



# EUROPEAN UNION OF AQUARIUM CURATORS

## REPORTING FORM

### FOR *IN SITU* CONSERVATION PROJECTS FUNDED

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<b>1 TITLE OF PROJECT</b>	Mapping the Mediterranean Pillow Coral ( <i>Cladocora caespitosa</i> ) habitats in Medulin Bay, Istria, Croatia
<b>2 NAME OF APPLICANT INSTITUTION ADDRESS</b>	Dr Milena Mičić, PhD Aquarium Pula d.o.o. Verudela bb, 52100 Pula, Croatia
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<b>DATE OF REPORT:</b>	25 <sup>th</sup> June 2020

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**WHAT YEAR WAS YOUR PROJECT FUNDED BY EUAC?**  
2018

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**3 LOCATION OF PROJECT (REGION & COUNTRY)**

Medulin bay, Istria County, Croatia

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**4 PROJECT START AND END DATES:**

1<sup>st</sup> September 2018 – 31<sup>st</sup> August 2019

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**5 PROJECT CO-ORDINATOR, ADDRESS AND INSTITUTIONAL AFFILIATION**

(IF DIFFERENT FROM APPLICANT)

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**6 PROJECT TYPE**

(TICK ANY COMPONENTS THAT APPLY)

× BIOLOGICAL/ECOLOGICAL RESEARCH

VETERINARY/CONSERVATION MEDICINE

× ANIMAL WELFARE

CAPTIVE BREEDING

RE-INTRODUCTION/RE-STOCKING/TRANSLOCATION

× HUMAN-WILDLIFE CONFLICT

× EDUCATION/PUBLIC AWARENESS

TRAINING/WORKSHOPS

× COMMUNITY-BASED/SOCIAL POLICY

× ECOTOURISM/SUSTAINABLE DEVELOPMENT

× SUSTAINABLE USE

WARDENING/LAW ENFORCEMENT

X PROTECTED AREAS MANAGEMENT

OTHER: \_\_\_\_\_

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**7 FOCAL SPECIES (COMMON AND SCIENTIFIC NAME)**

Mediterranean Pillow Coral, *Cladocora caespitosa* (Linnaeus, 1767)

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**8 IUCN RED LIST STATUS (OR OTHER THREAT LISTING) OF FOCAL SPECIES**

Endangered (A4a) from 2015, Annex 1 of Habitats Directive (Directive 92/43/CEE) under Habitat 1170 "Reefs"

**CITES YES**

**APPENDIX II**

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**9 PROJECT BACKGROUND**

The International Coral Reef Initiative declared 2018 the 3<sup>rd</sup> International Year of Reefs. The main goal was to encourage governments and NGOs to strengthen global awareness about the value of coral reefs, promoting partnerships on its management, identifying and implementing sustainable use of the area through the promotion of best practices and education.

The only coral species in the Mediterranean which is known to be a reef constructor is the endemic Mediterranean pillow coral (*Cladocora caespitosa*). It mainly builds small colonies but develops reef structures only in some locations. The biggest known to date (650m<sup>2</sup>) is in Veliko jezero, Mljet NP, South Adriatic. In the North Adriatic modest banks of small colonies were only found in the Lim channel, but some hot spots have also been reported in the Medulin bay. Recent studies have generally shown the importance of *C. caespitosa* in marine biodiversity enrichment since many animal species host it as an enclave for different stages of the life cycle (Kružić et al., 2008 and 2012). This species is listed in the IUCN list with a high recommendation for continuous monitoring. Medulin Bay is a part of NATURA 2000 but also an area of high anthropogenic activities such as tourism and fishery.

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## 10 WAS THE OVERALL PROJECT PURPOSE FULFILLED?

The overall project purpose was to investigate the condition of the coral colonies especially in relation to the existing threats caused by different anthropogenic activities (nautical tourism, pollution, unsustainable fishing); and to propose guidelines of sustainable management of the area to authorities in order to preserve the colonies in Medulin bay.

The coral protection at the local and global level was emphasized by raising public awareness in the aquarium exhibition and through an outdoor poster exhibition available to a wider audience. The exhibitions accented the degradation of corals and related species due to unsustainable human activities. The purpose was fulfilled.

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## 11 WHAT OBJECTIVES WERE MET?

1. A map of the area with the main hot spots of the *C. caespitosa* colonies has been drawn up. The map was used in the Report about the state of *C. caespitosa* in Medulin bay.
2. A study about the sustainability of the area has been made and proposed to local and regional authorities. It includes the current state of colonies, the list of current and potential threats, protection measures and guidelines for sustainable management, measures for the implementation of annual monitoring and proposals for the diversification of activities in tourism and fisheries.
3. More than 30 000 local citizens and 200 000 tourists have been educated of the need for protecting coral colonies with a free permanent outdoor exhibition set up in front of the aquarium.
4. Cooperation between the Aquarium Pula and Mljet NP has been established. The Mljet NP is managing the biggest *C. caespitosa* bank in the Mediterranean and the know-how for the sustainable management taken into consideration during the research of Medulin bay and raising of public awareness.

## WHAT OBJECTIVES WERE NOT MET?

All objectives were met.

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## 12 WHAT PROJECT ACTIVITIES WERE UNDERTAKEN?

A meeting with the Mljet National Park, responsible for the protection, preservation and sustainable use of the *C. caespitosa* banks, was held in July 2018 to gain knowledge on the preservation and sustainable use of the reef. A Memorandum of Understanding has been signed by Aquarium Pula and Mljet during the opening of the exhibition "Fragile Beauty" on 30<sup>th</sup> November 2018 in Aquarium Pula.

At the same time, from October 2018 to June 2019, underwater research took place on several locations in Medulin bay (Lokva bay, Stupice bay and Močile bay) to ascertain the presence of the pillow coral, to determine the depth of its distribution, average colony size and status pertaining to anthropogenic activities. To carry out the research, 2 profiles per bay were chosen, along which research took place with scuba gear, using visual census method and taking photographs with an underwater camera. Profiles were chosen so that the area in question is thoroughly investigated and the complete population of pillow coral determined. Visual census method was used according to Labrose et al., 2002 (Underwater visual fish census survey: proper use and implementation).

Guidelines for the sustainable management of the area followed by examples of good practices in public awareness and ecotourism have been produced and given to the local authorities.

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**13 WHAT OUTCOMES WERE ACHIEVED DURING THE COURSE OF THE PROJECT?**

In the investigated area 96 colonies of pillow coral were found, 49 of which in Močile bay, 26 in Stupice bay and 21 in Lokve bay. Size of colonies on the researched area varied from 8 to 30 centimetres. Depth at which the colonies were identified ranges from 2 to 8 meters.

Pillow coral colonies are dispersed in the infralittoral of Medulin bay. Size of the colonies and their frequency increases from the inner part of the bay toward the capes, with the biggest abundance recorded on the cape of Močile bay, where colonies measured 30 cm in diameter. The most probable cause of the increase in size and abundance toward the capes is the presence of stronger currents in those areas. Some colonies were found bleached and dying with coral fragments scattered around, probably caused by mechanical damage (sea biodynamic, anchoring, fishing tools, etc.). Many discarded remains of various human activities were present, ranging from garbage (plastic and metal containers, tires, glass and ropes), fishing tools, to concrete blocks intended for seasonal nautical tourist.

**ARE ANY ONGOING?**

No

**DID ANY EXPECTED OUTCOMES FAIL?**

A leaflet about the importance and fragility of the coral banks was planned but not printed. A permanent outdoor exhibition about the importance and fragility of the coral banks has been set up in front of the aquarium instead. The exhibit is free of charge and available to a wider audience.

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**14 DID LOCAL PEOPLE/COMMUNITIES PARTICIPATE IN THE PROJECT? IF SO, HOW MANY AND WILL CONTINUED CONTACT BE MADE?**

In cooperation with Mljet National Park, Aquarium Pula has displayed a pillow coral reef as a centrepiece for marking 2018 as the "International year of the reef" (IYOR). The exhibition is permanent and more than 200 000 visitors have to date seen it.

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**15 DID THE GOVERNMENT OF THE HOST COUNTRY RECEIVE INFORMATION ON THE PROJECT'S RESULTS?**

The results of the project were summarized in a report (written in the Croatian language) which has been delivered to the local authorities.

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**16 HOW DID THE RELATIONSHIP WITH OTHER NGOs WORK? WERE THERE ANY ISSUES?**

Local NGOs, Diving centres Ližnjan and Medulin, were involved in the project by joining the underwater activities (mapping, photography etc.).

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**17 TOTAL PROJECT BUDGET AND EXPENDITURE (IN EUROS)**

25.200,00€

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**18 AMOUNT OF MATCHING FUNDS  
SPENT: 16.200,00€****19 AMOUNT SPENT FROM EUAC FUNDS:  
9.000,00€**

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**20 EXPENDITURE BREAKDOWN (IN EUROS)**

TRAVEL	2.000,00 (Fuel and toll charges for trips to Medulin bay and Mljet)
SALARIES	
ACCOMMODATION	1.000,00 (Rent of the apartment for the trip to Mljet)
EQUIPMENT	3.000,00 (Underwater camera, diving equipment)
COMMUNICATION	1.000,00 (Making of an open exhibit)
MISCELLANEOUS	2.000,00 (Contract for the production of the study for the sustainable management of the area and diving operations)
TOTAL	9.000,00

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**21 PUBLICATIONS PRODUCED AS A RESULT OF THE PROJECT**

A report of the state of *C. caespitosa* colonies together with protective measures (written in Croatian language) has been given to the Municipality of Medulin.

A free permanent outdoor exhibition has been set up in front of the Aquarium.

A poster "Mapping the Mediterranean Pillow Coral (*Cladocora caespitosa*) habitats in Medulin Bay, Istria, Croatia" showing the project implementation and results have been presented on the EUAC conference 2019 in Nausicaa, Boulogne sur mer, France.

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