

NGO Mediterranean Center for Environmental Monitoring - MedCEM



Project: ***“Support local community's involvement in protection and promotion of the potential marine protected area – Katič”***

**Environmental Impact Assessment (EIA) Study
for ecological moorings in future MPA Katič**



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MAIN FEATURES OF THE PROJECT **“SUPPORT LOCAL COMMUNITY'S INVOLVEMENT IN PROTECTION AND PROMOTION OF THE POTENTIAL MARINE PROTECTED AREA – KATIČ”**

The contracting authority: Critical Ecosystem Partnership Fund - CEPF

Project No: **108820**

Name of the study: **Environmental Impact Assessment (EIA) Study for ecological moorings in future MPA Katič**

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GENERAL FACTS

The act of mooring with an anchor means, dropping an anchor overboard to enable the immobilization of a boat because the anchor falls and is wedged on to the bottom. When removed, this anchor will be pulled up forcibly in order to be freed from the seabed. Depending on the fragility of the seabed or the sea life (animals or plants) that are developing there, the impact can be significant. The areas most adapted to moorings are dependent on hydrological factors (currents, wave exposure) and meteorological factors (wind exposure). Along a stretch of MNE coast these areas are not especially numerous and the pressure of moorings on the seabed can be frequent and significant.

Every manager or organization in charge of managing a coastal marine area will be facing this choice: **preserve as good as possible the seabed or allow unregulated moorings with all the potential negative results that can ensue.** In addition to general boat use, the future rangers/managers themselves may need mooring for their own boats, permanent floating structures (pontoon or buoy) - or immersed structures (sign for diving trail, canalization, etc.). This EIA Study should try to give answer how does one choose in cases solution that has minimal negative impact for the environment.

A SHORT HISTORICAL PREVIEW

In recent two decades, Montenegro is facing significant growth of nautical tourism. Mooring facilities that used to be maintained only in a few marinas along the coast, now are in the focus of future nautical infrastructure development. Public Enterprise for Coastal Zone Management (Morsko dobro) within their capacities established sector for Managing local ports of interest, that is developing first spatial plans for moorings for some municipalities. MedCEM from the earliest stages of CEPF project started to develop collaboration with this sector, and we believe that final results will bring a mutual benefits.

First 10 pilot ecological moorings in Montenegro where installed in 2013 by MedCEM in wider area that surrounds Katič within MedPAN project "Economic benefits of sustainable development and potential Blue carbon of future Katič MPA". This was successful free-of-charge experiment promoting a new types of mooring that raised up public awareness on this issue, with a lot of positive feedback from users. Knowledge and experience from previous ecological mooring installation is a corner stone for this study and future regulation of anchorage in this area.

DESCRIPTION OF THE PROPOSED PROJECT ACTIVITY

1.6. Installation of ecological moorings for Posidonia protection in Katic area – NGO MedCEM with support of NGO Green Home , NGO MES and local community will install 10 pilot ecological moorings for small boats. This activity contains procurement of moorings, collecting approval from relevant institution, setting up and promoting. Activity will take place from April 2019 to June 2019. In order to ensure and reduce impact on environment, before activity will be prepared Environmental Impact Assesment. These ecological moorings are designed as the most effective way of Posidonia protection for medium size boats anchoring will be free of charge during first year of use. After project ends, infrastructure and care on moorings and anchoring could be delegated for management to stakeholder (or project associated partner) who could legally collect taxes from use of moorings (or to management body of future MPA). This activity will be coordinated by NGO MedCEM with support of Green Home and NGO MES.

In some MPAs where the nautical tourism is one of the main economy branches, significant income could be generated through payments for mooring services. It is foreseen that future Katič MPA could be the same case, due to nature and nautical potentials that this area have. Even if the symbolical number of installed ecological mooring places could not generated significant income, it will be a great showcase to local community how the evaluation of environmental protection could generate new kind of income and bring benefits on various levels. One of the most important outcome of ecological mooring concept development is raising up awareness and educational function that this part of project implementation will bring to local community, and to the tourists, too. But, the most significant role of this activity is in real protection and conservation of the valuable meadows of seagrass. With a growing number of future ecological moorings, effect of nature protection could multiply – maybe it will be the one of the crucial arguments that will demonstrate effectiveness of integrated management in future MPA.

INTRODUCTION

Present situation in project area is an increasing number of nautical tourists visiting the Katiči Islets and Petrovac by yachts or small leisure boats, using anchors or small number of private moorings, all of which lack legal concessions. Unregulated anchoring is practiced in almost all bays and coves along the MNE coast, with damaging effects on the seabed, habitats and species. It also contributes to the

spreading of invasive marine species. This EIA should propose solutions for the necessity to reduce the negative impact of nautical tourists on marine resources and increase the safety of visitors. Priority is to decrease the degradation of *Posidonia oceanica* meadows on locations under the nautical pressure. Public Enterprise for Coastal Zone Management didn't defined anchoring plans for this area yet (but the procedure and plans are in preparation from 2018).

Katič area is visited by hundreds of boats per year (no official data available), which implies the throwing of as many anchors and much damage to the seabed. Number of nautical tourists in the area is increasing each year and destruction of the seabed continues. One of the first steps of future management body of MPA Katič must be to plan and install optimal number of ecological moorings and buoys in the area, and to stop uncontrolled anchoring offering safer mooring for sailors. Usage and maintenance of these moorings should be designed to generate additional incomes for local environmental funds and revenues for MPA budget. Without any doubt, here proposed pilot eco-moorings should initiate future design, management and maintain models of anchoring and mooring in MPA Katič.

Assessment of facilities and methods for ecological moorings

For Katič area the total maximum number of boats per bay should be set by the PE Coastal Zone Management and future general Anchoring and Mooring Plan for Montenegro and Detailed Physical Plans of Municipalities of Budva and Bar. If sustainable nautical tourism development is to be adopted, any construction of new mooring facilities has to respect carrying capacities (the amount of use an area can sustain while maintaining its productivity, adaptability, and capability for renewal) of coves, bays and ecosystems in general in order to avoid destroying the main assets that are attracting tourists. This cannot be done without being preceded by the EIA studies in details related to this subject. Determination of the maximum number of boats per bay should be based on the optimum surface needed per boat. The system of buoys would also be designed to have a low impact on the surrounding environment and landscape. Main outcomes and results should be monitored through indicators like disturbance/recovering of posidonia beds, number of invasive species, perception of tourists, etc. For suggested approach to classification in moorings installation, as referent document for the best available practice and methods is chosen MedPANs manual "PERMANENT ECOLOGICAL MOORINGS" (2006)

http://www.medmpaforum.org/sites/default/files/ancrages_ecologiques_en.pdf

In undefined area of future MPA Katič, the total maximum number of boats per bay will be set by the Municipal Physical Plan of Moorings, but without being preceded by the all necessary studies and field monitoring. Studies on mooring capacities of each bay and cove are needed before project implementation, as are detailed plans for implementation of the mooring system, i.e. whether it will involve fixed moorings, marinas, buoys, pontoons or any other solution.

After all information has been collected, the studies for wider area could be produced in a cooperative way. Implementing the findings and detailing the recommendations that can be of interest for the management of the impact of the marine tourism activity in the marine ecosystem. All of this should be considered within sustainable use of natural resources and eco-friendly development in domain of nautical tourism.

ZONE PLANNED FOR INITIAL MOORING INSTALATION

Prior to this Study, MedCEM did underwater survey of locations. Within this EIA, MedCEM will propose model of design, installation, usage and maintenance of the 10 ecological pilot mooring buoys in Katiči islets surrounding area. This proposed number of buoys (10 moorings) is surely smaller than really needed, and it is a far from “overpopulated” at targeted area. But it is a good base for developing future plans related to this subject.

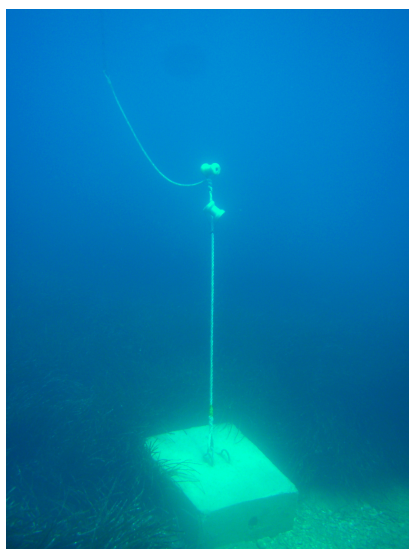
We identify two zones in core area that are exposed to frequent anchoring and mooring installation: first on the sheltered eastern side of the islets, and second in front of the Petrovac Beach, close to the border of swimming area (see the map below)



1. Location of zones in front of Petrovac with the most frequent boat anchoring

The usual area for anchoring closer to the Katič island is located on a very healthy *Posidonia oceanica* meadow, so without any doubt each anchoring on this place

produce visible (or more often invisible) damage to this important habitat. In the area closer to the beach, patches of *Posidonia* meadow are also present, but more visible is destruction from traditional mooring system and anchors on *Pinna nobilis* (Pen shell) population. This directed us for choosing two separate areas for organizing ecological pilot mooring installations. On each of these two locations we planned to install 5 buoys as ecological moorings. (In previous MedPAN project NGO MedCEM installed several prototypes of ecological moorings in the future area planned for protection around Katič, and two of these particular mooring position on eastern part of island is perfectly matching with ongoing development of mooring positions. Since these two “anchors” are out of function, they will be renewed and re-used as parts for new grid of moorings in the area (it is a type of concrete “dead weight”, approx. 800 kg each).



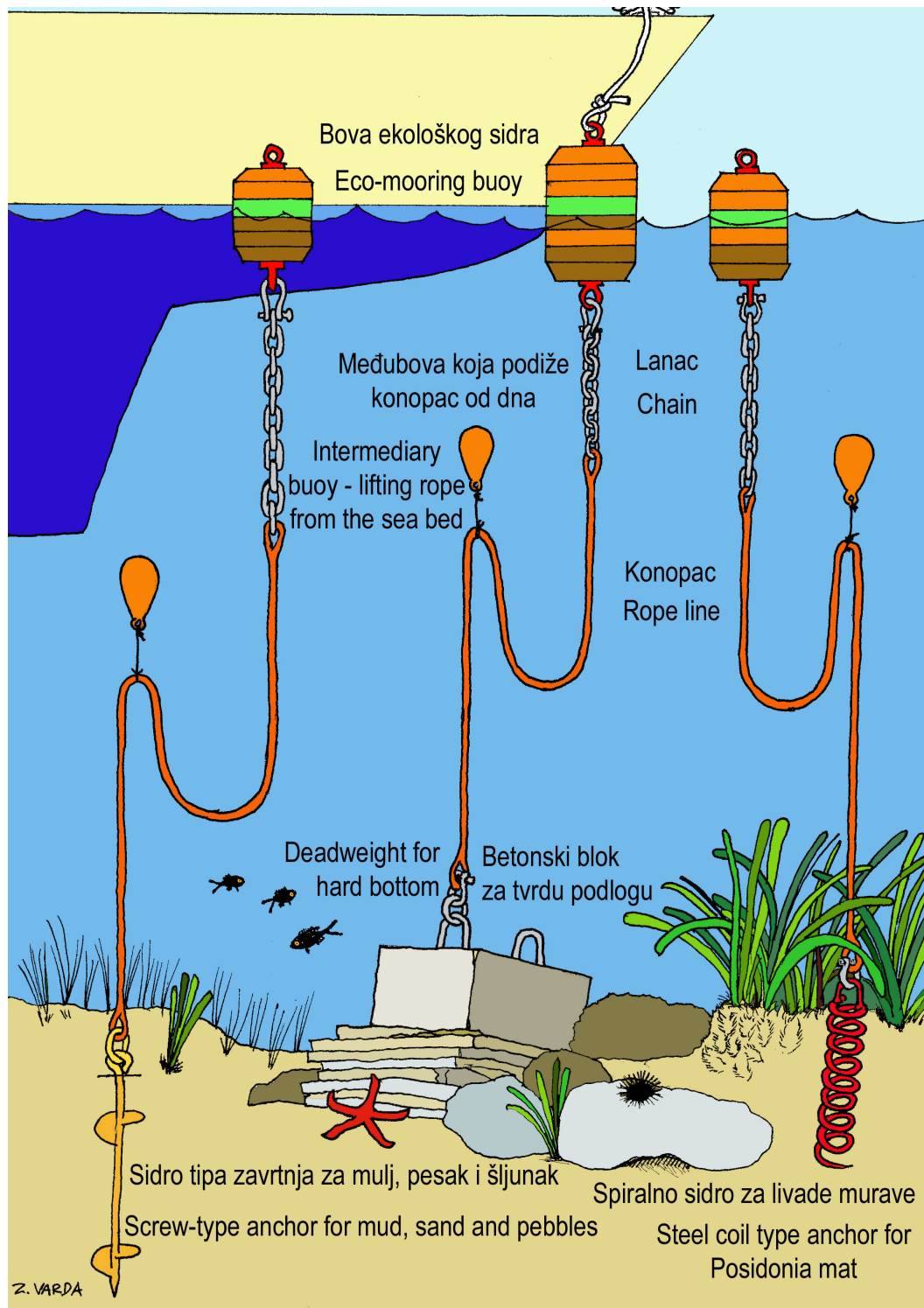
2. Sand screw and dead weight types of anchors – pictures from installation in 2013

The anchors will be installed at average depth from 4-6 meters in area near coast, and in depths of 5-8 meters on eastern part of Katič island (this part of island is sheltered from the waves and usual winds, so it is the favorite place for anchoring in islets surrounding. All other sides of islands are far less exposed to anchoring by leisure boats.)



3. Proposed places for 10 (5+5) ecological moorings

Aside of these already positioned two concrete blocks, 2 or 3 additional “dead weight” type of mooring points should be added in this place. Shall all of them 5 will be in form of dead weight, or some of them could be realized through sand/pebble screw, will depend on possibility of use (penetrating) anchor type of “Sand screw” into bottom. (We will try to avoid each unnecessary dragging through the water a tone of concrete to the island). Sand screws, as the easiest and the most effective solution for anchoring buoys will be used everywhere it is possible to be installed. We estimate that we could have in total 5 concrete “dead weight” anchors, and 5 as the solution in form of iron “Sand screw” that can be more easily (and less-cost) installed. This proportion of types could be changed if some of planned screws could not penetrate sea bottom in proper way – they will be replaced by deadweight, which can go on the place where Sand screw cannot be installed. All those types of anchors will be made according to proportion tables in mentioned WWF/MedPAN manual. For small leisure boats (6-9m) this means that screw shaft diameter will be above 20 mm, and “dead weight” will have above 1t in dry weight.



4. Leaflet graphic with types of ecological moorings from previous MedCEM project

It is important to stress that all new “dead weights” anchors will be made in the shape of artificial reef, with several holes and cracks on the body: that can offer suitable substrate or hiding place for many marine organisms, and additional detail for further level of nature protection.

DEVELOPMENT OF MANAGING CAPACITIES AND DIRECT INCOMES REVENUES

With assessments of the carrying capacity and resilience of the area, it would then be possible to study nautical tourists' willingness to pay to use moorings. This could be translated into higher mooring fees, which ideally would be recycled into environmental investments.

A permit or a reservation system can include benefits for users that behave in a specific manner or fulfill environmental requirements set by the MPA authority (or PE for Coastal Zone management)

Mooring systems in suitable places and convenient numbers can be deployed to protect the seabed while serving the needs of the visitors. Manager of these moorings could set up the fee for daily (or half day) period use, based on the length of vessel - or the number of persons in crew list. Anyhow, the price that will be defined for one day should be in range of 20 - 80 euros. Defining amount of money for mooring ticket will also be correlated to service that manager of moorings could offer to the boat crew: garbage removal, shuttle transport to the land, wi-fi, leaflet distribution, delivery from the shore, etc.

Concessions for the setup of moorings in bays for day and/or overnight anchoring are a business that can generate revenues in summertime to local entrepreneurs in the coastal area. According to existing spatial plans, it is possible to apply to the tendering processes called by the county authorities, and operate the concessions for a number of years.

This project have a plan to install these 10 ecological moorings (buoys) that will be in use for free during first summer exploitation, maintain them during season, dismantle system at the end of the season - and install them again in the third project year (2020). We expect that until that time local diving club, fishing association, some kind of touristic organization, or other stakeholders that could overtake future maintaining of these moorings (ideal manager will be management body of future MPA). We also hope that in future some efficient rules and agreement on use for such anchorage types will be cleared with all official instances up to some mutual acceptable solution.

IMPACT ON ENVIRONMENT

Proposed installation of ecological moorings will contribute to mitigation of negative effect that anchoring have on *Posidonia oceanica* meadows, as well on some other benthic species. Ecological moorings are always a win-win situation, because a multiply benefits that they brings presents one of the most obvious improvements in reaching good balance between nature protection and developing challenges. For future management of MPA, developing a grid of ecological moorings is an opportunity for better control growing demands for nautical expansion towards conservation of fragile habitats. If the installation of the buoys is done according to defined standards, it will also increase safety of anchoring and prevent accidents

that might occur due to bad weather, or usual simple mistakes from the boat skippers. Minimal negative effect on environment that concept of ecological moorings have versus classical moorings system is advantage that cannot be disregarded. Positioning recommended installation on the places where the boat anchors making damage each day may only be characterized as the most desirable and permanent solution of serious problem.

CONCLUSION

Developing proposed ecological approach and good quality of mooring services in future MPA Katič will contribute not only to improvement in education or tourism offer, but to protection of important species and habitats in the area – so it must be recognized as very important part of future MPA Management plan. All problems that could appear in process of establishing an functional system of moorings in MPA should be solved within legal framework in collaboration of various institutions and regulations related to this subject. At the end, particular results and significant incomes that some MPAs generate through clever treatment of these issues, could be solid argument for any new approach in finding solutions for uprising demands in nature protection.

