from the coast, wetsuits and a waterproof camera for work at sea. The Park's Environmental agents also completed nearly 300 hours of surveillance during which 83 statements were taken including 5 on banned trawlers.

Surveillance efforts from the coast and sea, coupled with reporting offenses are a coherent set of actions aimed at reducing illegal practices in the MPA.

Recommendations

Even if illegal practices are reported, the follow-up procedure by the Andalusia Region legal services does not seem effective enough in deterring repeat offenses. To reduce these repeat offenses, work on an institutional level needs to be initiated.

Surveillance needs to continue, as well as "denunciations" and cooperation with other services to eliminate illegal trawling practices in the MPA.

