Interreg Italy - Croatia ADRIREEF

EUROPEAN UNION

Innovative exploitation of Adriatic Reefs
in order to strenghten blue economy

WP 2

Local workshops: at least 5 events organized in PP facilities with local stakeholders, policy-makers, citizens for the promotion of the project activities and results

Deliverable D2.7.5

TABLE OF CONTENTS

INTRODUCTION

During the project implementation, the Adrireef partnership realized eight local dissemination workshops out of the five requested by the project application form. These workshops involved local stakeholders, policy-makers and citizens and were designed to promote the project activities and results. This is the list of the workshops:

- *What is the condition of your reef? Application of selected protocols for determining the impact on reefs within the ADRIREEF project*
  (19/04/21 – online webinar by PP3 Association for Nature, Environment and Sustainable Development SUNCE)

- *University of Rijeka, Faculty of Maritime Studies, Open Days – International Day of the Seafarers*
  (25/06/21 – physical event by PP10 Faculty of Maritime Studies Rijeka)

- *Inauguration of the "Museum of the Sea" in Porto Recanati*
  (27/06/21 – physical event by PP5 Consiglio Nazionale Delle Ricerche – CNR)

- *Open day of the laboratory for precipitation processes*
  (24/09/21 – physical event by Institut Ruđer Bošković)

- *Take with care: la ricerca marina a supporto della salute del mare - Science Festival Trieste Next*
  (25/09/21 – physical event by PP7 National Institute of Oceanography and Experimental Geophysics – OGS)

- *Establishment of a no - take zone at sea*
  (10/11/21 – physical event by PP8 Public Institution Rera Sd for Coordination and Development of Dalmatia County)

- *Presentation of the Manual for monitoring and research of seagrass areas in the Adriatic Sea using standard and cost-effective methods, white papers and the Guide for reef users*
  (19/11/21 – online webinar by PP2 Zadar County Development Agency Zadra Nova)

- *Adrireef / Innovative exploitation of Adriatic Reefs in order to strengthen blue economy: data, results & hints*
  (20/11/21 – physical event by LP Municipality of Ravenna).

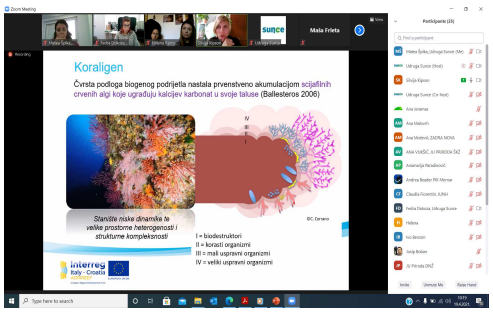
Here follows the description and documents of each single workshop.

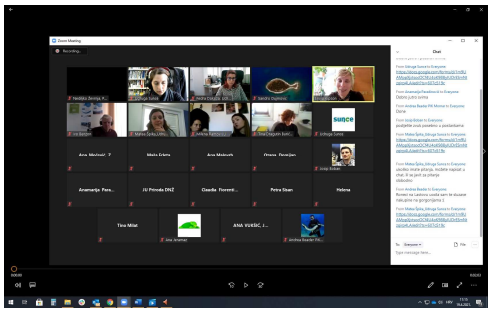
WHAT IS THE CONDITION OF YOUR REEF? APPLICATION OF SELECTED PROTOCOLS FOR DETERMINING THE IMPACT ON REEFS WITHIN THE ADRIREEF PROJECT

Association SUNCE Split organized a webinar called “What is the condition of your reef? Application of selected protocols for determining the impact on reefs within the ADRIREEF project”. The webinar was held online, via ZOOM application, on April 19, 2021. The speakers presented the results of the monitoring activities carried out on two project case studies (Plic Seget/Sika od Stupišta) and Dugi otok (Plič Lagnići) and presented a short movie produced during the field work.
The workshop was followed by 25 participants from the following organizations:

- Association Sunce
- Association Zmergo
- Public institution Reserve Lokrum
- Development agency Zadar County ZADRA NOVA
- Public institution Natura Histrica (protected areas in Istra County)
- Diving Center PIK Mornar
- Public institution for protected areas in Šibenik County
- Natural Museum and Zoo Split
- University of Rijeka
- Public institution National Park Brijuni
- Institute Blue World
- Public institution Nature Park Telascica
- Public institution for protected areas in Dubrovnik County
- Development agency Split Dalmatian County RERA
- Diving center Draulik Milna
- SEAFAN

Here are some photos of the webinar:





This was the webinar agenda:

INTERREG ADRIREEF 2021.

Kakvo je stanje vašeg grebena?

Primjena izabranih protokola za utvrđivanje utjecaja na grebene u sklopu projekta ADRIREEF

Split, 19. travnja 2021.

(10:00 – 12:00h)

AGENDA:	
Vrijeme:	**Opis:**
10:00 – 10:05	Uvodna riječ – Tihana Arapović, mag. ing. biol.
10:05 – 10:15	O projektu Interreg Adrireef - Matea Špika, MSc. Upravljanje zaštićenim područjima
10:15 – 10:20	"SUNCE na ADRIREEF terenu", kratki film – autor: Božidar Plazonić
10:20 – 10:40	Karakterizacija i utvrđivanje stanja koraligena - dr. sc. Silvija Kipson

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10:40 – 11:10	Utvrđivanje konzervacijskog statusa sesilnih bentoskih beskralješnjaka i njihovog odgovora na klimatske promjene - dr. sc. Silvija Kipson
11:10 – 11:25	Vizualni census riba kao pokazatelja klimatskih promjena - Fedra Dokoza, mag. ing. agr.
11:25 – 11:40	Procjena utjecaja odbačenih/izgubljenih ribolovnih alata - Fedra Dokoza, mag. ing. agr.
11:40 – 12:00	Rasprava i završna riječ

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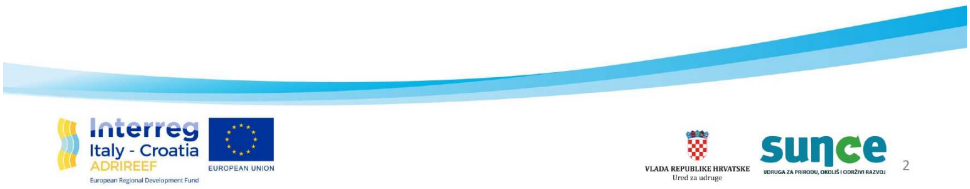
The following are the presentations that were discussed by the speakers:



PROJEKT ADRIREEF

- WP4 – Aktivnosti monitoringa
- testiranje integriranog sustava praćenja abiotskih i biotičkih deskriptora korištenjem tehnologija s malim utjecajem na okoliš,
- praćenje grebena bitno za kontinuiranu procjenu njihovog kapaciteta da podrže određenu ekonomsku aktivnost,
- važno i kod primjene europskih direktiva za zaštitu morskog okoliša kao što su Okvirna direktiva o vodama, Okvirna direktiva o morskoj strategiji te Direktiva o staništima.
- Nacionalna ekološka mreža obuhvaća područja važna za očuvanje povoljnog stanja ugroženih i rijetkih stanišnih tipova i/ili divljih svojti na europskoj i nacionalnoj razini.
- propisano praćenje stanja omogućuje utvrđivanje učinkovitosti mjera zaštite s obzirom na ostvarivanje utvrđenih ciljeva očuvanja.

3

PLIĆ LAGNIĆI

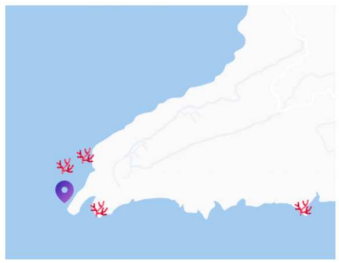
- nalazi se sjeverozapadno od Dugog otoka, oko niskih nenaseljenih otočića Mali (površine 1 ha) i Veli Lagan (površine 2 ha),
- oko 20 m dubine teren naglo pada u obliku „zida" koji se prostire do 45-50 m dubine,
- u blizini se nalazi brodska olupina talijanskog teretnog broda „Michelle", nasukanog 1983., čiji su dijelovi trupa još vidljivi na površini,
- nalazi se u obuhvatu nešto šireg područja ekološke mreže HR3000067 Luka Soliščica; Dugi Otok, proglašenog u cilju zaštite staništa naselja posidonije (*Posidonion oceanicae*), pješčanih dna trajno prekrivenih morem, te velikih plitkih uvala i zaljeva.

Mali i Veli Lagan i olupina Michelle (izvor: https://www.boriskacan.com); . Olupina Michelle iz zraka (izvor: youtube.com)

4

PLIĆ SEGET/SIKA OD STUPIŠTA

- prirodni greben udaljen oko 300 m sjeverozapadno od Rta Stupište, te oko 4 km jugozapadno od naselja Komiže,
- vrh grebena se nalazi na dubini od 7 m, te sa svih strana, osobito zapadne naglo ponire do dubine od 50 m,
- obuhvaćen područjem ekološke mreže HR3000097 Otok Vis – podmorje kojem su cilj zaštite naselja posidonije (*Posidonion oceanicae*), grebeni, plavljene ili dijelom preplavljene morske špilje, muljevita i pješčana dna izložena zraku za vrijeme oseke, te pješčana dna trajno prekrivena morem,
- na udaljenosti manjoj od 2 km nalazi se područje ekološke mreže HR3000469 Viški akvatorij, koje je važno za očuvanje dobrog dupina (*Tursiops truncatus*),
- uključen u Geopark Viški arhipelag (UNESCO-a Svjetska mreža geoparkova).



Sika od Stupišta kao ronilačka lokacija (Izvor: https://scubadiving.hr/diving-locations/

ADRIREEF PROJEKT

Organizacija: Udruga Sunce Split
Kontakt: Matea Špika

matea.spika@sunce-st.org

https://www.italy-croatia.eu/web/adrireef

Vizualni census riba kao pokazatelja klimatskih promjena

Udruga Sunce Split| Program zaštite prirode | mag. ing. agr. Fedra Dokoza

Webinar| On – line Zoom | 19. travnja 2021.

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Ciljane vrste

Sparisoma cretense,
Epinephelus marginatus,
Thalassoma pavo,
Sarpa salpa,
Serranus scriba,
Coris julis,
Serranus cabrilla,
Siganus spp,
Fistularia commersonii


S. cretense


E. marginatus


S. salpa


T. pavo


C. julis


S. scriba


S. cabrilla


Siganus spp


F. commersonii

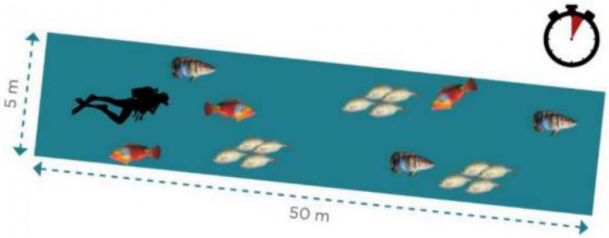
2

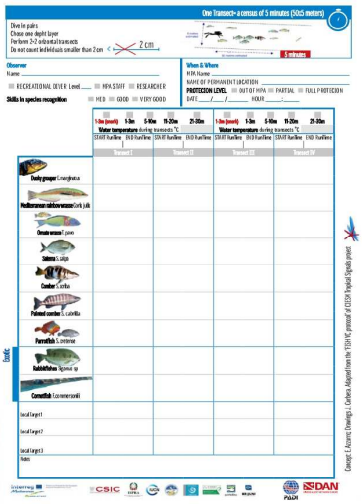
Dodatne vrste

- *Mullus surmuletus*
- *Diplodus vulgaris*

Praćenje vrsta

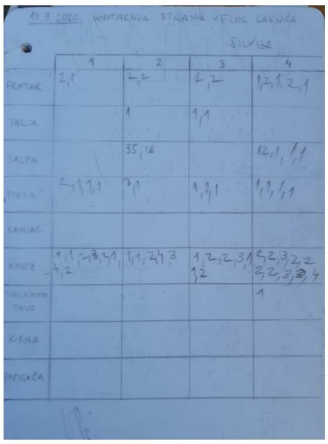
- sporo plivanje - 10 m / min,
- trajanje transekta - 5 minuta,
- stanke od otprilike - 10 m (1 min),
- ukupno oko - 50 m
- promatranje unutar transekta širokog 5 m (2,5 m)
- ne manje jedinke od 2 cm





Bilježenje vrsta

Izvor: Udruga Sunce Split



Izvor: Udruga Sunce Split

Izvor: Udruga Sunce Split

5

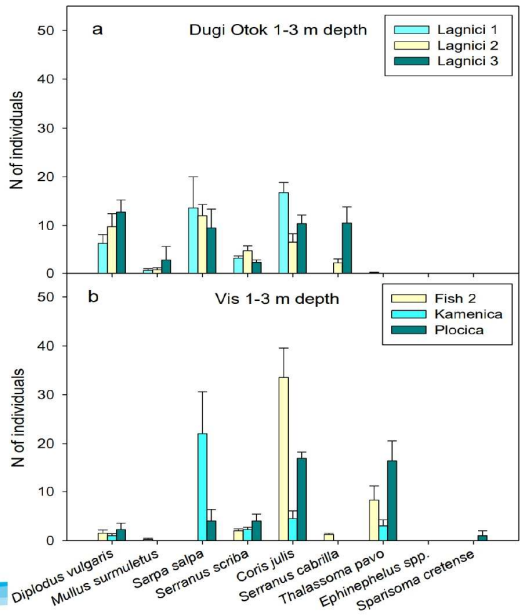
Rezultati

Dugi otok:

- lokacija Lagnići 1
- lokacija Lagnići 2
- lokacija Lagnići 3

Otok Vis:

- lokacija Fish 2
- lokacija Kamenica
- lokacija Pločica

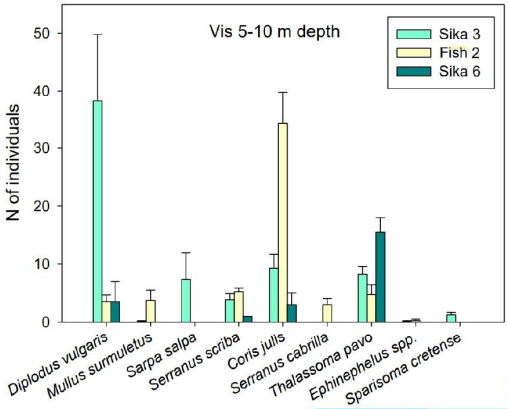


6

Rezultati

Otok VIS:

- lokacija Sika 3
- lokacija Fish 2 (uvala uz uvalu Oključna)
- lokacija Sika 6



ADRIREEF PROJEKT

Organizacija: Udruga Sunce Split
Kontakt: Fedra Dokoza

fedra.dokoza@sunce-st.org
https://www.italy-croatia.eu/web/adrireef

Karakterizacija i utvrđivanje stanja koraligena

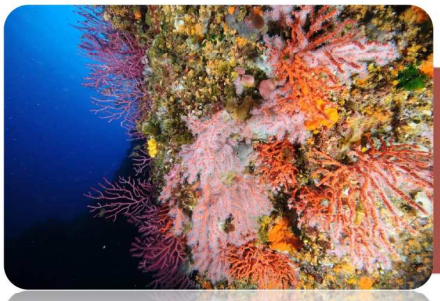
ADRIREEF| dr. sc. Silvija Kipson

19 04 2021

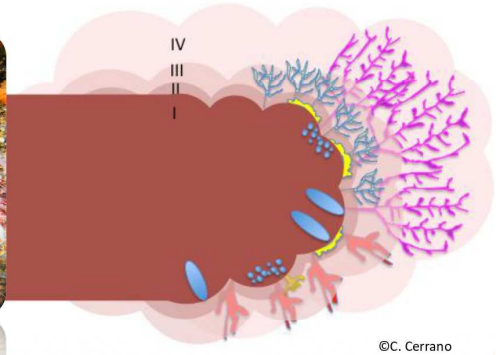
European Regional Development Fund

Koraligen

Čvrsta podloga biogenog podrijetla nastala prvenstveno akumulacijom scijafilnih crvenih algi koje ugrađuju kalcijev karbonat u svoje taluse (Ballesteros 2006)



Stanište niske dinamike te velike prostorne heterogenosti i strukturne kompleksnosti



©C. Cerrano

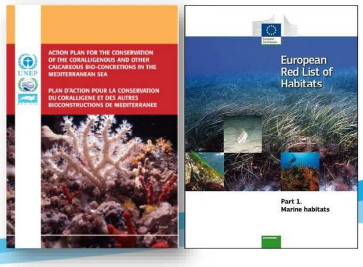
I = biodestruktori
II = korasti organizmi
III = mali uspravni organizmi
IV = veliki uspravni organizmi

Koraligen



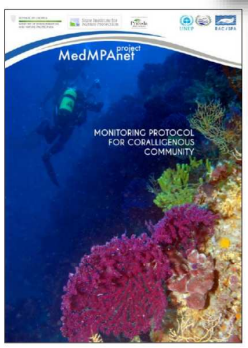
"hotspot" bioraznolikosti | Stanište komercijalnim vrstama | Ronilačka atrakcija

- Uključen u prioritetni stanišni tip "1170 Grebeni" prema EU Direktivi o staništima (92/43/EEC)
- Stanište koje treba strogu zaštitu prema Protokolu za posebno zaštićena područja (SPA/BIO) Barcelonske konvencije
- Na Europskoj Crvenoj listi morskih staništa naveden kao DD (data deficient)



Nacionalni protokol za praćenje stanja koraligena

2014 god.

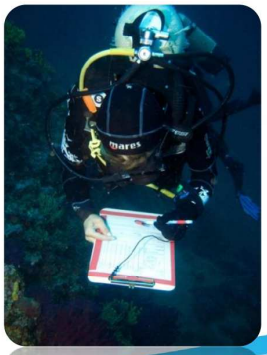


Nacionalni protokol za praćenje stanja koraligena

Raspon dubine 30 – 40 m

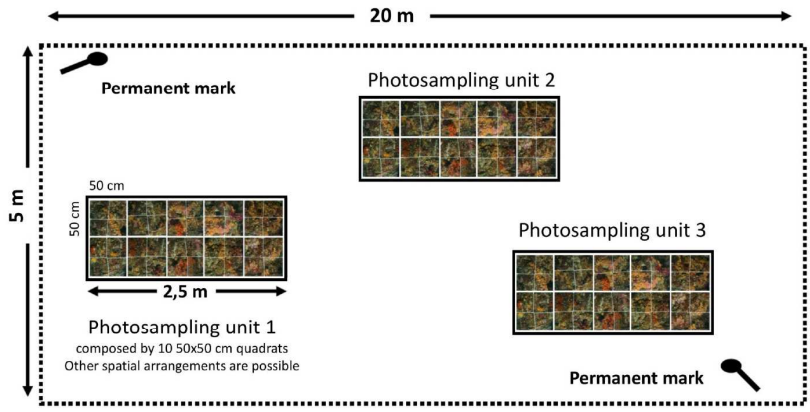
Fotografsko uzorkovanje

Vizualni cenzus



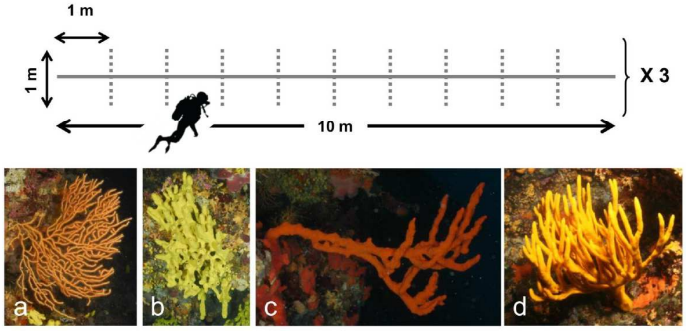
Nacionalni protokol za praćenje stanja koraligena

Shema foto uzorkovanja



Nacionalni protokol za praćenje stanja koraligena

Vizualni cenzus – procjena strukturne kompleksnosti

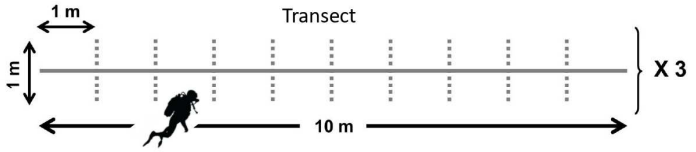


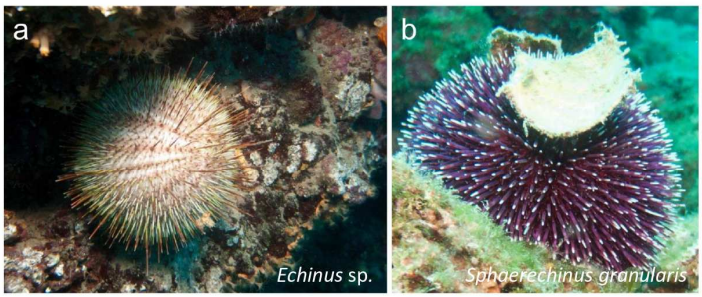
The erect layer (> 15 cm in height)

for each 1 m section	Category				
	1	2	3	4	5
N of colonies/m2	0	1-2	2-10	10-20	> 20

Nacionalni protokol za praćenje stanja koraligena

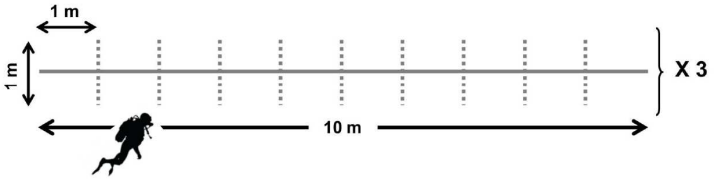
Vizualni cenzus – procjena utjecaja makrobiodestruktora





Nacionalni protokol za praćenje stanja koraligena

Vizualni cenzus – procjena utjecaja sluzavih algnih nakupina



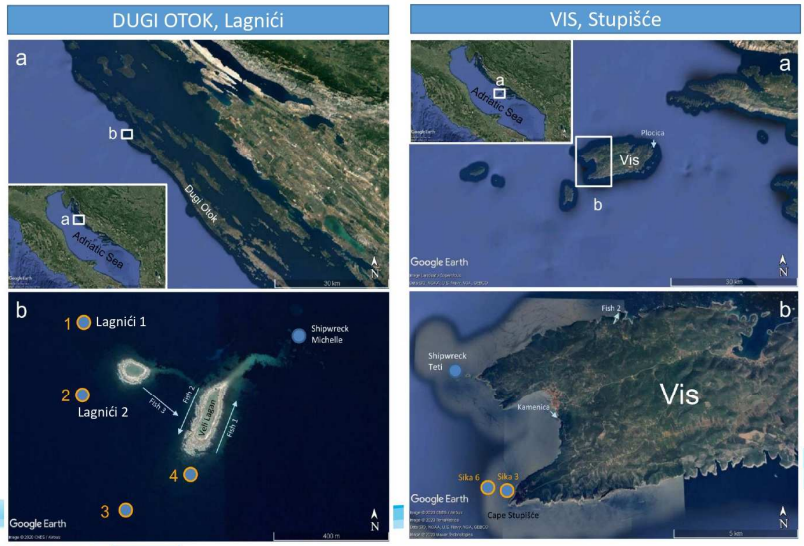
Category 0 (Null): 0% cover of the transect

Category 1 (Low): low abundance in the basal-intermediate layers **AND/OR** in the erect layer

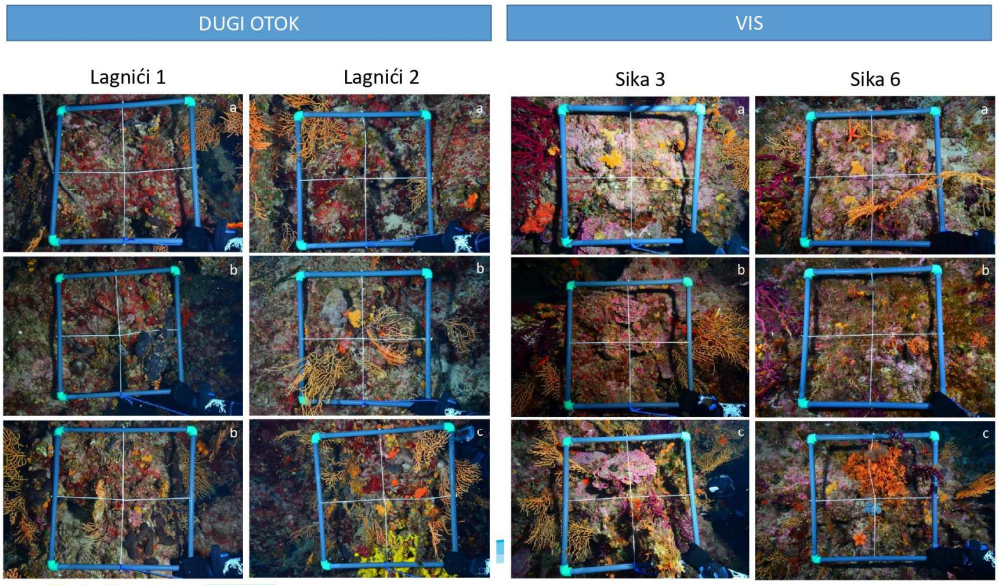
Category 2 (Medium): High abundance **EITHER** in the basal-intermediate layers **OR** in the erect layer

Category 3 (High): High abundance both in the basal-intermediate layers **AND** in the erect layer

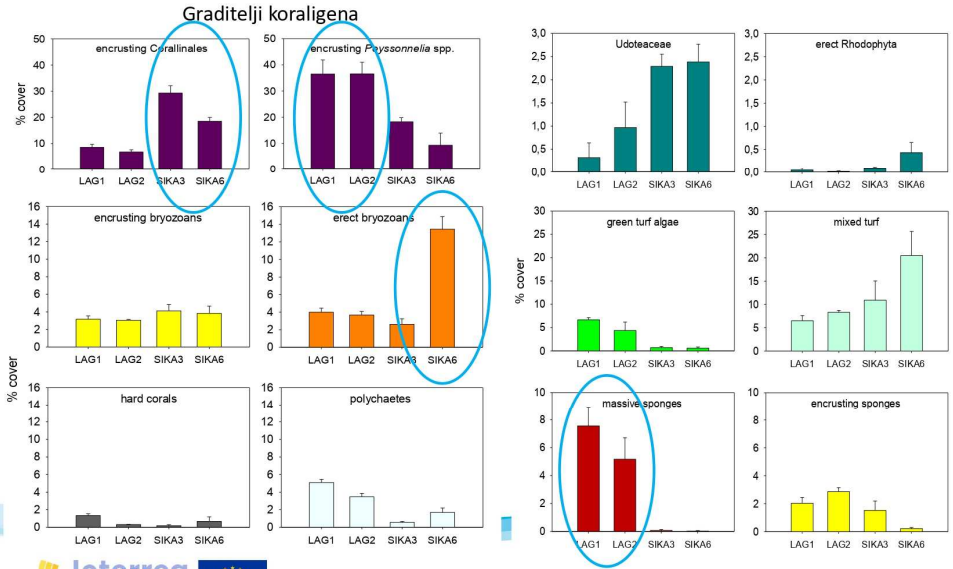
Područje istraživanja



Primjer rezultata – karakterizacija i utvrđivanje nultog stanja koraligena

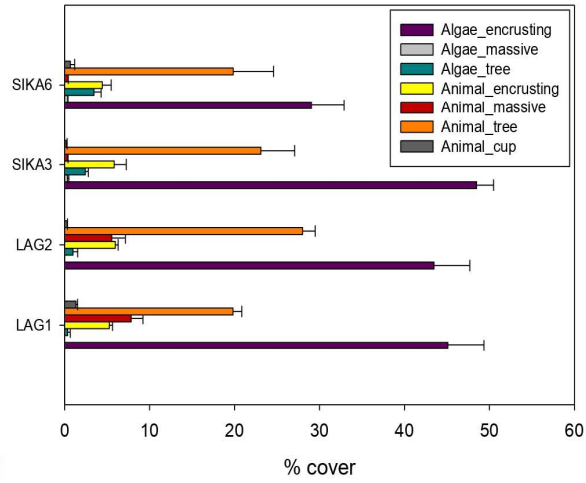


Primjer rezultata – karakterizacija i utvrđivanje nultog stanja koraligena



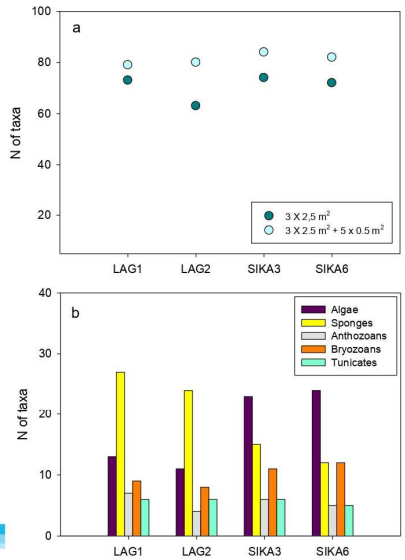
Pokrovnost glavnih morfo-taksonomskih i funkcionalnih skupina

Primjer rezultata – karakterizacija i utvrđivanje nultog stanja koraligena



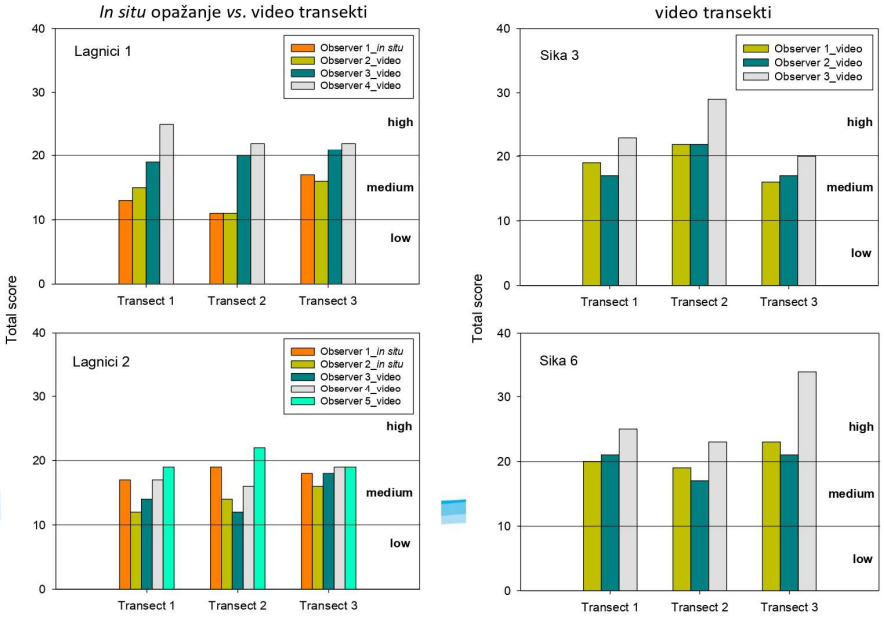
Pokrovnost glavnih morfoloških grupa sesilnog bentosa

Primjer rezultata – karakterizacija i utvrđivanje nultog stanja koraligena

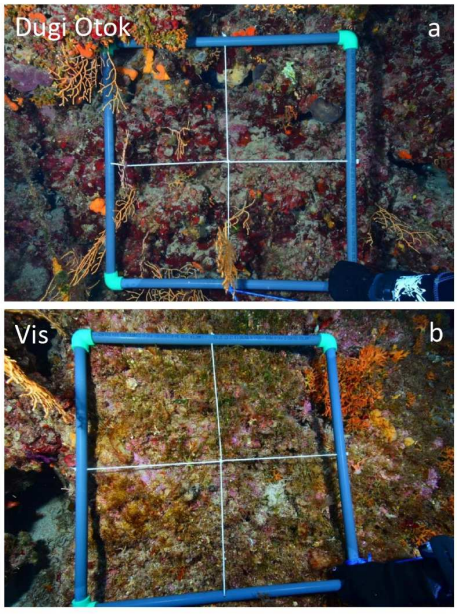


Bogatstvo vrsta na pojedinim postajama
i unutar glavnih taksonomskih skupina

Primjer rezultata – procjena uspravnog sloja u sklopu utvrđivanja strukturne kompleksnosti koraligena



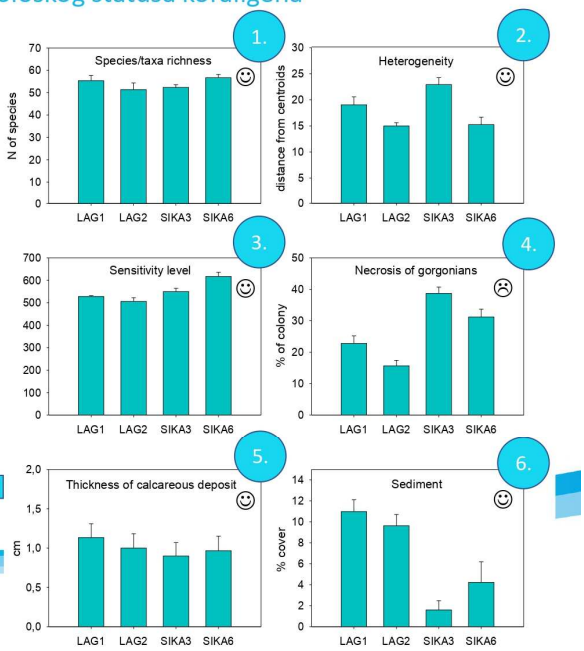
Primjer rezultata – utvrđivanje potencijalnih stresora



Primjer rezultata – utvrđivanje ekološkog statusa koraligena

Deskriptori (objedinjeni u Piazzi i sur. 2018):

1. Bogatstvo vrsta/taksona (alfa raznolikost)
2. Heterogenost (beta raznolikost)
3. Razina osjetljivosti (kumulativna mjera osjetljivosti prisutnih vrsta)
4. Nekroza tkiva gorgonija
5. Debljina vapnenačkog sloja
6. Sedimentacija



Utvrđivanje konzervacijskog statusa sesilnih bentoskih beskralješnjaka i njihovog odgovora na klimatske promjene

ADRIREEF| dr. sc. Silvija Kipson

19 04 2021

European Regional Development Fund

Gorgonije

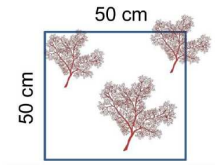
Paramuricea clavata

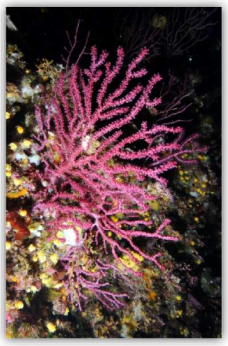
Eunicella cavolini

Eunicella singularis

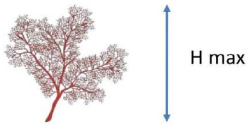
- ✓ Graditelji staništa, ekološki inženjeri:
  - modificiraju prodiranje svjetlosti, sedimentaciju i hidrodinamizam na mikro-skali
  - mogu utjecati na novačenje ranih razvojnih stadija
  - promoviraju biokonstrukciju
  - pružaju zaštitu od mehaničkih utjecaja ostalim manjim, fragilnim vrstama;
- ✓ Tvore uspravni sloj na staništima čvrste podloge – najizloženije abraziji tj. mehaničkim oštećenjima te utjecaju sluzavih algnih nakupina
- ✓ Osjetljive na povišenu temperaturu mora, stoga dobri indikatori klimatskih promjena

Utvrđivanje demografskih parametara i stupnja oštećenja gorgonija

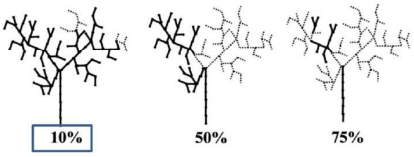




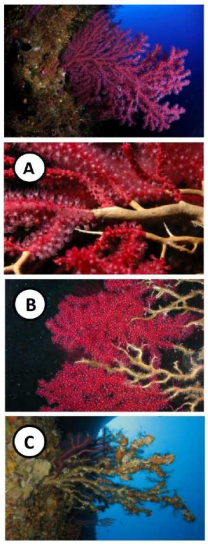
1. Max colony height (base to the tip)



2. % of colony affected:



Kategorije oštećenja na gorgonijama



NON-AFFECTED: < 10% injured colony surface

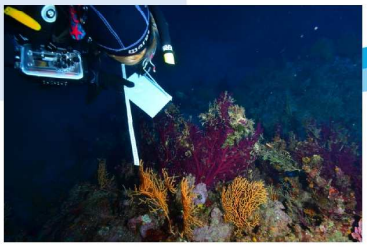
AFFECTED: > 10% injured colony surface

Type of injury:

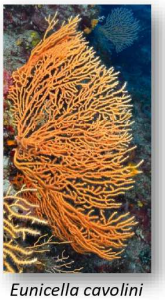
A No epibiosis / Naked skeleton

B Recent epibiosis

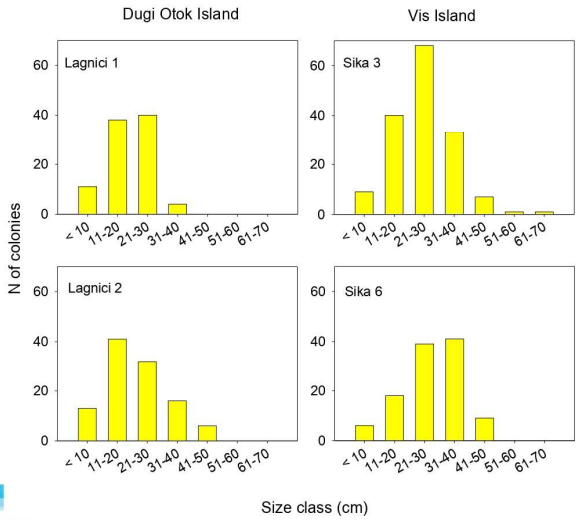
C Old epibiosis



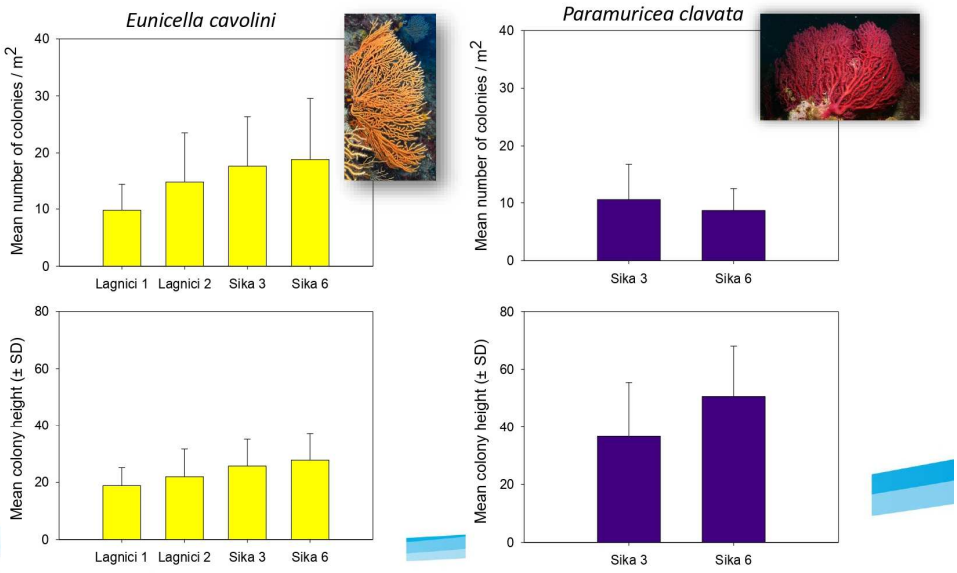
Primjer rezultata – veličinska struktura populacije gorgonija



Eunicella cavolini

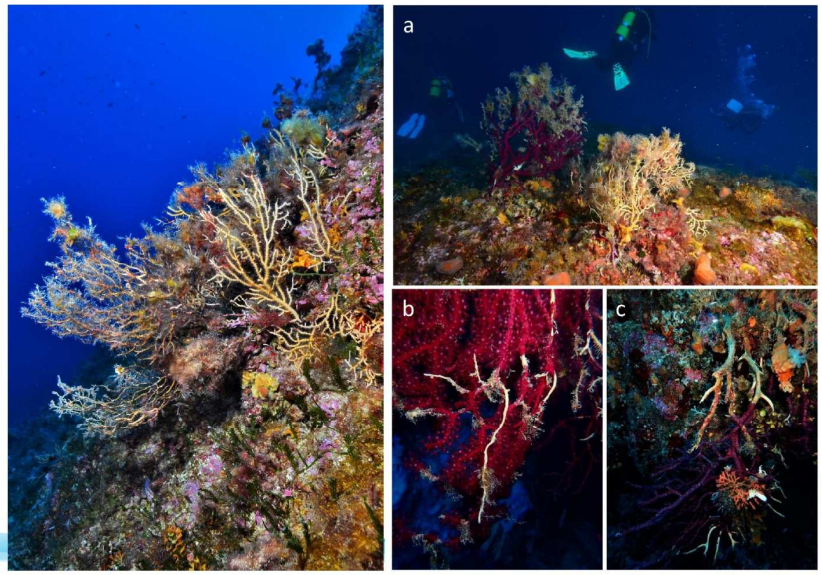


Primjer rezultata – gustoća populacija i prosječna veličina gorgonija

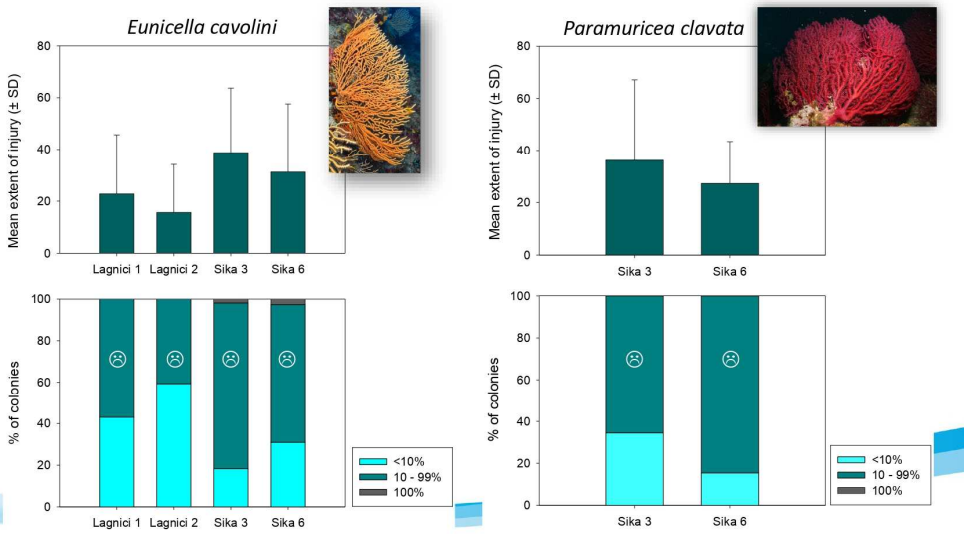


Neophodni podatci za evaluaciju potencijalnog gubitka biomase kroz vrijeme!

Gorgonije – zapažena oštećenja



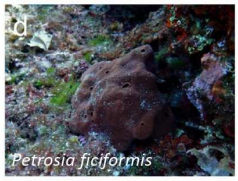
Primjer rezultata –stupanj oštećenja gorgonija



Gorgonije – zabrinjavajući scenarij diljem Sredozemnog mora!

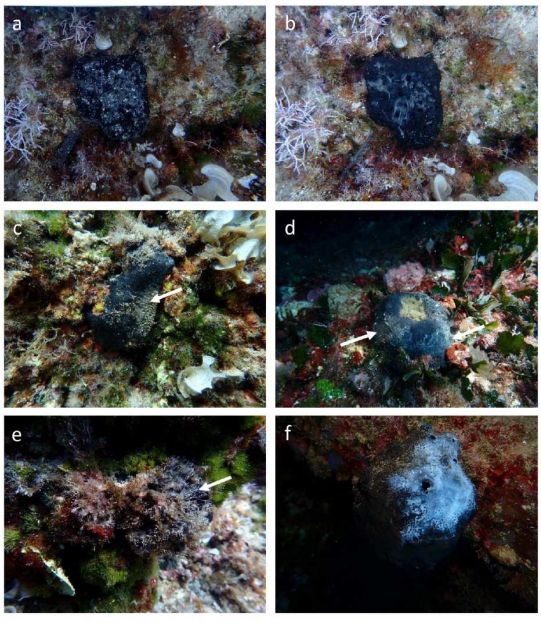
Protokol za utvrđivanje pojave masovnih pomora sesilnih beskralješnjaka

"brži" protokol
Idealno provoditi krajem ljeta

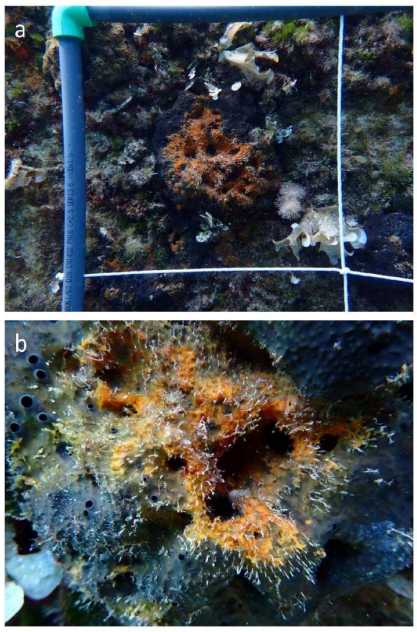


Izabrane vrste/kategorije:
- ✓ Lako prepoznatljive
- ✓ Prisutne u značajnom broju (> 50, idealno bar 100) na odabranoj dubini
- ✓ Prethodno utvrđene kao osjetljive

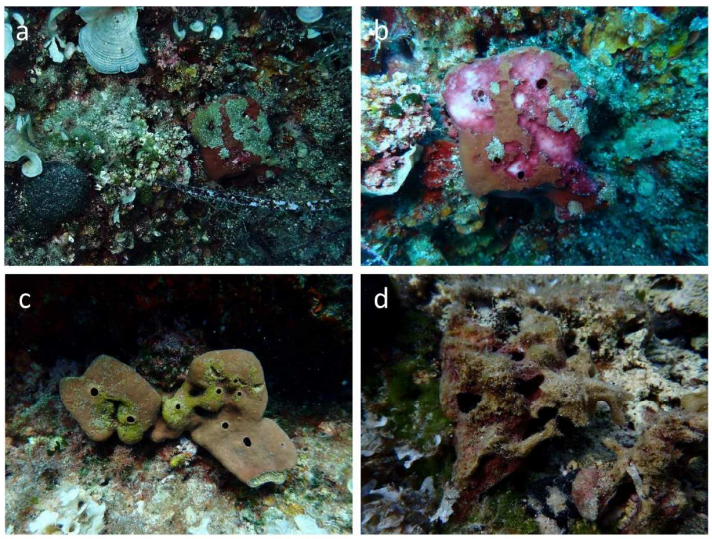
Crne keratozne spužve – zapažena oštećenja



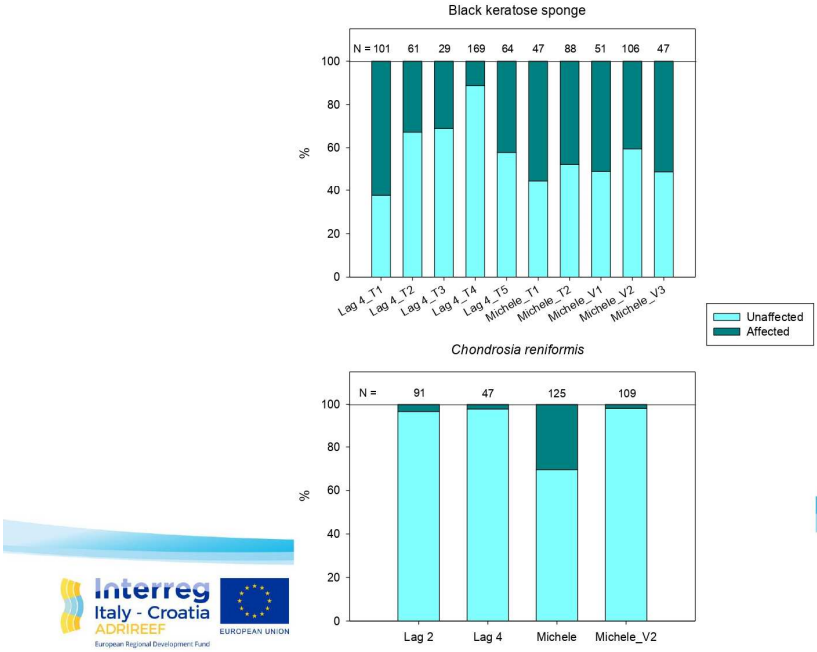
Crne keratozne spužve – zapažena oštećenja



Petrosia ficiformis – zapažena oštećenja



Primjer rezultata – udio oštećenih/bolesnih spužvi



SeaFan – obrt za znanstvene i stručne usluge
dr. sc. Silvija Kipson

silvija.kipson@gmail.com

091/5493893

Zahvaljujem na pažnji!

Najsrdačnije zahvaljujem zaposlenicama SUNCA i pridruženim članovima na uspješnoj i ugodnoj suradnji! ☺

Procjena utjecaja odbačenih/izgubljenih ribolovnih alata

Udruga Sunce Split| Program zaštite prirode | mag. ing. agr. Fedra Dokoza

Webinar| On – line Zoom App| 19. travnja 2021.

European Regional Development Fund

Tablica procjene utjecaja odbačenog ribolovnog alata

Observer:	Date:	Site:				
Parameter	Assessment	1	2	3	4	5
Fishing gear type						
1. ENVIRONMENTAL IMPACT (EI)						
Colonization	Stage 0					
	Stage 1					
	Stage 2					
	Stage 3					
Trapped mobile fauna	0					
	1 to 5 ind					
	> 5 ind					
Removed fixed species	0					
	1 to 10 ind					
	> 10 ind					
Damaged fixed species	0					
	1 to 10 ind					
	> 10 ind					
Presence of outstanding species	Yes					
	No					
Obstructed cavities	0					
	1 to 10 cavities					
	> 10 cavities					
Abrasion of the substrate	No					
	Yes					
Habitat creation	Yes					
	No					

Parameter	Assessment	1	2	3	4	5
2. SEASCAPE IMPACT (SI)						
Distance of visibility	< 1 m					
	1 m - 5 m					
	> 5 m					
Extent of impact	< 5 m²					
	5 m² - 20 m²					
	> 20 m²					
Seascape alteration	No					
	Yes					
Qualifying adjective	Neutral					
	Negative					
	Positive					
Relief	No alteration					
	Diminution					
	Enhancement					
3. TECHNICAL RISK (TR)						
Depth	≤ 20 m					
	20 to 50 m					
	> 50 m					
Attachment to the bottom	Relatively easy					
	Difficult					

2

Kriteriji za procjenu utjecaja odbačenog ribolovnog alata (LFG):

- na okoliš (EI)
- na morski ekosustav (SI),
- tehnički rizik prilikom uklanjanja alata (TR)

Izvor: Udruga Sunce Split

3

Parametri za procjenu utjecaja na okoliš (EI):

- Kolonizacija ribolovnog alata (faza 0-3)
- Zarobljena pokretna fauna (0, 1-5, > 5 jedinki)
- Uklonjene fiksne vrste (0, 1-10, > 10 jedinki)
- Oštećene fiksne vrste (0, 1-10, > 10 jedinki)
- Prisutnost značajnih vrsta (da/ne)
- Zatvorene špilje (0, 1-10, > 10 jedinki)
- Abrazija podloge (da/ne)
- Stvaranje staništa (da/ne)

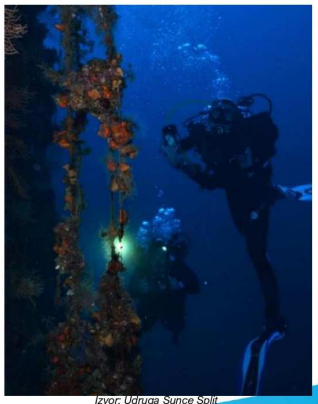
Izvor: Udruga Sunce Split

Što je kolonizacija na alatu razvijenija, uklanjanje se smatra neprikladnije

4

Parametri za procjenu utjecaja na izgled morskog ekosustava (SI)

- Udaljenost s koje je alat vidljiv (< 1 m, 1 m - 5 m, > 5 m)
- Opseg utjecaja alata (< 5 m², 5 m² - 20 m², > 20 m²)
- Dovodi li do promjene izgleda staništa (da/ne)
- Promjene morskog ekosustava pod utjecajem alata (Neutralna, Negativna, Pozitivna)
- Mijenja li reljef stvoren zbog prisutnosti alata izgled prirodnog reljefa područja (Bez izmjena, Pogoršava, Poboljšava)



Izvor: Udruga Sunce Split

5

Parametri za procjenu tehničkog rizika (TR) prilikom uklanjanja alata:

- Dubina na kojoj se odbačeni ribolovni alat nalazi (≤ 20 m, 20 to 50 m, > 50 m)
- Pričvršćenost odbačenog ribolovnog alata za dno (Relativno jednostavno, Teško)

Izvor: Udruga Sunce Split

Indeks pomoći za uklanjanje ribolovnog alata (RAI).

$$RAI = \frac{EI + SI}{TR}$$

20 <RAI ≤ 30: Toplo se preporučuje uklanjanje LFG-a, prioritet 3;

10 <RAI ≤20: preporučuje se uklanjanje LFG-a, prioritet 2;

0 <RAI ≤ 10: uklanjanje LFG-a nije prioritet, prioritet 1;

-10 <RAI <0: Ne preporučuje se uklanjanje LFG-a, prioritet 0.

Lokacije Lagnjići i Sika 3

Nizak prioritet za uklanjanje

- ostaci mrežne užadi / mrežno uže
- nije prekrivena velika površina,
- nisu zatvorene šupljine
- nisu zarobljeni ili oštećeni organizmi,

Izvor: Udruga Sunce Split

- napredni stadij kolonizacije, jako zarasli u sjedeće organizme, pridonosi stvaranju staništa
- utjecaj na morski ekosustav / nema značajnog utjecaja na morski ekosustav

ADRIREEF PROJEKT

Organizacija: Udruga Sunce Split
Kontakt: Fedra Dokoza

fedra.dokoza@sunce-st.org
https://www.italy-croatia.eu/web/adrireef

UNIVERSITY OF RIJEKA, FACULTY OF MARITIME STUDIES, OPEN DAYS – INTERNATIONAL DAY OF THE SEAFARERS

The Faculty of Maritime studies of the University of Rijeka celebrated the Day of the Seafarer on the 25th of June 2021. As a part of the event, numerous EU projects implemented at the Faculty were presented in that occasion, including ADRIREEF (Innovative exploitation of Adriatic Reefs in order to strengthen Blue economy). Project manager Assoc. prof. dr. sc. Vlado Frančić and project researcher Ana Malovrh, mag. ing. logist., presented to the general public the main goals of the project and its activities as well. Students and visitors could also watch video materials of underwater reefs from the selected case studies on the Croatian side of the Adriatic Sea and learn more about the development and current achievements of the project.

This was the event agenda:

Svjetski Dan pomoraca – 25. lipnja

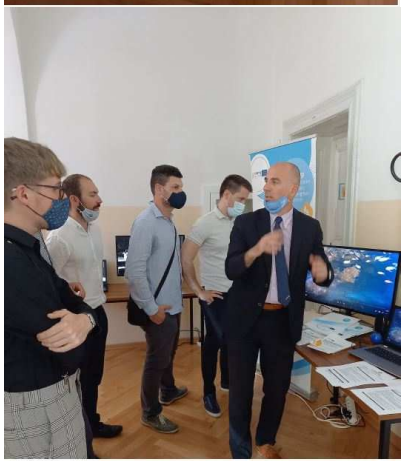
Sveučilište u Rijeci, Pomorski fakultet
University of Rijeka, Faculty of Maritime Studies

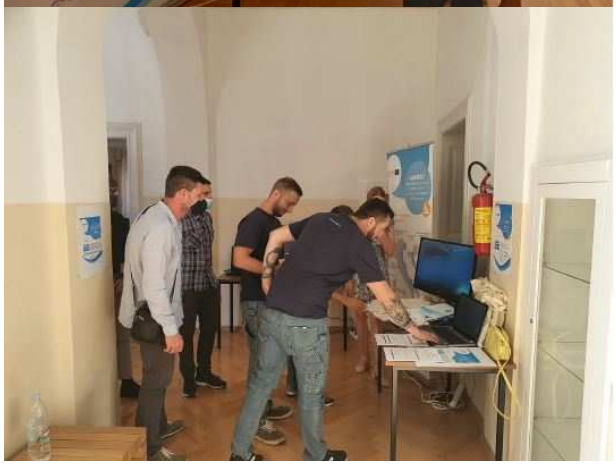
PROGRAM		
10:00 – 10:30	*„Fair future for seafarers"* – **Studentsko viđenje vlastite pomoračke budućnosti** – sudjeluju studenti Fakulteta, vodi kap. Berislav Vranić *IMO Goodwill Maritime Ambassador*	Velika vijećnica 314 - 1. kat
10:30 – 10:45	**Prezentacija godišnje skupštine udruge CESMA** (Confederation of European Union Shipmasters Associations) – kap. Juraj Karničić	Velika vijećnica 314 - 1. kat
10:00 – 13:00	• **Prikaz opreme Fakulteta** (simulatori, laboratoriji, učionice...) • **Prezentacija EU projekata Fakulteta** • **Prezentacija poslijediplomskog studija**	Zgrada Fakulteta - hodnik ispred Velike vijećnice - 314
12:00	**Zvonjenje fakultetskim zvonom** – na inicijativu IMO-a, u podne po lokalnom vremenu, brodovi će u cijelom svijetu svirati brodskim sirenama te skrenuti pozornost na važnost pomoraca za svjetsko gospodarstvo, podsjetiti zakonodavce i širu javnost na važnost međunarodnog pomorskog prometa za globalno gospodarstvo i dobrobit - Predsjednik studentskog zbora Pomorskog fakultet, Alen Mataić	Hol u prizemlju Fakulteta

IMO DAY OF THE SEAFARER 25 JUNE

70 godina Znanjem plovimo svijetom

And these are some photos of the event:





INAUGURATION OF THE "MUSEUM OF THE SEA" IN PORTO RECANATI

On the 27th of June 2021, CNR-IRBIM presented the ADRIREEF project and, in particular, the case study on the artificial reef "Porto Recanati - Porto Potenza Picena" during the inauguration of the "Museum of the Sea" in Porto Recanati (Marche Region, Italy). The meeting was attended by fifty participants as representatives of public authorities (local and regional), of the UNESCO and of the Sea Museum of Genova "Galata" (Mu.ma). Local stakeholders and the testimonial Sergio Muniz (actor) involved in a show dedicated to the protection of the sea were there too.

Here are some photos of the inauguration:

These are some of the news articles dedicated to the event:

CULTURA EVENTI PORTO RECANATI

Porto Recanati: inaugurazione del Museo del Mare

radio_erre 27 Giugno 2021

Museo del Mare a Porto Recanati

S'inaugura oggi pomeriggio **a Porto Recanati il nuovo Museo del Mare** che aprirà le sue porte ai visitatori da giovedì prossimo. Si parte con la conferenza nella ex sala dell'asta del pesce, a cui potranno partecipare solo gli invitati per il rispetto delle regole anti-Covid19: saranno presenti il direttore del MuMa, Pierangelo Campodonico, Francesca Santoro dell'Unesco, Alessandra Spagnolo del Cnr e l'attore Sergio Muniz che questa sera si esibirà all'arena Gigli per il debutto nazionale del suo lavoro "L'onda che verrà". Si prosegue poi con il taglio del nastro e la visita inaugurale.

"Siamo felici di aver raggiunto l'obiettivo che ci eravamo prefissati almeno un paio d'anni orsono e orgogliosi di riservare questa giornata di apertura in anteprima a tutti cittadini di Porto Recanati proprio perché il Museo è di tutta la città, **dice l'assessore alla Cultura e al Turismo, Angelica Sabbatini.** *Il cambiamento che è stato apportato è radicale. È rimasta fedele la storia, ma abbiamo condiviso il progetto scientifico del MuMa di Genova, grazie alla collaborazione del direttore Pierangelo Campodonico, che era stato presentato alla cittadinanza. Cambia nella forma, ma non nella sostanza. Nelle esposizioni precedenti precisa – la storia veniva raccontata attraverso i reperti e, per questo, c'era sempre la necessità di una spiegazione che doveva accompagnare il visitatore. In questo Museo rinnovato, invece, ci siamo affidati all'era moderna, con foto, scritti e proiezioni, dunque la presenza dei reperti è meramente dimostrativa. Con questi lavori aggiunge abbiamo dato il via alla nuova concezione che si ha di un museo. I tempi impongono un nuovo modo di raccontare: siamo partiti da un museo che si adattava all'epoca in cui era stato fatto, mentre ora si è evoluto rispetto ai tempi di oggi".*

L'apertura al pubblico e ai visitatori sarà dal primo luglio, dal martedì alla domenica, per tutto l'anno, sia il mattino che il pomeriggio e anche con speciali aperture serali nel periodo di maggior flusso turistico. Da settembre si concorderanno anche aperture specifiche per le scolaresche. A seguire la struttura saranno i giovani del servizio civile, appositamente preparati.

cronachemaceratesi.it
la tua provincia in rete

Giovedì 23 Settembre 2021 – 12:03

HOME TUTTE LE NOTIZIE SPORT POLITICA EVENTI ECONOMIA TERREMOTO 2016 TV CM11

I 55 COMUNI MACERATA CIVITANOVA RECANATI P.RECANATI TOLENTINO POTENZA P. S. SEVERINO CORRIDONIA TREIA CAMERINO MATELICA CINGOLI

Museo del mare a Porto Recanati, Sergio Muniz taglia il nastro: «E' il coronamento di un sogno»

INAUGURATA la casa della civiltà marinara, l'assessore alla cultura Angelica Sabbatini: «In tanti hanno contributo alla realizzazione, affonda le radici nel passato e nelle associazioni che si sono prodigate nel mantenere viva la pesca cittadina»

27 Giugno 2021 - Ore 19:58 - 1.892 letture 1 commento

L'inaugurazione del Museo del mare e della civiltà marinara, Sergio Muniz taglia il nastro

Inaugurato a Porto Recanati il Museo del mare e della Civiltà marinara. L'evento si è tenuto oggi pomeriggio: prima, alle 17,30, un momento conferenziale e poi, alle 18,30, l'apertura alla cittadinanza. Il Museo si trova in via 29 marzo 1935 e questa riapertura è avvenuta dopo i numerosi interventi fatti sia in ambito immobiliare che in ambito scientifico. Il sindaco Roberto Mozzicafreddo ha dato gli onori di casa con il suo intervento, poi, dopo di lui, è stata la volta di Sergio Muniz e della consigliera regionale Elena Leonardi. Tra gli applausi della platea il momento conferenziale è andato avanti con le parole del direttore del Muma di Genova Pierangelo Campodonico, della dottoressa Francesca Santoro in rappresentanza di Unesco e del vice sindaco di Porto Recanati Rosalba Ubaldi. L'ultimo tris di interventi è toccato a Isabella Tomassucci (in rappresentanza dell'azienda Feel Blu), alla dottoressa Alessandra Spagnolo del Cnr e infine all'assessore alla Cultura di Porto Recanati Angelica Sabbatini.

Angelica Sabbatini

«Oggi è il coronamento di un sogno sia dell'amministrazione che di tutta la città – dice l'assessore Sabbatini -. In tanti hanno contributo alla realizzazione di questo museo, che affonda le radici nel passato e nelle associazioni che si sono prodigate nel mantenere viva la pesca portorecanatese e parlo dell'associazione Pro Museo del Mare, del comitato pescatori e tutte le famiglie portorecanatesi che hanno donato i loro reparti. Il museo parte da quella storia e guarda al futuro. Il museo che abbiamo oggi è con un linguaggio moderno che è pronto ad accogliere le scolaresche pur mantenendo le radici delle tradizioni e della storia – conclude l'assessore Sabbatini -. I miei ringraziamenti vanno anche ai ragazzi dell'ente Palio. Ho sentito vicino a me delle persone che avevano colto lo spirito di questa avventura e il contributo culturale che ha dato alla città. Grazie ovviamente ai partner economici come la regione Marche, Astea Energia, il Ministero e Flag Marche Sud».

OPEN DAY OF THE LABORATORY FOR PRECIPITATION PROCESSES

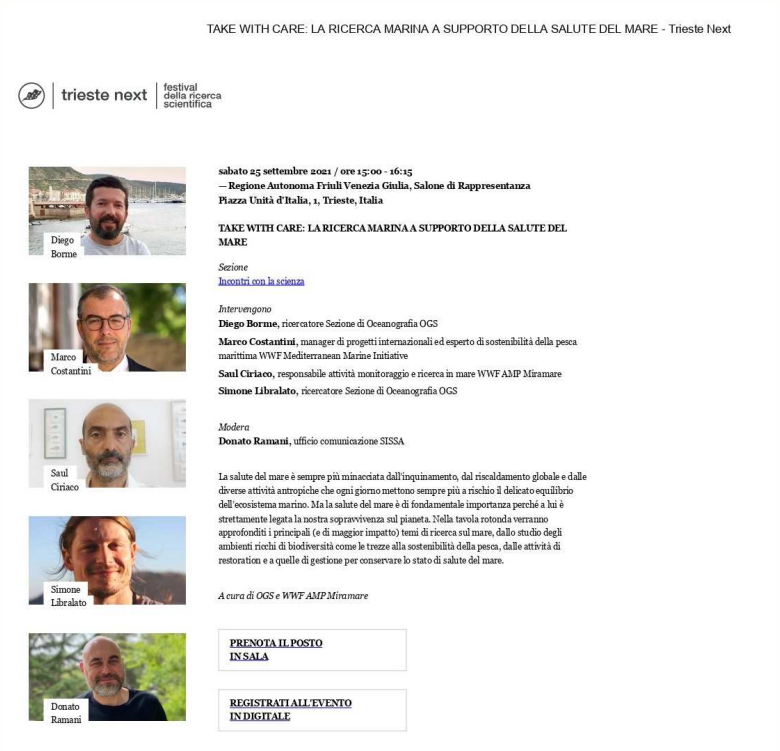
On the 24th of November 2021, the Institut Ruđer Bošković, organized in its premises in Zagreb the open day of the "Laboratory for Precipitation Processes" for the presentation of its activities and projects. A special section of the program was dedicated to the presentation of the Adrireef project and the activities that the institute performed for it. Twelve participants, scholars and professionals attended the seminar from R&D centres, higher education institutions and universities.

Here are some photos taken during the presentations:

TAKE WITH CARE: LA RICERCA MARINA A SUPPORTO DELLA SALUTE DEL MARE - SCIENCE FESTIVAL TRIESTE NEXT

On the 25th of September 2021, the National Institute of Oceanography and Experimental Geophysics – OGS organized the public event "TAKE WITH CARE: LA RICERCA MARINA A SUPPORTO DELLA SALUTE DEL MARE" within the framework of the Science Festival Trieste Next. During the meeting, Diego Borme presented the Adrireef project and other representatives from other Interreg projects were involved in the discussion and sharing of data, results, hints and strategies. Fifty-two participants attended the meeting.

This was the meeting agenda:



TAKE WITH CARE: LA RICERCA MARINA A SUPPORTO DELLA SALUTE DEL MARE - Trieste Next

trieste next | festival della ricerca scientifica

Diego Borme

Marco Costantini

Saul Ciriaco

Simone Libralato

Donato Ramani

sabato 25 settembre 2021 / ore 15:00 - 16:15
– Regione Autonoma Friuli Venezia Giulia, Salone di Rappresentanza
Piazza Unità d'Italia, 1, Trieste, Italia

TAKE WITH CARE: LA RICERCA MARINA A SUPPORTO DELLA SALUTE DEL MARE

Sezione
Incontri con la scienza

Intervengono
Diego Borme, ricercatore Sezione di Oceanografia OGS
Marco Costantini, manager di progetti internazionali ed esperto di sostenibilità della pesca marittima WWF Mediterranean Marine Initiative
Saul Ciriaco, responsabile attività monitoraggio e ricerca in mare WWF AMP Miramare
Simone Libralato, ricercatore Sezione di Oceanografia OGS

Modera
Donato Ramani, ufficio comunicazione SISSA

La salute del mare è sempre più minacciata dall'inquinamento, dal riscaldamento globale e dalle diverse attività antropiche che ogni giorno mettono sempre più a rischio il delicato equilibrio dell'ecosistema marino. Ma la salute del mare è di fondamentale importanza perché a lui è strettamente legata la nostra sopravvivenza sul pianeta. Nella tavola rotonda verranno approfonditi i principali (e di maggior impatto) temi di ricerca sul mare, dallo studio degli ambienti ricchi di biodiversità come le trezze alla sostenibilità della pesca, dalle attività di restoration e a quelle di gestione per conservare lo stato di salute del mare.

A cura di OGS e WWF AMP Miramare

PRENOTA IL POSTO IN SALA

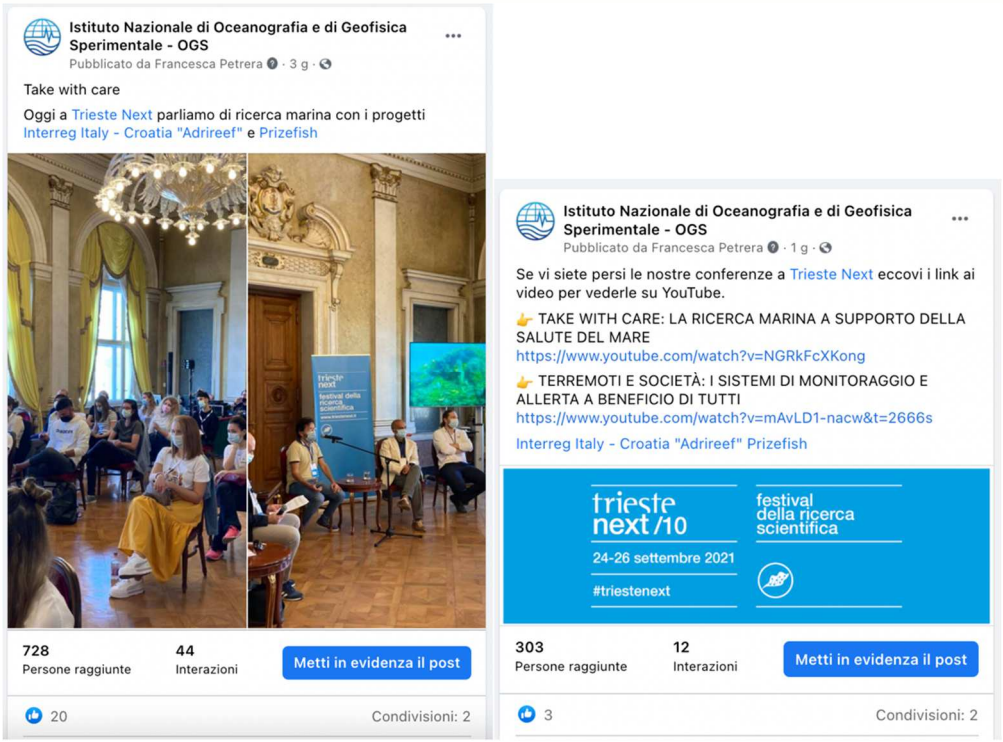
REGISTRATI ALL'EVENTO IN DIGITALE

Here are some photos taken during the event:

This is the link to see the whole meeting session:

https://www.youtube.com/watch?v=NGRkFcXKong

Finally, this is the screenshot of the OGS Facebook page with the news on the event:



ESTABLISHMENT OF A NO - TAKE ZONE AT SEA

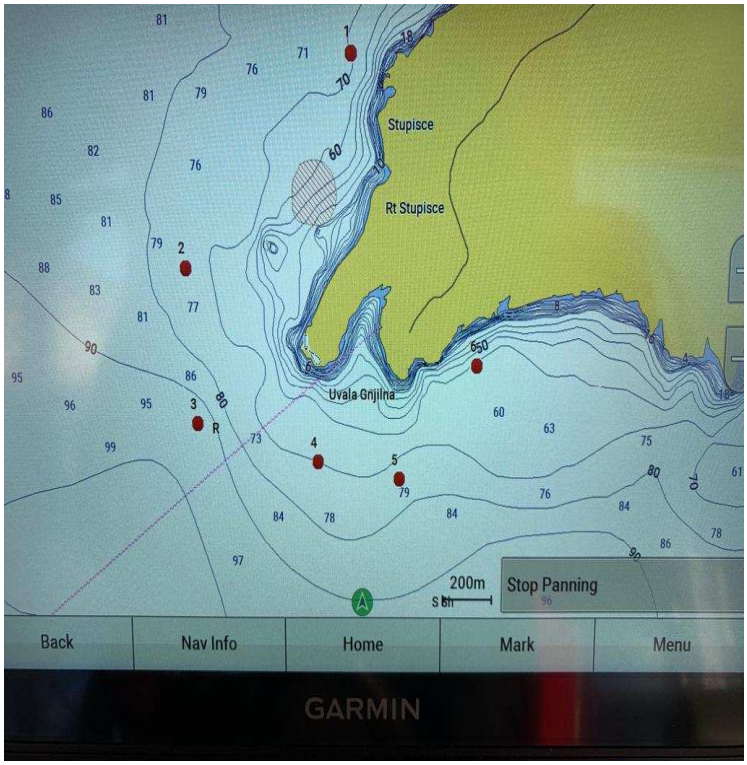
On November 10, 2021, Public Institution RERA SD for Coordination and Development of Dalmatia County organized a local dissemination workshop in Komiža (island of Vis, Croatia). The event was created with the aim of promoting the sustainable use of marine resources and the protection of the Adriatic reefs. During the meeting, the speakers presented the results of the ADRIREEF project and, as a final activity of the project, the protection of the marine site of Stupišće with the beginning of the procedure for the declaration of a "No-take" zone and use of the site for tourist purposes only (with special emphasis on tourist diving activities). The "No-take" zone *"Marine protected area in the category Special Marine Reserve – Stupišće"* contributes to meeting the objectives of the Biodiversity Strategy 2030 in terms of declaring 10% strict protection at sea. In fact, one of the priorities of the EU Biodiversity Strategy until 2030 (link: https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en) is to "Strictly protect at least one third of the EU protected areas (10%), including all remaining rainforests and old forests". At sea level and on the coast of Split-Dalmatia County, the only stricter protection area is a special ichthyologic and ornithological reserve called Pantan. Therefore, there is a

huge potential for declaring strict protection on the coast and at sea in the Split-Dalmatia County. One of these sites is Cape Stupišće, for which preliminary research was conducted within the ADRIREEF project indicating significant biological diversity of reefs currently included in the Natura 2000 ecological network. However, this type of protection is not sufficient to preserve areas under pressure from fisheries, especially the illegal ones. The only way to preserve is to declare a protection stack that would be managed by the Public Institution More i krš, a regional institution that has the authority to act in nature protection and control of the transgressors. During this Local event, Pi More i krš expressed its interest in declaring the strict protection of the area in the category of special reserve in the sea. The City of Komiža, where Stupišće is located, agreed. One of the preconditions for the proclamation prescribed by the Nature Protection Act in force is the preparation of a Baseline study. The expert background contains a detailed description of the characteristics and values of the protected area, assessment of the condition of the area, the consequences of the proclamation act, especially with regard to property rights and existing economic activities, and assessment and sources of funds needed to implement the act. (Article 124 of the Nature Protection Act, OG 15/18). In the end, PI More i krš estimated that the process of making the base can take from a year to two.

This was the meeting agenda:

Here are some photos:


PLEMENITA PERISKA / NOBLE PEN SHELL
Jeste li ih vidjeli?
Have you seen it?
ADRIREEF


Stupisce
Rt Stupisce
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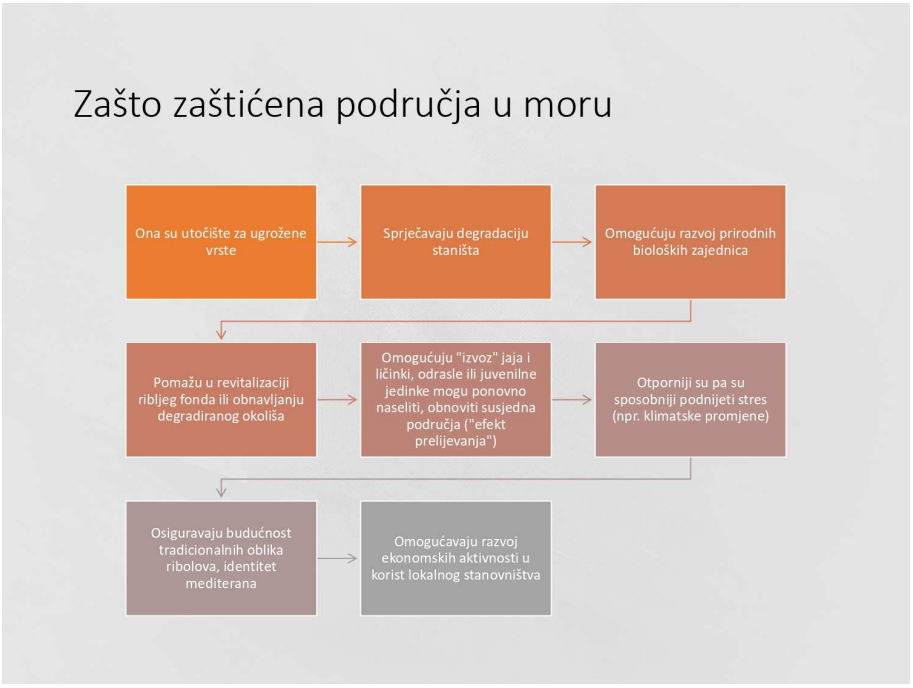
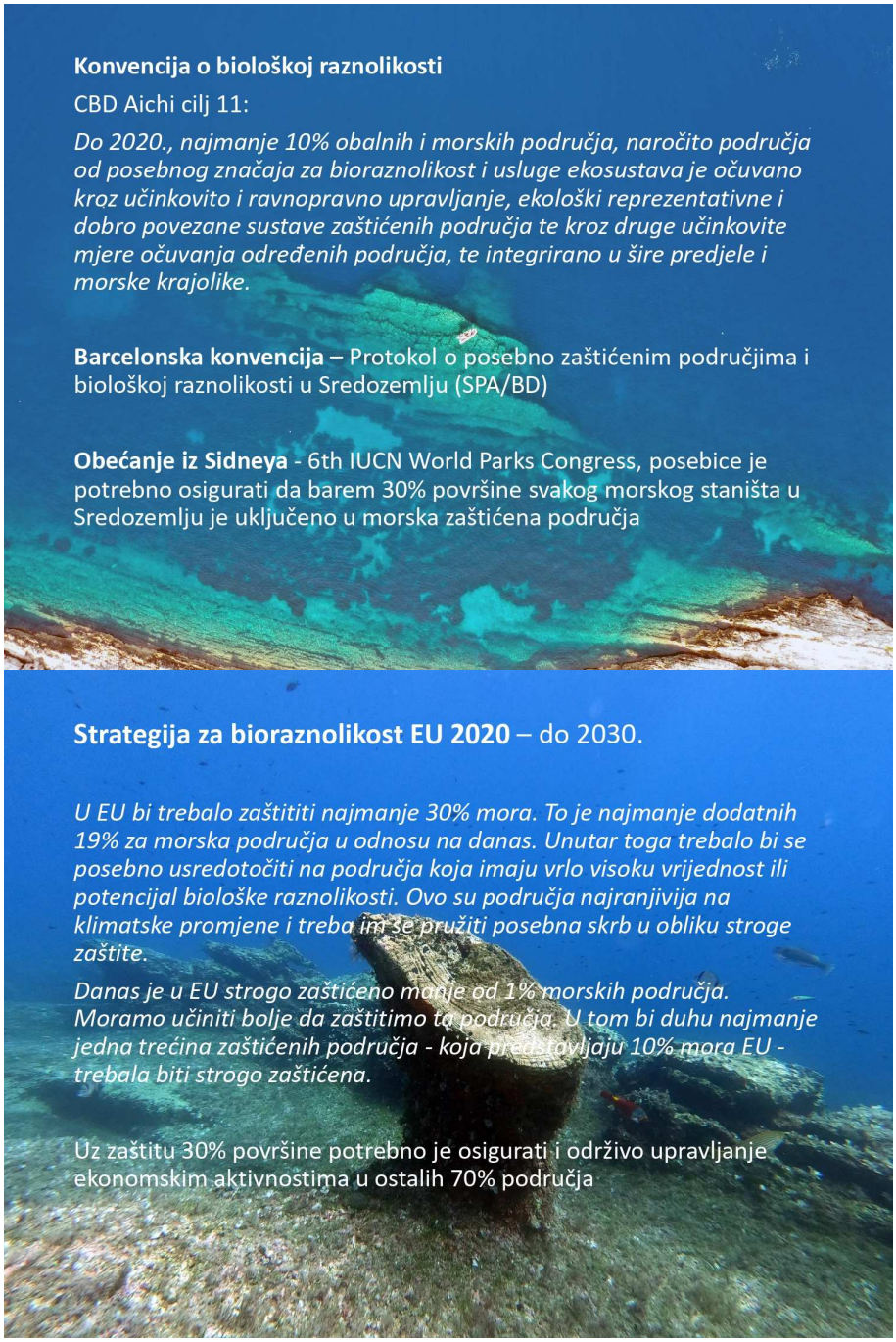
Menu
GARMIN

This was the main presentation:

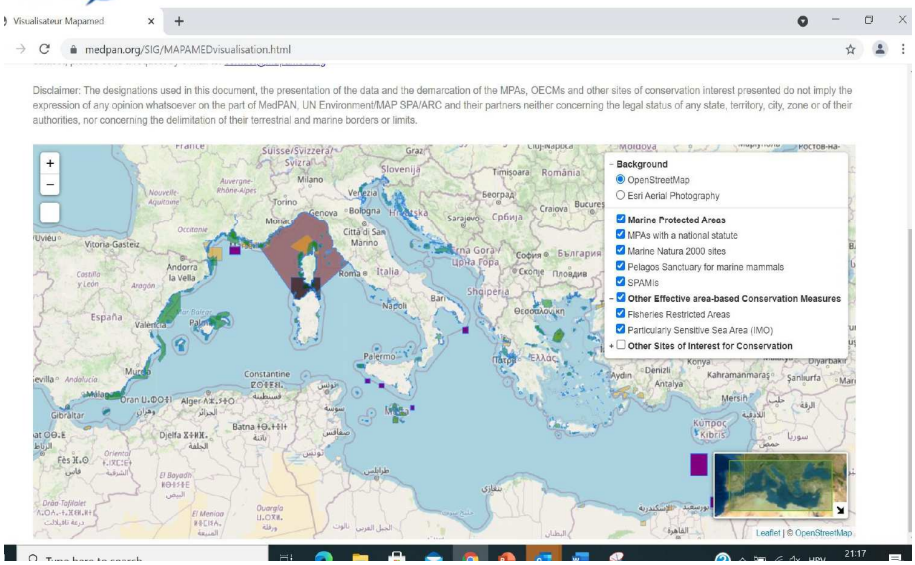


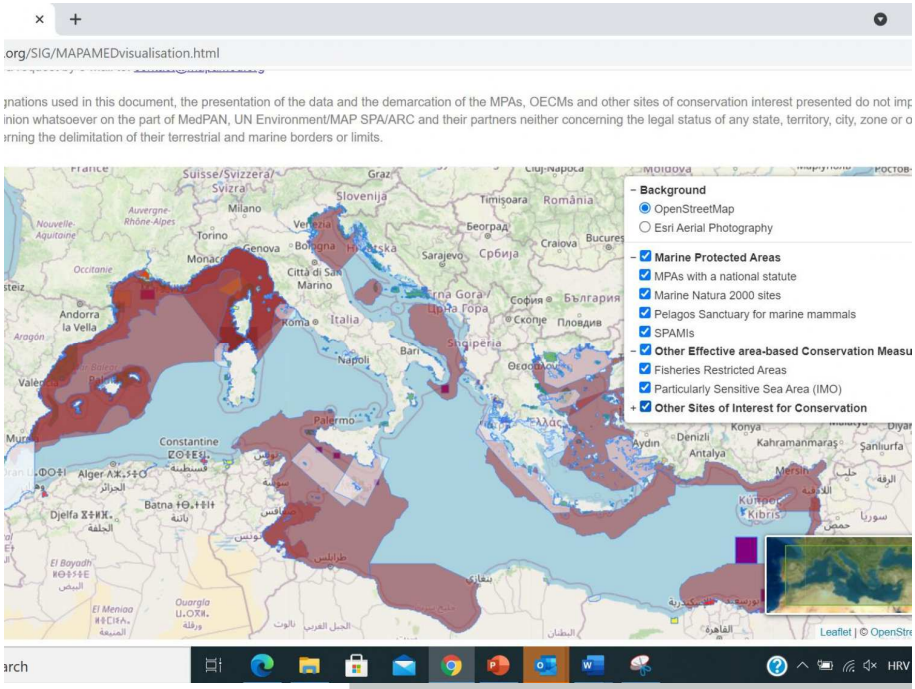

Konvencija o biološkoj raznolikosti
CBD Aichi cilj 11:
Do 2020., najmanje 10% obalnih i morskih područja, naročito područja od posebnog značaja za bioraznolikost i usluge ekosustava je očuvano kroz učinkovito i ravnopravno upravljanje, ekološki reprezentativne i dobro povezane sustave zaštićenih područja te kroz druge učinkovite mjere očuvanja određenih područja, te integrirano u šire predjele i morske krajolike.
Barcelonska konvencija – Protokol o posebno zaštićenim područjima i biološkoj raznolikosti u Sredozemlju (SPA/BD)
Obećanje iz Sidneya - 6th IUCN World Parks Congress, posebice je potrebno osigurati da barem 30% površine svakog morskog staništa u Sredozemlju je uključeno u morska zaštićena područja
Strategija za bioraznolikost EU 2020 – do 2030.
U EU bi trebalo zaštititi najmanje 30% mora. To je najmanje dodatnih 19% za morska područja u odnosu na danas. Unutar toga trebalo bi se posebno usredotočiti na područja koja imaju vrlo visoku vrijednost ili potencijal biološke raznolikosti. Ovo su područja najranjivija na klimatske promjene i treba im se pružiti posebna skrb u obliku stroge zaštite.
Danas je u EU strogo zaštićeno manje od 1% morskih područja. Moramo učiniti bolje da zaštitimo ta područja. U tom bi duhu najmanje jedna trećina zaštićenih područja - koja predstavljaju 10% mora EU - trebala biti strogo zaštićena.
Uz zaštitu 30% površine potrebno je osigurati i održivo upravljanje ekonomskim aktivnostima u ostalih 70% područja

Sredozemlje (2016.)

- Ukupno 6,81 % morske površine pod nekom kategorijom zaštite (1 215). Područje 0-50 m dubine 16,73%.
- Nacionalne kategorije - 1,27 %, većina manja od 50 km2
- No-go, no-take, no-fishing – 0,04 % (76, većinom manje od 5 km2)
- Natura 2000 – 2,5 % (nema no-take)
- 100 područja na listi čekanja za proglašenje
- Direktive EU - Natura 2000 (SPAs, SCI, SACs), Barcelonska konvencija - SPAMI, GFCM – FRA, UNESCO – Man and Biosphere Reserves, World Heritage Sites.....
- 46 različitih naziva pravnih kategorija + 4 znanstvene (područja važna za očuvanje)

MAPAMED



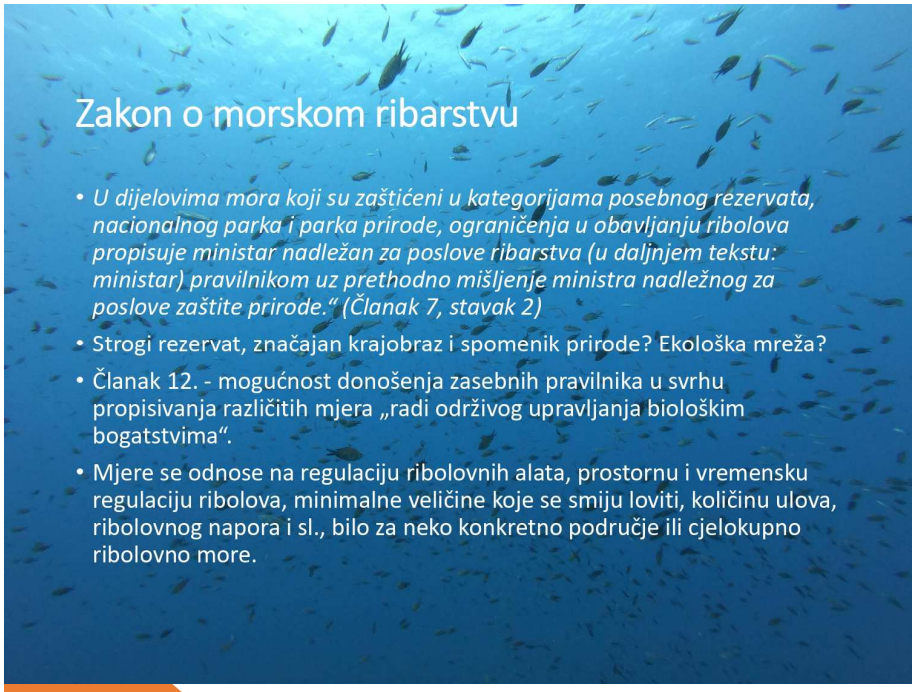


Zaštićena područja u RH

- 1,94% površine
- Gospodarsko korištenje prirodnih dobara, pa time i ribolov, je dozvoljeno u svim zaštićenim područjima osim u nacionalnim parkovima i strogim rezervatima.
- Strogi rezervat u moru – 0%
- Zone stroge zaštite (no-take) - ?% nacionalni parkovi, PP Telašćica

KATEGORIJA	PODRUČJA	MORE (km2)
Nacionalni park	Brijuni, Kornati, MIjet	216,51
Park prirode	Telašćica, Lastovsko otočje	187,77
Posebni rezervat	Datule Barbariga paleontološki, Malostonski zaljev morski, Limski zaljev morski, Delta Neretve - jugoistočni dio ihtiološko-ornitološki, Prvić i Grgurov kanal botaničko-zoološki, Pantan ihtiološko-ornitološki	114,94
Spomenik prirode	Medvidina špilja geomorfološki, Špilja na otoku Ravnik geomorfološki	0,00
Značajni krajobraz	Kanal - Luka u Šibeniku, Sitsko-žutska otočna skupina, Zavratnica	85,05
UKUPNO	17	604,30


Proglašavanje zaštićenih područja
• Nacionalni park i park prirode proglašava Sabor zakonom
• Stroge i posebne rezervate Vlada proglašava uredbom
• Regionalni park i značajni krajobraz proglašava predstavničko tijelo nadležne jedinice područne (regionalne) samouprave - uz prethodnu suglasnost Ministartsva i tijela državne uprave nadležnog za poslove poljoprivrede, ribarstva, šumarstva, vodnog gospodarstva, pomorstva i gospodarstva
• Prijedlog akta o proglašavanju zaštićenog područja temelji se na:
– izjavi tijela koje donosi akt o proglašenju o osiguranim sredstvima za provođenje postupka proglašenja i upravljanje zaštićenim područjem,
– stručnoj podlozi kojom se utvrđuju vrijednosti i obilježja područja koje se predlaže zaštititi i način upravljanja tim područjem, (izrađuje Ministarstvo)
– geodetskoj podlozi za zaštićena područja kojom se prostorno određuje područje koje se predlaže zaštititi i upis posebnog pravnog režima – zaštićeno područje u katastar i zemljišnu knjigu.
Ekološka mreža (Natura 2000)
NATURA 2000
• 16,26% površine
• područja očuvanja značajna za ptice te ciljnih vrsta i staništa s Direktive o pticama i Direktive o staništima
• Uredba o ekološkoj mreži i nadležnostima javnih ustanova za upravljanje područjima ekološke mreže (NN 80/19)
• Pravilnik o ciljevima očuvanja i mjerama očuvanja ciljnih vrsta ptica u područjima ekološke mreže (NN 25/20, 38/20) (POP)
• Biogeografski seminar - vjerojatna područja očuvanja značajnih za vrste i stanišne tipove (vPOVS) države članice
• Dezignacija (ciljevi, mjere, zonacija) – pravilnik za Područja očuvanja značajnih za vrste i stanišne tipove (POVS).
• Morske ptice, livade posidonije, grebeni otvorenog mora – nedovoljno zastupljeni, potrebna dodatna područja
• Dodavanje/oduzimanje ciljnih vrsta i staništa u postojeća područja
• Mijenjanje granica područja
• Ekološka mreža nije prepoznata kao kategorija zaštite u Zakonu o morskom ribarstvu – buduća regulacija ribolova s utjecajem na ciljne vrste i staništa?



Moguće mjere:

- 1. prostorno i vremensko ograničenje ribolova
- 2. konstrukcijsko-tehničke osobine, označavanje, način upotrebe i namjenu pojedinih vrsta ribolovnih alata i opreme za ribolov (uključujući i rasvjetna tijela u ribolovu okružujućim mrežama plivaricama) te uvjete i načine obavljanja ribolova
- 3. minimalnu referentnu veličinu za očuvanje određenih vrsta riba i drugih morskih organizama
- 4. lovostaj za pojedine vrste riba i drugih morskih organizama
- 5. zabranu svih ili određenih vrsta ili načina ribolova
- 6. zabranu izdavanja ili ograničenje broja povlastica za obavljanje gospodarskog ribolova na moru, povlastica za mali obalni ribolov i ovlaštenja za ribolovni turizam
- 7. dopuštenu količinu ulova u ribolovnom moru Republike Hrvatske u određenoj ribolovnoj zoni, ribolovnoj podzoni ili području, po pojedinom ribolovnom alatu, po pojedinoj povlastici, po pojedinom odobrenju ili po grupi plovila koja zajedno sudjeluju u ribolovu
- 8. dopušteni ribolovni napor u ribolovnom moru Republike Hrvatske u određenoj ribolovnoj zoni, ribolovnoj podzoni ili području te dopušteni ribolovni napor po pojedinoj povlastici
- 9. način raspodjele i upravljanja dopuštenim količinama ulova
- 10. planove oporavka stokova i naselja školjkaša
- 11. posebne mjere potrebne za smanjivanje učinka ribolovnih aktivnosti na morski ekosustav
- 12. zaštićena područja i načine obavljanja ribolova u njima radi zaštite staništa, riba i drugih morskih organizama
- 13. područja s posebnim režimom upravljanja.

Pravilnik o obavljanju ribolova u zaštićenim područjima, posebnim staništima i područjima s posebnom regulacijom ribolova (NN 125/2020)

Prepoznaje i regulira ribolov u kategorijama:

- nacionalnog parka u općenitom obliku ne navodeći konkretne parkove;
- u općenitom obliku za kategoriju posebnog ihtiološkog rezervata (Delta Neretve - jugoistočni dio ihtiološko-ornitološki, Pantan ihtiološko-ornitološki);
- u specifičnom obliku konkretno za parkove prirode Telašćica i Lastovsko otočje;
- u specifičnom obliku za zaštićenih područja posebni rezervatu u moru Limski zaljev te posebni rezervatu u moru Malostonski zaljev i Malo more.

- Načini regulacije uključuju različite mjere, alate, zone i sl.
- Zone bez ribolova utvrđene su samo u PP Telašćica.
- Ribolov u posebnim rezervatima u Datule Barbariga paleontološki te Prvić i Grgurov kanal botaničko-zoološki – ostaje nereguliran.

- Pravilnik uvodi kategorije „posebna staništa“ (Članak 14.) te „područja ribolovnog mora s posebnom regulacijom ribolova“ (Članak 15.).
- **„posebno stanište“**:
- *Posebna staništa su manji dijelovi ribolovnog mora koji obuhvaćaju ušća rijeka, zaljeve, uvale i kanale, u kojima postoje pogodni uvjeti za razvoj riba i drugih morskih organizama i koja su njihova mrijestilišta, hranilišta, rastilišta ili skloništa.*
- Sva područja navedena u važećoj verziji Pravilnika su redom ušća rijeka. Pravilnik regulira dozvoljene alate i njihovu količinu.
- **„područja ribolovnog mora s posebnom regulacijom ribolova“:**
- nije definirano što su već se navode područja uključena u ovu kategoriju: Velebitski kanal, Novigradsko i Karinsko more, Prokljansko jezero, Marinski zaljev, Neretvanski kanal, Akvatorij ušća rijeke Raše, Uvala Šćuza u Medulinskom zaljevu.
- Pravilnik za svako pojedinačno područje specificira dozvoljene alate, vrijeme ribolova za pojedine alate, a za neka područja propisuje i potpunu zabranu svih oblika ribolova (Uvala Šćuza u Medulinskom zaljevu – no-take zona?).

Pravilnik o posebnom režimu upravljanja ribolovom u dijelu akvatorija Jabučke kotline (NN 106/19, 141/20)

- Donesen temeljem Članka 12, stavak 13. koji navodi kategoriju **„područja s posebnim režimom upravljanja“**. Zakon i pravilnik ne daju definiciju ove kategorije zaštite.
- Članak 15. stavak 3 kaže *Za ribolov u područjima s posebnim režimom upravljanja te za vrste koje podliježu ograničenjima ulova ministar odlukom donosi popis plovila koja smiju obavljati ribolov.*
- U jednom dijelu područja Jabučke kotline u potpunosti je zabranjen svaki oblik ribolova, u ostalim dijelovima ribolov je reguliran. (no-take zona)

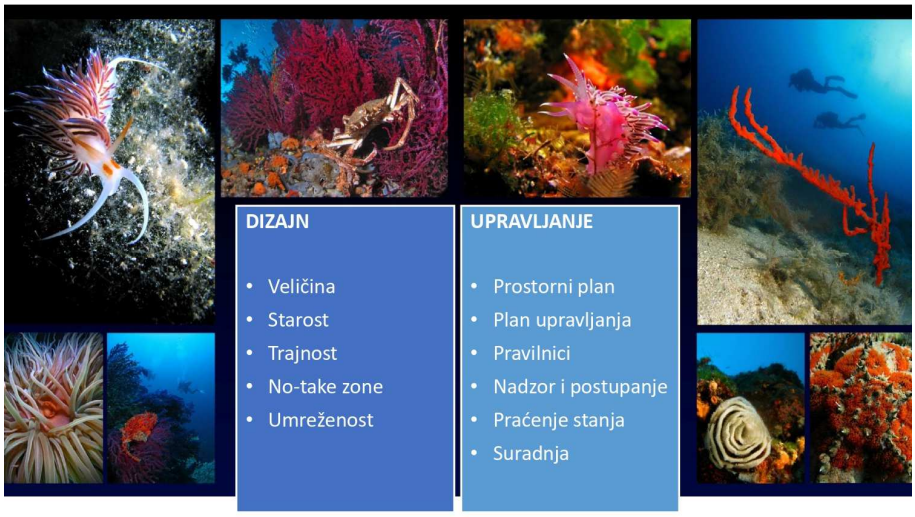
- Sva ova područja nisu uključena u nacionalnu statistiku površine i kategorija pod zaštitom iako se na njima provodi određena zaštita, što se tiče ribolova pravno i jača od kategorija iz Zakona o zaštiti prirode

.

Pravni okvir za uspostavu novih zaštićenih područja u moru

- Strogi rezervat
- Nacionalni park
- Park prirode
- Posebni rezervat
- Ekološka mreža
- Značajni krajobraz?
- Posebno stanište
- Područje ribolovnog mora s posebnom regulacijom ribolova
- Područje s posebnim režimom upravljanja
- Nešto drugo?

TEMELJ ZA UČINKOVITOST



ADRIREEF PROJEKT

Organizacija: Udruga Sunce Split
Kontakt: Matea Špika

matea.spika@sunce-st.org

https://www.italy-croatia.eu/web/adrireef

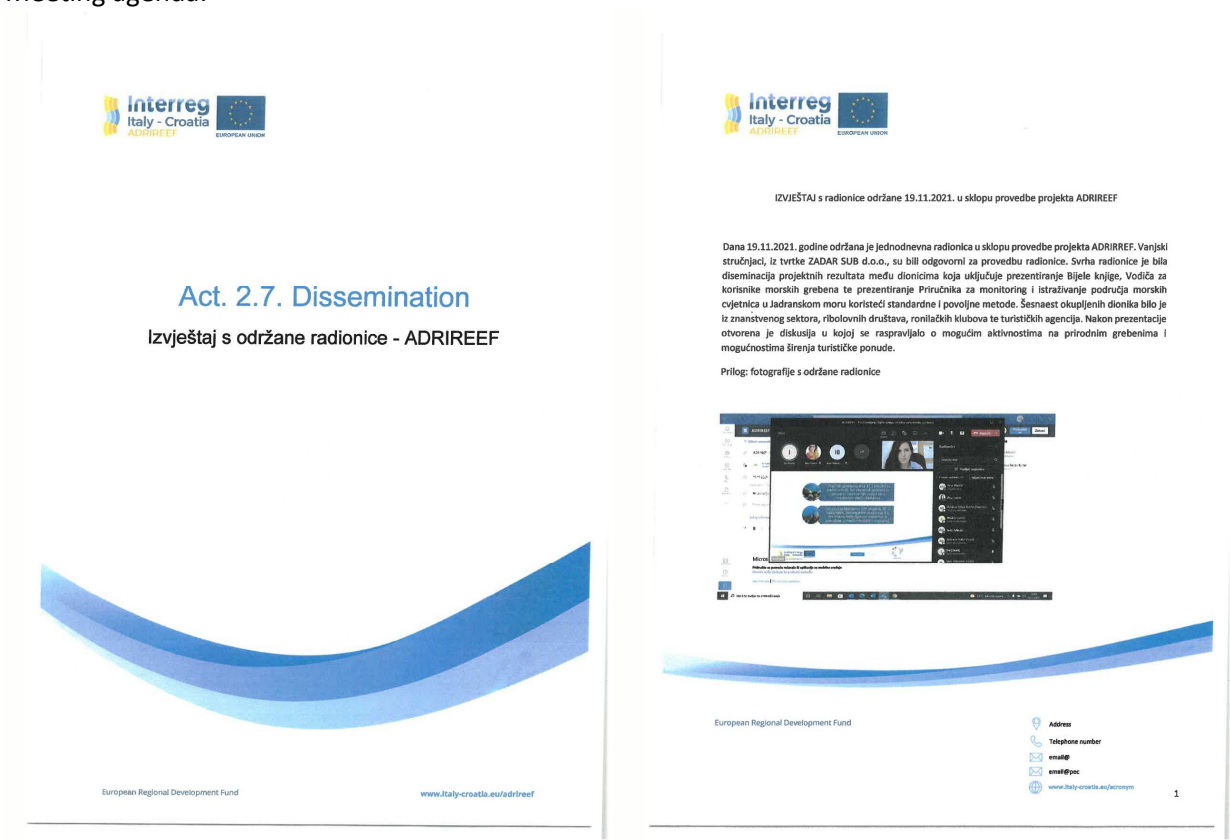
18

PRESENTATION OF THE MANUAL FOR MONITORING AND RESEARCH OF SEAGRASS AREAS IN THE ADRIATIC SEA USING STANDARD AND COST-EFFECTIVE METHODS, WHITE PAPER AND GUIDE FOR REEF USERS

Zadar County Development Agency Zadra Nova held on the 19th of November 2021 a one-day online workshop on the ADRIREEF project and the dissemination of its results. External expert, ZADAR SUB d.o.o., was responsible for the implementation of the workshop. The purpose was to share the project results including the presentation of the "White paper", "Guideline for reef users" and "Manual for monitoring and research of seagrass areas in the Adriatic Sea using standard and favourable methods".

Twenty stakeholders were gathered from the science sector, fishing societies, diving clubs and travel agencies. After the presentation, a discussion was opened in which possible activities on natural reefs and possibilities of expanding the tourist offer were discussed.

Meeting agenda:



Act. 2.7. Dissemination

Izvještaj s održane radionice - ADRIREEF

European Regional Development Fund www.italy-croatia.eu/adrireef

IZVJEŠTAJ s radionice održane 19.11.2021. u sklopu provedbe projekta ADRIREEF

Dana 19.11.2021. godine održana je jednodnevna radionica u sklopu provedbe projekta ADRIRREF. Vanjski stručnjaci, iz tvrtke ZADAR SUB d.o.o., su bili odgovorni za provedbu radionice. Svrha radionice je bila diseminacija projektnih rezultata među dionicima koja uključuje prezentiranje Bijele knjige, Vodiča za korisnike morskih grebena te prezentiranje Priručnika za monitoring i istraživanje područja morskih cvjetnica u Jadranskom moru koristeći standardne i povoljne metode. Šesnaest okupljenih dionika bilo je iz znanstvenog sektora, ribolovnih društava, ronilačkih klubova te turističkih agencija. Nakon prezentacije otvorena je diskusija u kojoj se raspravljalo o mogućim aktivnostima na prirodnim grebenima i mogućnostima širenja turističke ponude.

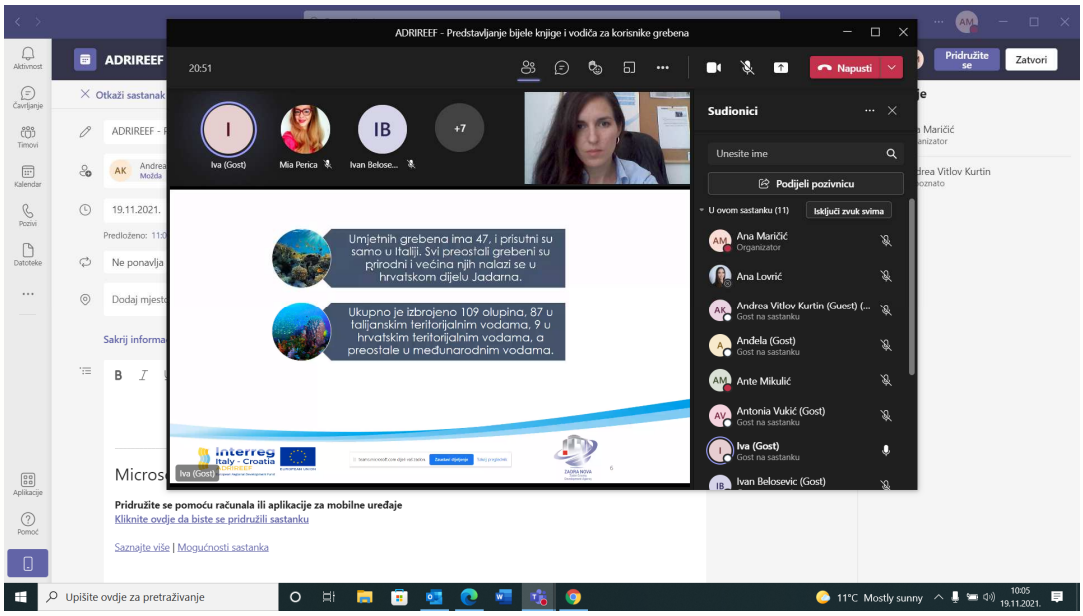
Prilog: fotografije s održane radionice

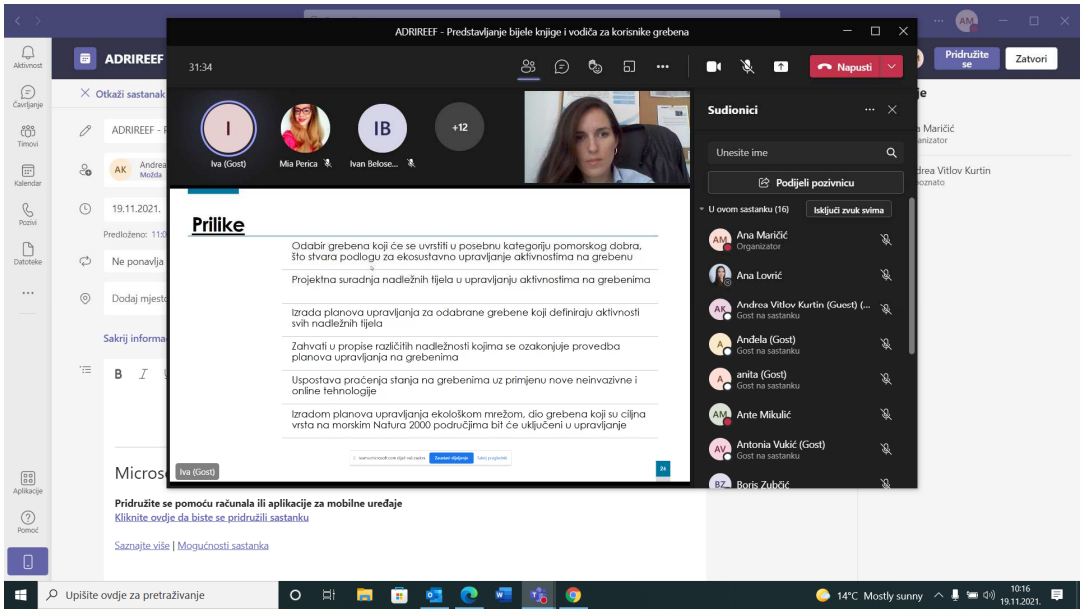
European Regional Development Fund

Address
Telephone number
email@
email@pec
www.italy-croatia.eu/acronym

1

Online meeting screenshots:





This was the presentation of the meeting:

Što je monitoring?

Monitoring je kontinuirano praćenje nekog sustava, u ovom slučaju morskih cvjetnica, kako bi se uočile promjene do kojih dolazi uslijed različitih čimbenika

Ovisno o metodologiji koja se koristi ovisit će točnost otkrivanja promjena i razina promjene

Kod monitoringa okoliša važno je da se otkriju uzroci koji dovode do promjena, potrebno je promatrati i procijeniti raspon promjena koji se događa na određenom staništu

Zašto vršiti monitoring?

Programi monitoringa pružaju važne informacije organizacijama koje se bave upravljanjem priobalnim područjima

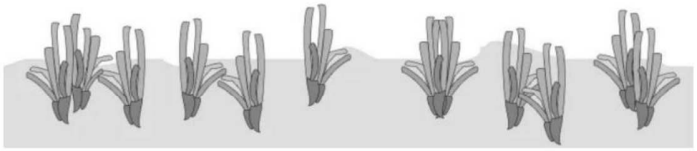
Livade morskih cvjetnica su iznimno važne za funkcioniranje morskih ekosustava, njihovo praćenje je važno radi procijene stanja i zdravlja okoliša te utjecaja na obalne sustave

Idealan „bio pokazatelj“ mora pokazati mjerljive i pravovremene reakcije na zbivanja koja utječu na promjene u okolišu

Staništa morskih cvjetnica vrlo brzo reagiraju na sve promjene koje se događaju u morskom ekosustavu i promjene koje se tada događaju se lako evidentiraju i mjerljive su.

Zašto vršiti monitoring?

MONITORING	ZNANSTVENI DOPRINOS	SOCIJALNI ASPEKT
GPS sustav i točnost podataka Sprječavanje negativnih utjecaja Stalna procjena stanja Umrežavanje Realizacija i sanacija Zakonodavstvo	Podizanje kvalitete znanja Multidisciplinarni pristup Evidentiranje promjena visokim tehnologijama Kvalitetne tehnike intervencija i djelotvorna obnova	Podizanje svijesti građana i javnosti Podizanje razine obrazovanja Jačanje kapaciteta stručnjaka



Kako evidentirati promjene na morskim cvjetnicama?

Promjene do kojih najčešće dolazi kod morskih cvjetnica su:

- promjena biomase cvjetnica;
- promjena u području livade morske cvjetnice; promjena oblika, površine, dubine ili samog položaja livade;
- promjena u sastavu vrsta morskih cvjetnica, brzini rasta i produktivnosti; - promjena flore i fauna koja je usko vezana uz livadu morskih cvjetnica;
- promjena koja može sadržavati više, gore navedenih, parametara

Izbor lokacije monitoringa i mapiranje

- Najbitniji korak monitoringa je izbor lokacije

Lokacija mora u svom sastavu imati iste vrste morskih cvjetnica koje se nalaze na cijeloj livadi, odražavati raspon dubina na kojima se uobičajeno nalaze te iste morske cvjetnice, odnosno lokacija se ne smije ni po kojim karakteristikama razlikovati od cijelog područja

Učestalost uzorkovanja

Praćenje stanja morskog dna na osnovi praćenja stanja morskih cvjetnica na područjima koja su pod utjecajem ribolovnih aktivnosti u kanalima između otoka i u otvorenom moru, obavljat će se jednom godišnje u ljetnom razdoblju (lipanj/srpanj).

Priprema za terenski rad

• Prije izlaska na teren provjeriti da li je sva potrebna oprema spremna

• Odlazak na lokaciju na kojoj će se vršiti monitoring, napraviti skicu područja s GPS koordinatama i kratkim opisom lokacije na osnovu vizualnog opažanja

• U plitkim područjima, monitoring se može obaviti hodanjem po obodu livade, promatrajući svakih 5 – 25 m, ovisno u veličini područja

• Potrebno je voditi računa o orijentaciji te paziti da se u slučaju ako su ispod njih morske cvjetnice; da kreću u smjeru od manje prema većoj dubini ili ako je ispod njih sediment kreću iz veće prema manjoj dubini

• Preporuka je da, kako bi smanjili potrošnju zraka, da se ne roni samo uz dno već na minimalnoj dubini s koje mogu jasno vidjeti dno te odrediti mjesto donjeg ruba livade

Priprema za terenski rad

• Postavljanje privremenog markera na unutarnju stranu (strana do obale) i na vanjsku stranu (prema otvorenom moru)

• Odlučiti koja je najbolja pozicija za postavljanje transekta

• Na području koje je prikladno za monitoring postavlja se privremeni marker u sedimentu, unutar neprekinute livade morskih cvjetnica (otprilike 1 m od unutarnjeg ruba), zatim hodanjem ili plivanjem doći do vanjskog ruba te postaviti drugi privremeni marker (udaljen 1 m od vanjskog ruba)

• Zapisivanje osnovnih podataka neposredno prije početka monitoringa

Postavljanje transekata

Jedan od mogućih načina postavljanja transekata za praćenja malih promjena na livadama morskih cvjetnica, je na mjestima koja su reprezentativna na znatno većim površinama livada. Pozicioniranje transekta je subjektivno i temelji se na iskustvu znanstvenika, istraživača koji vrše monitoring. Minimalno se postavljaju dva transekta, uobičajeno je i više, duž linija koje su subjektivno odabrane da predstavljaju livade morskih cvjetnica.

Mjerenje biomase uz pomoć nasumičnih kvadrata

Metoda i tehnika uzorkovanja za procjenu biomase se temelji na:

1.) veličini područja na kojem se vrši monitoring,
2.) potrebnoj točnosti,
3.) vremenu i novcu dostupnom za monitoring,
4.) strukturi vegetacije,
5.) komponente vegetacije koje se koriste za monitoring (Catchpole i Wheeler, 1992.)

Tehnika videotransekata

- Sastoji se od dvije faze:

1.) prikupljanje podataka na terenu kada se slike snimljene duž transekta bilježe videokamerom,

2.) identifikacija morskih cvjetnica na ekranu računala sa snimljenih fotografija ili video materijala.

- Prednosti ove metode su:
- a) kontinuirano praćenje stanja dobivenog na terenu, budući da se snimljene fotografije čuvaju što omogućuje daljnja ispitivanja,
- b) precizna identifikacija morskih cvjetnica obzirom da se fotografije mogu pregledavati više puta i po potrebi slati stručnjaku,
- c) uspješne performanse u vodi s lošom vidljivošću zbog kratke udaljenosti između videokamere i morskih cvjetnica

13

Zaključak

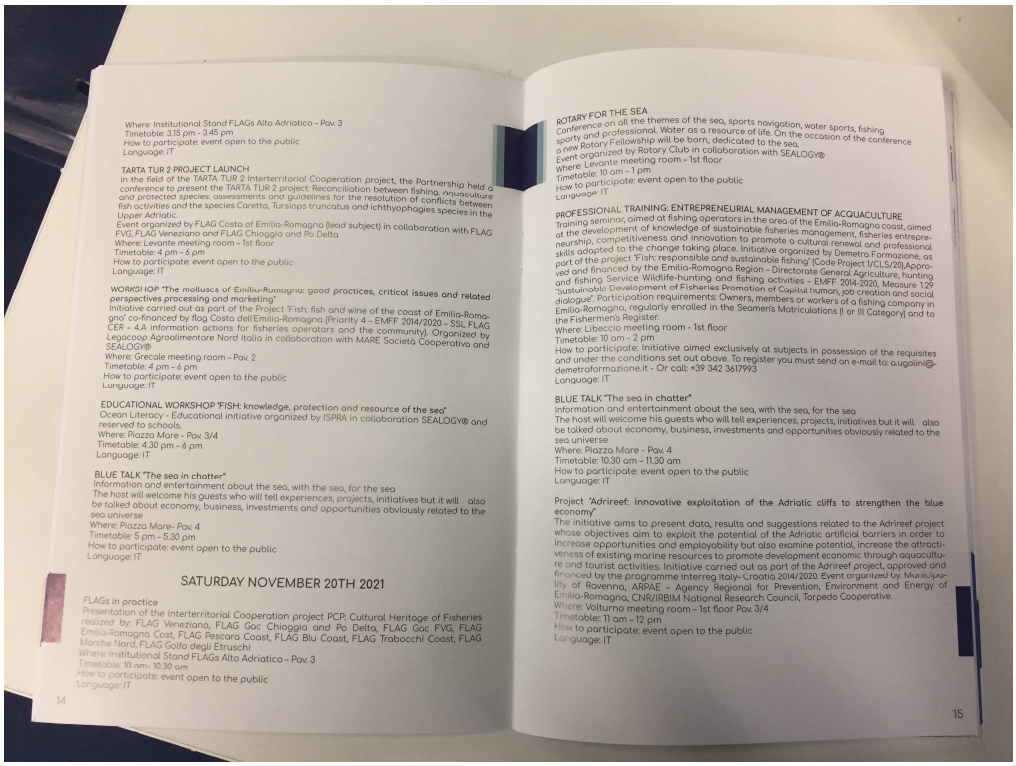
Kroz zadnje stoljeće dominira povlačenje naselja morskih cvjetnica zbog sve izraženijeg antropogenog utjecaja na obalna područja. Restrukturiranje obale, zagađenje, prelov, turizam, invazivne vrste, zatim porast temperature ali i razine mora utječu na fragmentaciju naselja morskih cvjetnica. Degradacija područja s morskim cvjetnicama negativno utječe na vrste ovisne o njima ali i na održavanje njihovih populacija, te potencijalno povećava rizik od gubitka biološke raznolikosti.

14

ADRIREEF / INNOVATIVE EXPLOITATION OF ADRIATIC REEFS IN ORDER TO STRENGTHEN BLUE ECONOMY: DATA, RESULTS & HINTS

On Saturday 20th of November 2021, the Municipality of Ravenna organized a local workshop addressed to local stakeholders, policy-makers and citizens for the dissemination of the project activities and results. The workshop was called "Adrireef / Innovative exploitation of Adriatic Reefs in order to strengthen blue economy (Interreg Italy - Croatia): data, results & hints" and it was composed by three different speeches. The first one was called "Monitoring of natural and artificial reefs in Italy and Croatia in the Adrireef project" and it was held by Silvia Pigozzi (ARPAE - Emilia-Romagna). The second one was called "Natural and artificial reefs as providers of essential ecosystem services" and it was held by Massimiliano Pinat (CNR IRBIM). The third speech was called "Sustainable enterprises in the Adriatic Sea reefs" and it was held by Simone D'Acunto (Cooperativa Torpedo). The workshop was open to the participants of the fair and took place from 11:00 am to 1.00 pm inside the Sealogy Blue Economy Fair event in the Sala Volturno. In total, 11 people (From R&D centres and universities) participated.

Here is the workshop agenda:



Where: Institutional Stand FLAGs Alto Adriatico – Pav. 3
Timetable: 3.15 pm - 3.45 pm
How to participate: event open to the public
Language: IT

TARTA TUR 2 PROJECT LAUNCH
In the field of the TARTA TUR 2 Interterritorial Cooperation project, the Partnership held a conference to present the TARTA TUR 2 project: Reconciliation between fishing, aquaculture and protected species: assessments and guidelines for the resolution of conflicts between fish activities and the species Caretta, Tursiops truncatus and ichthyophagies species in the Upper Adriatic.
Event organized by FLAG Costa of Emilia-Romagna (lead subject) in collaboration with FLAG FVG, FLAG Veneziano and FLAG Chioggia and Po Delta
Where: Levante meeting room – 1st floor
Timetable: 4 pm – 6 pm
How to participate: event open to the public
Language: IT

WORKSHOP "The molluscs of Emilia-Romagna: good practices, critical issues and related perspectives processing and marketing"
Initiative carried out as part of the Project "Fish: fish and wine of the coast of Emilia-Romagna" co-financed by flag Costa dell'Emilia-Romagna (Priority 4 – EMFF 2014/2020 – SSL FLAG CER – 4.A information actions for fisheries operators and the community). Organized by Legacoop Agroalimentare Nord Italia in collaboration with MARE Società Cooperativa and SEALOGY®
Where: Grecale meeting room – Pav. 2
Timetable: 4 pm – 6 pm
How to participate: event open to the public
Language: IT

EDUCATIONAL WORKSHOP "FISH: knowledge, protection and resource of the sea"
Ocean Literacy - Educational initiative organized by ISPRA in collaboration SEALOGY® and reserved to schools.
Where: Piazza Mare - Pav. 3/4
Timetable: 4.30 pm – 6 pm
Language: IT

BLUE TALK "The sea in chatter"
Information and entertainment about the sea, with the sea, for the sea
The host will welcome his guests who will tell experiences, projects, initiatives but it will also be talked about economy, business, investments and opportunities obviously related to the sea universe
Where: Piazza Mare- Pav. 4
Timetable: 5 pm – 5.30 pm
How to participate: event open to the public
Language: IT

SATURDAY NOVEMBER 20TH 2021

FLAGs in practice
Presentation of the interterritorial Cooperation project PCP: Cultural Heritage of Fisheries realized by: FLAG Veneziano, FLAG Goc Chioggia and Po Delta, FLAG Goc FVG, FLAG Emilia-Romagna Coast, FLAG Pescara Coast, FLAG Blu Coast, FLAG Trabocchi Coast, FLAG Marche Nord, FLAG Golfo degli Etruschi
Where: Institutional Stand FLAGs Alto Adriatico – Pav. 3
Timetable: 10 am- 10.30 am
How to participate: event open to the public
Language: IT

14

ROTARY FOR THE SEA
Conference on all the themes of the sea, sports navigation, water sports, fishing sporty and professional. Water as a resource of life. On the occasion of the conference a new Rotary Fellowship will be born, dedicated to the sea.
Event organized by Rotary Club in collaboration with SEALOGY®
Where: Levante meeting room – 1st floor
Timetable: 10 am – 1 pm
How to participate: event open to the public
Language: IT

PROFESSIONAL TRAINING: ENTREPRENEURIAL MANAGEMENT OF ACQUACULTURE
Training seminar, aimed at fishing operators in the area of the Emilia-Romagna coast, aimed at the development of knowledge of sustainable fisheries management, fisheries entrepreneurship, competitiveness and innovation to promote a cultural renewal and professional skills adopted to the change taking place. Initiative organized by Demetra Formazione, as part of the project "Fish: responsible and sustainable fishing" (Code Project 1/CLS/20),Approved and financed by the Emilia-Romagna Region – Directorate General Agriculture, hunting and fishing Service Wildlife-hunting and fishing activities – EMFF 2014-2020, Measure 1.29 "Sustainable Development of Fisheries Promotion of Capital human, job creation and social dialogue". Participation requirements: Owners, members or workers of a fishing company in Emilia-Romagna, regularly enrolled in the Seamen's Matriculations (I or III Category) and to the Fishermen's Register.
Where: Libeccio meeting room - 1st floor
Timetable: 10 am – 2 pm
How to participate: Initiative aimed exclusively at subjects in possession of the requisites and under the conditions set out above. To register you must send an e-mail to: a.ugolini@demetraformazione.it - Or call: +39 342 3617993
Language: IT

BLUE TALK "The sea in chatter"
Information and entertainment about the sea, with the sea, for the sea.
The host will welcome his guests who will tell experiences, projects, initiatives but it will also be talked about economy, business, investments and opportunities obviously related to the sea universe
Where: Piazza Mare - Pav. 4
Timetable: 10.30 am – 11.30 am
How to participate: event open to the public
Language: IT

Project "Adrireef: innovative exploitation of the Adriatic cliffs to strengthen the blue economy"
The initiative aims to present data, results and suggestions related to the Adrireef project whose objectives aim to exploit the potential of the Adriatic artificial barriers in order to increase opportunities and employability but also examine potential, increase the attractiveness of existing marine resources to promote development economic through aquaculture and tourist activities. Initiative carried out as part of the Adrireef project, approved and financed by the programme Interreg Italy- Croatia 2014/2020. Event organized by: Municipality of Ravenna, ARPAE – Agency Regional for Prevention, Environment and Energy of Emilia-Romagna, CNR/IRBIM National Research Council, Torpedo Cooperative.
Where: Volturno meeting room – 1st floor Pav. 3/4
Timetable: 11 am – 12 pm
How to participate: event open to the public
Language: IT

15

This was the press release:

The **Municipality of Ravenna** (www.turismo.ra.it) is waiting for you at its **Sealogy** stand for a preview on the May 2022 **Ravenna European Maritime Day** (https://ec.europa.eu/maritimeaffairs/maritimeday/index_en), the outcomes of the Interreg Italy-Croatia **ADRIREEF** / **Innovative exploitation of Adriatic Reefs in order to strengthen blue economy** project (www.italy-croatia.eu/adrireef), the enhancement project of the **Marina di Ravenna Wild Mussel** and the chance to make a **virtual diving in the biodiversity oasis of the Paguro wreck** with the new 3D visors available for the fair participants!!!

THE 2022 EUROPEAN MARITIME DAY IN RAVENNA

The European Maritime Day (EMD) is the annual two-day event during which Europe's maritime community meet to network, discuss and outline joint action on maritime affairs and sustainable blue economy.

EMD is the place where 'Ocean Leaders Meet'. It provides an engaging and complete interactive experience to catch up on the current state of play on a broad range of issues concerning blue economy and marine environment and discuss ways of moving forward. It features a large number of excellent speakers, thematic sessions, stakeholder workshops and project pitch sessions organised by stakeholders and the European Commission, as well as hundreds of B2B meeting opportunities. EMD targets professionals from businesses, governments, public institutions, NGOs and academia.

The 2022 edition of European Maritime Day will take place in Ravenna, Italy, on 19-20 May. It will be co-organised by the European Commission, the City of Ravenna and the Region of Emilia-Romagna.

A special connection ties Ravenna with the sea. Founded more than 2000 years ago, Emperor Augustus chose it as the main harbour of his imperial fleet. Today, it is one of the most important ports on the Adriatic and a gateway to the East.

The grandeur of Ravenna is evident in its city centre, preserving the heritage of the Western Roman Empire, of Theodoric's reign and of the Byzantine Empire. The city counts eight UNESCO World Heritage monuments, and it safeguards the tomb of Dante Alighieri.

The vicinity to the Adriatic makes it a suggestive touristic destination and the ideal place to discover the nature.

Ravenna is a town of waters, connected with the sea by canals, with rivers, marshlands and groundwater surrounding the city. The water-related heritage of Ravenna includes environmental as well as built assets, ranging from archaeological finds to contemporary industrial areas and buildings.

Water, seaside and nature represent the essential ingredients of Ravenna economy, which is based on the port and connected activities, agriculture, but also - and above all – tourism.

After the end of EMD 2022, Ravenna awaits you with a rich program of events, performances, experiences and guided tours. The guests of the conference may enjoy a long weekend dedicated to the city of Art and to the Seaside.

The programme will be available in the first months of next year. An opportunity to extend your stay in Ravenna and to find the Italian beauty experience: stay tuned!

ADRIREEF / Innovative exploitation of Adriatic Reefs in order to strengthen blue economy

After two years of activities, Adrireef project (www.italy-croatia.eu/adrireef) presents for the first time its main outcomes to the participants of Sealogy.

THE PROJECT

Natural and artificial reefs are priceless elements for the scientific community and key resources for Blue Growth. By mapping and monitoring Adriatic reefs and involving relevant stakeholders, Adrireef aims to provide guidelines and a code of conduct illustrating sustainable exploitation models of marine reefs.

The Adriatic sea counts a large number of marine ecosystems suitable for the Blue Economy purposes. Monitoring and studying natural and artificial reefs is essential to collect information both for the protection of the environment and for the development of sustainable activities with positive social and economic impact.

11 Croatian and Italian local authorities, regional environmental preservation and territorial development agencies, private and public research institutes compose the Adrireef partnership.

MAIN GOALS

- Analysis of the potential of Adriatic sea natural and artificial reefs in order to promote Blue Economy
- Enhancement of the attractiveness of existing marine resources in order to promote sustainable economic development (i.e. mapping, monitoring and promotion of less known natural areas and implementation of artificial reefs as suitable sub-strata for new sustainable ecosystems)

SPECIFIC GOALS

- Improvement of the Adriatic reefs potential to foster blue economy activities and employability (i.e. aquaculture, sport fishing, diving, tourism, etc.)
- Test of innovative integrated monitoring systems with low environmental impact
- Definition of guidelines, code of conduct and white paper addressed to decision makers, scholars and stakeholders for a sustainable exploitation of the Adriatic reefs

OUTPUTS

- Map and classification of the Adriatic sea reefs
- Identification of available technology with low environmental impact for the underwater monitoring of the marine ecosystem
- Identification of marine areas that can be used for economic scope
- Guidelines and code of conduct for stakeholders
- White paper for a sustainable exploitation of reefs in blue economy

TARGET GROUPS

- General audience
- Local, regional and national public authorities

- Regional and local development agencies, chambers of commerce and other business support organisations
- SMEs
- Universities, technology transfer institutions, research institutions

PROJECT RESULTS / MAIN OUTCOMES

- Increase of the perception of the Adriatic area as an attractive environment for business development (SMEs)
- Building awareness about the opportunities of the economic growth of artificial and natural reefs among the scientific, business, institutional and civil communities
- Provide adequate expertise and data to research bodies/institutions/ policy makers in long term and efficient assessments of the Adriatic reefs
- Updated information and analysis on existing best-business cases and hints for the start of new business activities for SMEs
- Information and tools for the best use of reefs

CASE STUDIES

The selected case studies represent the variety of Adriatic sea reefs:

- artificial reefs: Paguro wreck, Porto Recanati-Porto Potenza Picena, Plić Lagnjići
- natural reefs: Torre Guaceto Marine Protected Area, Trezza San Pietro , Plić Seget, Plićina Konjsko

THE WILD MUSSEL OF MARINA DI RAVENNA

The Municipality of Ravenna, Eni DICS, CIFLA – Centro per l'Innovazione di Fondazione Flaminia, CESTHA - Centro Sperimentale per la tutela degli Habitat, La Romagnola and Nuovo Conisub fishing cooperatives, Slow Food Ravenna and Tuttifrutti advertising agency met on the 21st of September 2021 to sign a mutual agreement, approved by the city council, for the enhancement of the wild mussel of Marina di Ravenna.

The agreement unites a varied group of stakeholders with different perspectives but with the same idea of thinking the local mussel as a precious asset to be protected and promoted and it is the result of a series of meetings begun in April 2021 and part of the activities of the IX collaboration agreement between Eni S.p.A. and the Municipality of Ravenna.

The partnership worked to define a series of general principles aimed at addressing projects and activities for the enhancement and promotion of the Marina di Ravenna wild mussel, a unique product on ts own.

The Marina di Ravenna mussel features a spontaneous breeding and its history is mainly connected with the presence of the natural gas drilling platform dislocated not far away from the Ravenna coastline.

Started as a cleaning activity of the platfoms' pillars, the picking of the mussels has become a true commercial resource. The Municipality of Ravenna started the process of promotion by recognizing it as a product of excellence of the territory, then it has become the star of an annual fest organised by the Tuttifrutti advertising company together with the collaboration of Slow Food Ravenna and all local stakeholders and, finally, it has gained its own trade mark, "La Selvaggia di Marina di Ravenna", owned by the local fishing cooperatives. The brand is the result of a journey made by the cooperatives with the collaboration of Cestha and CIFLA and it's been financed by the Emilia-Romagna coast FLAG call.

The "Selvaggia" is the expression of a territory that has been capable of combining

in a sustainable way industry, fishing, tourism, environment and high-quality cooking. It is the result of a unique productive story that has originated local craftsmanship such as the local diving fishers, the so-called "cozzari".

The local mussel has all the features to become a territorial promotional tool in a touristic way by making Marina di Ravenna an attractive landmark not only for its beaches but also for its original cooking traditions too.

As for all spontaneous products, the "Selvaggia" has limited amounts and it is a seasonal output: the fishing period ranging from April to the end of September. Anyway, this doesn't affect the chance to work it so that it can be eaten all year long or to make various products that tourists can bring home as a local souvenir.

The sustainability of this spontaneous product is a feature that must be preserved in every process: from the birth to the collecting activities, from the distribution chains to the commercial activities, as for the sharing of clear and comprehensive information of the product to the final consumer.

The members of the partnership have agreed to respect and promote the principles of the pact, to share information and mutual interests for the enhancement of the product and to accept new possible subjects with the interest to promote the “Selvaggia” and to accept the agreement.

VIRTUAL DIVING EXPERINECE ON THE PAGURO WRECK

Even if you have never worn a wet suit and if you are no familiar with diving techniques, now, thanks to Adrireef project and 3D visors you can virtually explore the Paguro wreck lying underwater at a depth of minus 30 metres in the Adriatic sea!

The Paguro is famous among divers, biologists and sea lovers: a gas drilling platform exploded and sunk in 1965 over the Ravenna coastline.

Today, the wreck has become a marine sanctuary, the shelter of many animal and vegetal species and, for this reason, a SIC protected zone.

The highest part of the structure stands at minus 10 metres below sea level, while the deepest one lies at minus 35 metres below sea level where currents and low temperatures make it a difficult dive experience. This is an ideal destination for scientists and divers and nowadays we can visit it even with our feet well stamped on the floor! Thanks to Adrireef project we now have a little virtual museum of the Paguro. After a long activity of monitoring and photogrammetric sampling we have a 3D model of the wreck and by wearing the available 3D visors it is possible to explore the whole intricated underwater structure and metal network. Everyone can experience the dive: citizens willing to discover the Paguro, tourists willing to experience a local resource, divers willing to lear how to orienteer in the wreck and so on.

In Summer, the 3D visors are availble at the Tourist Information Office of Marina di Ravenna close to the MAS – Museum of Underwater Activities, while over the rest of the year they are available at the Piazza San Francesco Tourist Information Office, right in the city centre of Ravenna. During Sealogy fair, it will be possible to find and explore the 3D visors in the Municipality of Ravenna’s stand. Come and visit us for your virtual dive experience!

These are some photos of the session:

These are the presentations:

Interreg Italy - Croatia ADRIREEF European Regional Development Fund EUROPEAN UNION

ADRIREEF

Innovative exploitation of Adriatic Reefs in order to strenghten blue economy

Silvia Ulazzi - Municipality of Ravenna |

Saturday, Nov 20, 2021, h 11:00-12:00, Online Meeting

European Regional Development Fund

ADRIREEF

Innovative exploitation of Adriatic Reefs in order to strenghten blue economy

Financed by EU Cooperation Programme Italy – Croatia INTERREG 2014-2020

Interreg Italy - Croatia EUROPEAN UNION FROM SHARED RESOURCES TO JOINT SOLUTIONS

BLUE INNOVATION

Priority Axis **BLUE INNOVATION**

Project Duration: 01/12/2018 – 30/05/2021

Extension: 30/11/21

Total budget: € 2.814.830,00

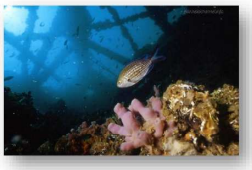
ERDF co-financing: € 2.392.605,50

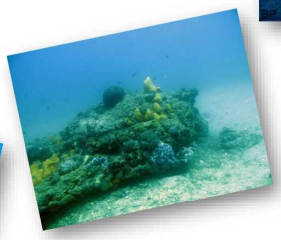
Interreg Italy - Croatia ADRIREEF European Regional Development Fund EUROPEAN UNION

Comune di **Ravenna** 2

PROJECT MAIN GOAL

Analysis of the Adriatic sea **natural and artificial reefs** potential in order to promote **Blue Economy**





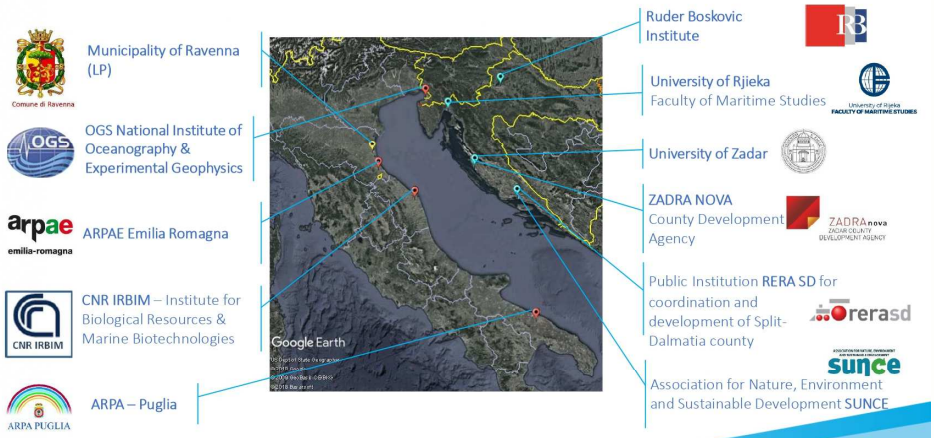
SPECIFIC GOALS

1) Improvement of the Adriatic reefs potential to **foster blue economy activities and employability** (i.e. aquaculture, sport fishing, diving, tourism, etc.)

2) Test of innovative integrated **monitoring systems** with low environmental impact

3) Definition of **guidelines** (→ stakeholders), **code of conduct** (→ users) and **white paper** (→ decision makers & scholars) for a sustainable exploitation of the Adriatic reefs

11 PARTNERS



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Comune di Ravenna 5

5 WORK PACKAGES

WP1 PROJECT MANAGEMENT ACTIVITY COORDINATION

WP2 COMMUNICATION & DISSEMINATION

WP3 ADRIATIC REEF MAPPING
Collection of existing data, reef classification, analysis of legal framework, available monitoring technologies, stakeholders, definition of Italian and Croatian case studies

WP4 MONITORING
Monitoring activity on case studies and data analysis

WP5 BLUE ECONOMY INNOVATIVE EXPLOITATION OF ADRIATIC REEFS
Analysis of project results and elaboration of project final deliverables (White Paper, Guidelines, Code of Conduct)

Interreg Italy - Croatia ADRIREEF European Regional Development Fund EUROPEAN UNION

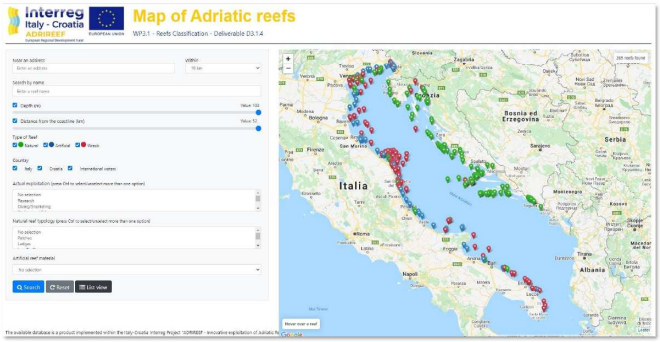
Comune di Ravenna 6

7 CASE STUDIES

CASE STUDY NAME	RESPONSIBLE PP	REEF TYPE	REEF CATEGORY
Paguro wreck	ARPAE Emilia Romagna – PP01	Artificial Reef	Sunken jackup drilling rig + additional iron structures
Plić Lagnjići	University of Zadar – PP04	Natural reef with a ship wreck	Sand bottom with reef structures protruding from the sediment
Porto Recanati-Porto Potenza Picena	CNR-IRBIM Ancona – PP05	Artificial Reef	Specifically designed concrete modules geometrically assembled to form structures and concrete poles
Torre Guaceto Marine Protected Area	ARPA PUGLIA - PP06	Natural Reef	Low profile reef and Patch reef
Trezza San Pietro	OGS – PP07	Natural Reef	Patch reef (sand bottom with small reef structures protruding from the sediment)
Vis	Institut Ruđer Bošković – PP09	Natural Reef	Patch reef (sand bottom with small reef structures protruding from the sediment)
Plićina Konjsko	University of Rijeka, Faculty of Maritime Studies – PP10	Natural Reef	Low profile reef (the reef protrudes less than 20 meters from the base substratum)

MAIN PROJECT OUTPUTS

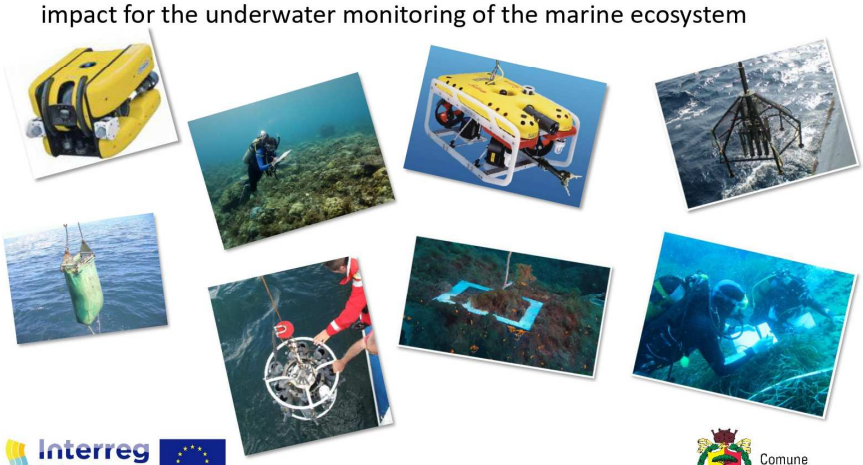
1) Map and **classification** of the Adriatic sea reefs



https://adrireef.github.io/sandbox3/

MAIN PROJECT OUTPUTS

2) Identification of available technology with low environmental impact for the underwater monitoring of the marine ecosystem



Comune di **Ravenna** 9

MAIN PROJECT OUTPUTS

3) Identification of marine areas that can be used for economic scope

Comune di **Ravenna** 10

MAIN PROJECT OUTPUTS

4) 2 Adrireef festivals for promotion and dissemination

MAIN PROJECT OUTPUTS

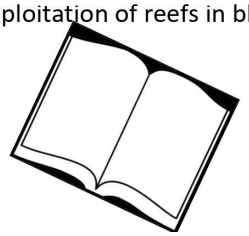
5) Adriatic sea reefs' video

MAIN PROJECT OUTPUTS

6) Guidelines for stakeholders

7) Code of conduct for reef users

8) White paper for a sustainable exploitation of reefs in blue economy



Comune di Ravenna

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PROJECT RESULTS / MAIN OUTCOMES

- Increase of the perception of the **Adriatic area** as an **attractive environment** for business development (SMEs)
- Building **awareness** on the opportunities of artificial and natural reefs among scientific, business, institutional and civil communities
- Provide **adequate expertise and data** to research bodies/institutions/ policy makers
- **Information and analysis** on existing best-business cases and hints for the start of new activities for SMEs
- **Information and tools** for the best use of reefs

Comune di Ravenna

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FOLLOW-UP
White Paper → Road Map
to identify
potential areas for the development of new businesses
new potential businesses
possible need to modify existing rules to promote businesses
funding opportunities for the development of the activities
Thanks a lot,
have a nice job!
15
16

I reef naturali e artificiali come fornitori di servizi ecosistemici essenziali

Massimiliano Pinat - CNR-IRBIM
Francesca Visintin - eFrame srl

Ferrara, 20 novembre 2021

European Regional Development Fund

OBIETTIVI DEL PROGETTO ADRIREEF

1. Analizzare le possibilità di valorizzazione, riqualificazione e riutilizzo dei reef naturali ed artificiali, al fine di convertirli in strutture funzionali alla ricerca scientifica ed alla conservazione degli ecosistemi insediati intorno ad essi
2. Indagare la relazione tra i settori economici quali il diving, la pesca professionale e l'acquacoltura presso gli ecosistemi marini, rilevando le migliori modalità di utilizzo e salvaguardando contemporaneamente l'ambiente
3. Definire un modello di business sostenibile e replicabile nell'intera area di programma con l'obiettivo di operare in più settori della cosiddetta economia "blu", adottando tecnologie innovative e pulite

2

ATTIVITÀ SVOLTE

7 CASI PILOTA

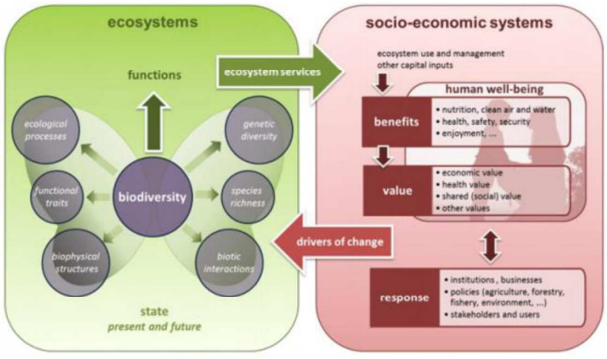
QUADRO NORMATIVO
ANALISI STAKEHOLDERS
DATI DA ATTIVITÀ DI MONITORAGGIO

Identificazione dei settori economici

Dati sul valore dei servizi ecosistemici

VALUTAZIONE DEI SERVIZI ECOSISTEMICI

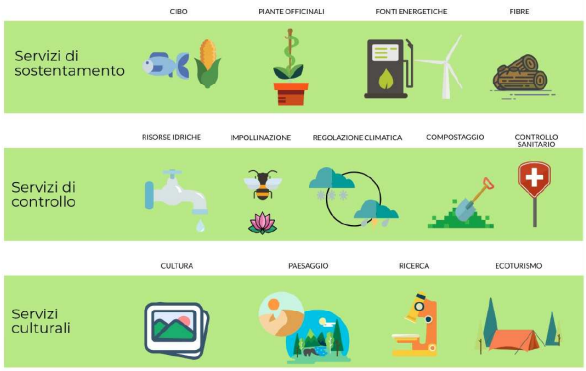
The 2021 EU Blue Economy Report - *The environment is the service provider that enables human society and the economy to exist and develop*



Source: Maes et al., 2013

VALUTAZIONE DEI SERVIZI ECOSISTEMICI

Common International Classification of Ecosystem Services (CICES)



5

VALUTAZIONE DEI SERVIZI ECOSISTEMICI NEI REEF

Reef naturale

ECOSISTEMI MARINI E COSTIERI

Reef artificiale

VALUTAZIONE DEI SERVIZI ECOSISTEMICI NEI REEF

1. Che cosa si può fare? → quadro normativo internazionale, europeo, nazionale, locale
2. Chi può fare? → analisi degli stakeholders
3. Qual è il beneficio? → servizi ecosistemici del marine coastal water ecosystem
   - Prelievo di risorse ittiche e allevamento (*Wildlife and their products - Provisioning services*);
   - Fruizione turistica (escursioni in barca, diving) (*Experiential and physical use of terrestrial and marine plants, animals, and landscapes in different environment - Cultural services)*
   - Attività didattico-educativa (*Educational - cultural service*)
   - Attività scientifica (*Scientific services - cultural services*)
4. Come valutarlo? → non è semplice valutare i servizi forniti dagli ecosistemi
   - Classificazione internazionale (CICES) fornisce le procedure di stima

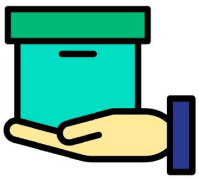
7

VALUTAZIONE DEI SERVIZI ECOSISTEMICI NEI REEF

4. Come valutarlo? → non è semplice valutare i servizi forniti dagli ecosistemi
   - Classificazione internazionale (CICES) fornisce le procedure di stima

CAPACITÀ

FLUSSO



VALORE

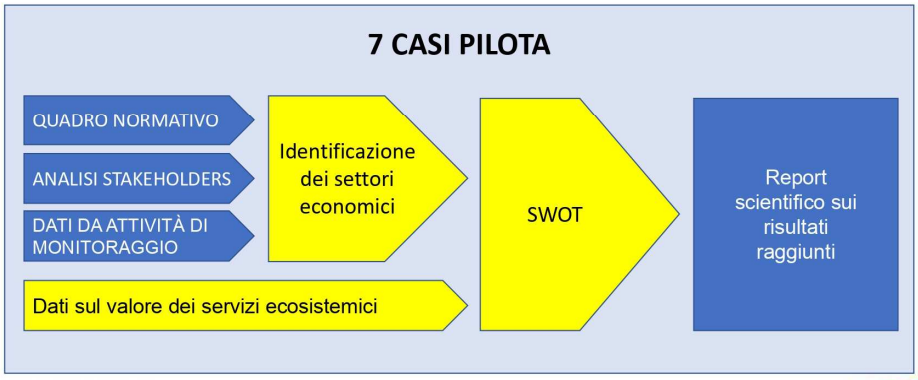
8

VALUTAZIONE DEI SERVIZI ECOSISTEMICI NEI REEF

1. Prelievo di risorse ittiche e allevamento
   - Abbondanza di risorse (pesci, crostacei, molluschi, echinodermi)
   - Prelievo annuo di risorse
   - Valore di mercato delle risorse (valore aggiunto rispetto ad altre zone di pesca)
   - Armatori e risorse umane impiegate
2. Attività didattico-educativa
   - Numero di escursioni
   - Numero di studenti
   - Fatturato
   - Numero di operatori economici e risorse umane impiegate
3. Fruizione turistica (escursioni in barca, diving)
   - Numero di escursioni
   - Numero di turisti
   - Fatturato
   - Numero di operatori economici e risorse umane impiegate
4. Attività scientifica
   - Centri di ricerca e Università
   - Progetti (numero e budget)
   - Pubblicazioni

9

ATTIVITÀ SVOLTE



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ANALISI SWOT

STRENGTHS – PUNTI DI FORZA	WEAKNESSES – PUNTI DI DEBOLEZZA
Capitale naturale e servizi ecosistemici. • Prelievo di risorse ittiche e allevamento • Fruizione turistica (escursioni in barca, diving) • Attività didattico-educativa • Attività scientifica	• Quadro normativo – mancanza di piani di gestione. • Sfruttamento antieconomico.
OPPORTUNITIES – OPPORTUNITÀ	**THREATS – MINACCE**
• Quadro normativo - misure che promuovano attività a basso o nullo impatto ambientale • Stimolare i settori della Blue economy. • Soluzioni basate sulla natura.	• Mancanza di un quadro normativo sui reef naturali. • Sfruttamento della risorsa.

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I reef naturali e artificiali come fornitori di servizi ecosistemici essenziali

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Monitoring of natural and artificial reefs in Italy and Croatia during ADRIREEF project

ADRIREEF I Arpae Emilia-Romagna

Sealogy I 20th November 2021

Scope of Adrireef project WP4

- Monitoring of reefs is essential for continuous evaluation of their structural and ecological evolution, hence their capacity of sustaining different economic activities.
- During Adrireef WP4, monitoring activities were performed by Italian and Croatian project partners at 7 selected reefs in the Adriatic Sea, from November 2019 to September 2021.
- During the surveys, innovative technologies with low environmental impact were tested and their advantages and limitations evaluated, thus providing an insight both for the local management plans and the application of European Directives for the protection of the marine environment.
- Based on the obtained results, the identification of reef's adequacy towards a particular use among those expected by the Blue economy sectors, was evaluated, thus providing a keystone for any stakeholder interested in the sustainable use of natural and artificial reefs in the future.

Selected reefs in Italy and Croatia (WP3)

The selection process took into consideration:

- compatibility of proposed reefs with the necessity of utilizing innovative, low impact technologies in the monitoring phase
- economic aspects linked with potential reef vocations in line with Blue Economy principles
- replicability and transferability of outputs

The selected reefs are representative of reef typologies occurring in the Adriatic Sea based on available literature and/or the PPs experience.

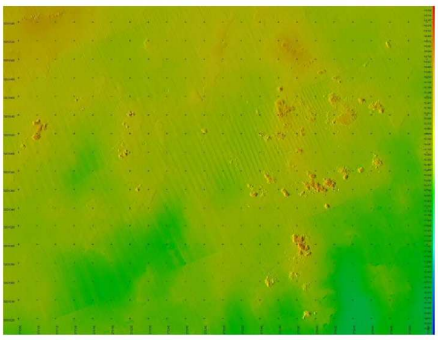
Main features of selected reefs

Case study	Trezza San Pietro	Paguro wreck	Porto Recanati - Porto Potenza Picena	Torre Guaceto Marine Protected Area	Plićina Konjsko	Plić Lagnjići	Vis Island Plić Seget
CS code	TSP	PAG	RPP	TGU	KON	LAG	SEG
Reef typology	Natural	Artificial	Artificial	Natural	Natural	Natural with shipwreck	Natural
Reef category	Patch reef (sand bottom with small reef structures protruding from the sediment)	Sunken jack-up drilling rig + additional decommissioned structures	Specifically designed concrete modules geometrically assembled to form structures and concrete poles	Low profile reef and patch reef	Low profile reef (the reef protrudes less than 20 meters from the base substratum)	Sand bottom with reef structures protruding from the sediment	Patch reef (sand bottom with small reef structures protruding from the sediment)
Distance from the coast	8.7 km	20 km	5.6 km	2 km	200 m	1 km	2.8 km
Max depth	17 m	31 m	14 m	29 m	18 m	20 m	80 m
Extension	9850 m^2	0.66 km^2	0.55 km^2	6700 m^2	0.18 km^2	0.60 km^2	0.32 km^2

Investigated parameters

Case study	Trezza San Pietro	Paguro wreck	Porto Recanati - Porto Potenza Picena	Torre Guaceto Marine Protected Area	Plićina Konjsko	Plić Lagnjići	Vis Island Plić Seget	Vis Island Stupišća
CS code	TSP	PAG	RPP	TGU	KON	LAG	SEG	STU
Time of monitoring	from Nov 2019 to Sept 2021	from June 2019 to July 2021	from June 2019 to June 2021	from June 2019 to July 2021	from Sept 2019 to May 2021	summer 2019 spr./sum. 2020 spr./sum. 2021	June 2020 June 2021	from September to October 2020
Geomorphological mapping	•	•	•	•	•	•	•	
Water currents	•	•	•					
Water column parameters	•	•	•	•	•	•	•	
Nutrients		•	•	•	•	•	•	
Contaminants in water					•	•	•	
Contaminants in sediment		•			•	•	•	
Benthic community	•	•	•	•	•	•	•	•
Fish assemblage	•	•	•	•	•	•	•	•
Additional investigated parameters		Fouling community volume trough Photogrammetry	Contaminants in biota; Mussel population structure; Photogrammetry		Environmental load; Maritime traffic; Garbage quantities and type; Impact of lost fishing gear.	Environmental load; Impact of lost fishing gear.	Environmental load; Garbage quantities and type.	Impact of lost fishing gear.

Geomorphological mapping



Multibeam sonar bathymetric map and 3D perspective view of Trezza San Pietro outcrop area (Borme et al., 2021).

Seabed characterization is fundamental to evaluate extension, morphological features and integrity of a reef, producing a valuable base for geomorphological and environmental analysis.

Non-destructive acoustic measurements were done using multibeam echosounder and/or side-scan sonar, efficient tools which allow to evaluate the physical performance of reefs without creating any disturbance to the environment.

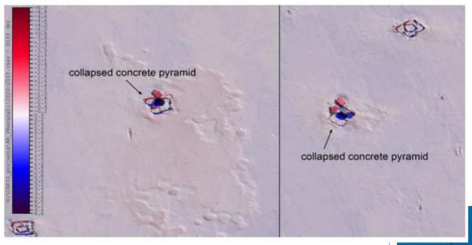
Geomorphological mapping

These systems were coupled to other investigation methodologies (e.g. ROV, underwater drones, underwater Structure from Motion photogrammetry, scuba diving) for a variety of purposes.

Geomorphological mapping - outputs and goals achieved

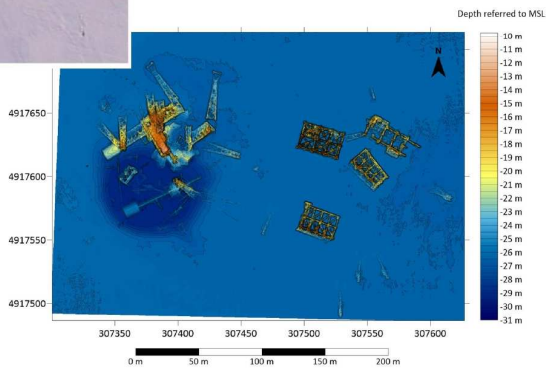
- Bathymetric maps providing detailed geomorphological description of the studied areas, thus giving information on seafloor depth range and slope, as well as spatial distribution, morphology and dimensions of artificial structures, rocky outcrops,...
- Outputs used to identify the best spot to be selected as case study, based on integrity and biological colonization of the sites.
- Outputs used for planning other investigations (e.g. the continuous water monitoring, by identifying the best location to fix the oceanographic buoy, the visual census and 3-dimensional reconstruction samplings).
- Characterization of the artificial reefs in terms of compliance with the original drawings and evaluation of their structural integrity.
- Detailed maps produced and distributed to fishers in order to enhance awareness of the project results.

Geomorphological mapping - outputs and goals achieved



Difference surface 2020-2018 and the collapse of two pyramids at Porto Recanati-Porto Potenza Picena (Fabi et al., 2021).

MBES bathymetric map of the artificial reef Paguro wreck (Mazziotti et al., 2021).



Water column parameters

Fixed near-real time oceanographic buoy deployed at Porto Recanati-Porto Potenza Picena (Fabi et al., 2021)

Measurements of physico-chemical parameters in the water column at selected case studies were carried out at different temporal and spatial scales:

- by fixed near-real time oceanographic observing systems;
- by using CTD multiprobes during oceanographic campaigns.

Water samples for additional analysis of nutrients, chemical contaminants and microbiological parameters were sampled at the surface and/or bottom layers using buckets/Niskin bottles.

Water column parameters

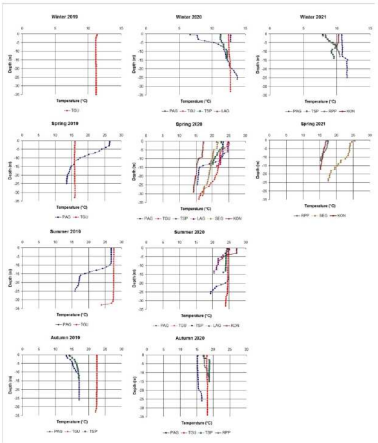
https://gr.irbim.cnr.it/adriree
f

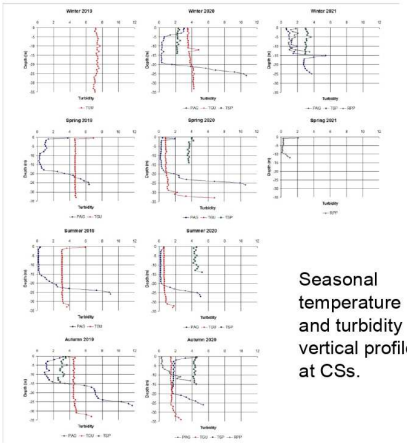
Oceanographic buoy systems were deployed at Case Studies Porto Recanati-Porto Potenza Picena and Trezza San Pietro.

Only in Porto Recanati-Porto Potenza Picena the data were disseminated in near-real time to a wider public through dedicated free accessible dashboards, thus allowing other users (e.g. divers, recreational and professional fishers, sailors) to potentially plan in advance their activities.

Oceanographic buoy systems for continuous monitoring represent a promising technological innovation in the collection of hydrological and water column parameters, nevertheless the characteristics of the deployment site should be carefully evaluated.

Water column parameters



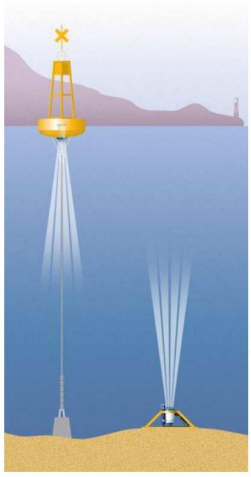


Seasonal temperature and turbidity vertical profiles at CSs.

Water column parameters

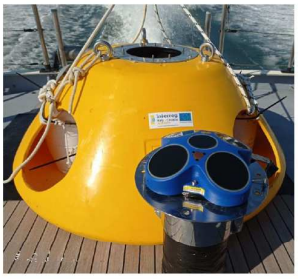
- Investigated water column parameters were used to describe the general environmental features of the study sites, as well as to evaluate their trophic status in relation to anthropogenic pressures. Project partners discussed in detail those variables potentially affecting Blue economy activities proposed for the specific case study sites (e.g. adequacy of temperature and turbidity during the year for scuba divers).
- Overall, project partners described the recorded nutrients values as typical for the studied areas, which can be considered in a good trophic state with few exceptions.

Water currents



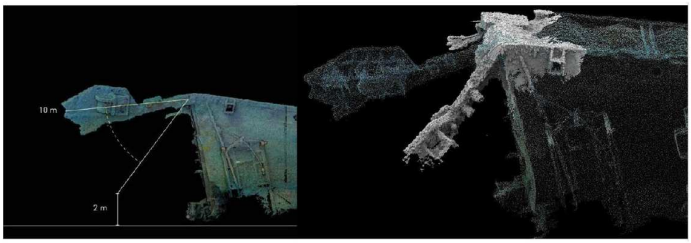
- Currents speed and direction were recorded at three case studies, i.e. Trezza San Pietro, Paguro wreck, Porto Recanati-Potenza Picena using Acoustic Doppler Current Profilers (ADCP).
- In Trezza San Pietro and Porto Recanati-Porto Potenza Picena, the ADCP had been fixed to the oceanographic buoy system at a fixed depth (at 2 and 3.5 m depth respectively) and installed downlooking. Conversely, at the Paguro wreck, the ADCP was positioned on the seabottom at a depth of 26 m and was uplooking.
- At all sites, ADCPs were programmed with 1 meter wide cells where the currentometers were measuring the current by means of acoustic signals. Speed, direction and amplitude data were stored as raw data for each of the cells.

Water currents



vADCP with the bottom-mount resinex barnacle used at Paguro wreck

- Both in Trezza San Pietro and Porto Recanati-Porto Potenza Picena, data were transferred at land in real time, while at the Paguro wreck data were collected and analysed every 6 months.
- As far as the speed of the currents is concerned, only occasionally high peaks have been recorded which could hinder the regular development of the economic activities foreseen for the CSs.



Paguro wreck structural integrity using photogrammetry

Benthic community characterization

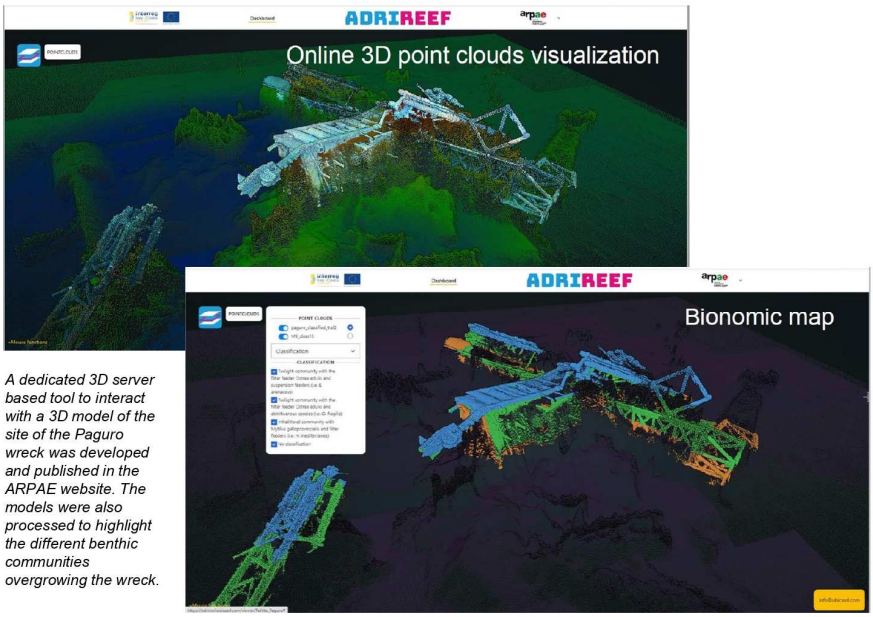
Case study	Sampling methods	Notes on sampling methods
Paguro wreck	Substrate scraping	biomass estimation: dry weight and wet weight
Trezza San Pietro	Photographic samplings	free technique and with the use of a standard frame
Porto Recanati	Photographic samplings	detailed analysis of mussel population structure
Torre Guaceto	Photographic samplings	sampling of standard area frames, video transect methods, video camera ROV and the video camera held by the divers
Plićina Konjsko	Photographic samplings	monitoring carried out on target species
Plić Lagnici	Photographic samplings	quadrat 50 x 50 cm and 25 x 25 cm subquadrats to ensure a more reliable identification of organisms
Vis - Stupišća	Photographic samplings	quadrat 50 x 50 cm and 25 x 25 cm subquadrats to ensure a more reliable identification of organisms
Vis - Plić Seget	Photographic samplings	quadrat 50 x 50 cm and 25 x 25 cm subquadrats to ensure a more reliable identification of organisms

Benthic community characterization

Sampling methods	Advantages and Disadvantages
Substrate scraping	AD estimation of diversity not visible in photosampling (i.e. identification of small organisms), certainty of identification, conservation of individuals DIS destructive sampling, sampling of small areas, necessity of skilled scuba divers, greater taxonomic identification times
Photographic samplings	AD non-destructive sampling, sampling of large and numerous areas, ease and time of sampling, photo analysis less time consuming DIS estimated biodiversity reduced, small and hidden species are not visible from the photosampling, difficulties in identifying numerous taxa due to lack of taxonomic elements, sample not preserved, need for specific photographic equipment / rov

Benthic community characterization

- Despite the high variability within the monitoring data set due to different sampling approaches, similarities and differences among sites were observed and three main clusters identified:
- Torre Guaceto, Lagnjići and Stupišće sites are close from a biological point of view as they are characterized by coralligenous communities and hard bottoms of biogenic origin mainly produced by the accumulation of calcareous encrusting algae;
- Porto Recanati and the Paguro wreck, artificial reefs located on the north-western coast of the Adriatic Sea, are characterized by filter-feeding organisms. Frequent and common in both sites are cnidarians of the genus Epizoanthus, bryozoans and numerous encrusting sponges.
- The case study Trezza San Pietro shows a peculiar habitat that appears different from the other locations, being rich in sponges and other sessile organisms different from the other case studies of the Adrireef project.



A dedicated 3D server based tool to interact with a 3D model of the site of the Paguro wreck was developed and published in the ARPAE website. The models were also processed to highlight the different benthic communities overgrowing the wreck.

Fish assemblage

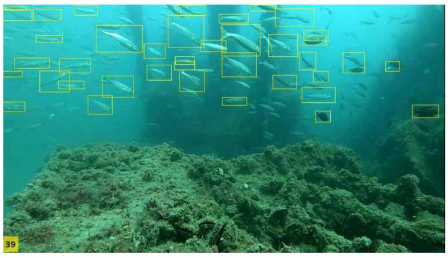
Case study	Sampling methods
Trezza San Pietro	Underwater Visual Census (UVC) with scuba divers operating along strip transects.
Paguro wreck	Combination of: i) visual census at stationary points with scientific scuba divers at 3 different locations; ii) 360 degree video recorded at stationary points at three different locations on the wreck; iii) stereo videos recording at one location o the wreck for automatic image classification, species identification and size estimation.
Porto Recanati	Combination of visual census methodologies: i) scuba divers visual census, ii) visual census performed through remotely operated vehicle (ROV).
Torre Guaceto	Combination of: (i) underwater visual census (UVC) at stationary point, ii) visual census performed through remotely operated vehicle (ROV). During the surveys, a GOPRO 8 and a GOPRO MAX 360° were used to record high quality videos which were then used to validate the visual census surveys performed by scuba divers.
Plićina Konjsko	Fish census method applied were: i) Baited Remote Underwater Video (BRUV), ii) Underwater Visual Census (UVC), iii) Remote Operated Vehicle (ROV).
Plić Lagnici	Fish census method applied were: i) Baited Remote Underwater Video (BRUV), ii) Underwater Visual Census (UVC), iii) Remote Operated Vehicle (ROV).
Vis - Plić Seget	Fish census method applied were: i) Baited Remote Underwater Video (BRUV), ii) Underwater Visual Census (UVC), iii) Remote Operated Vehicle (ROV).
Vis - Stupišća	Underwater Visual Census (UVC) with scuba divers.

Fish assemblage

The similarities observed between the artificial reefs Paguro Wreck and Porto Recanati-Porto Potenza Picena for the benthic community is also reflected on the fish community. A second cluster of sites characterized by coralligenous habitat and associated communities is represented by the sites Torre Guaceto, Seget and Konjsko, which present a greater level of similarity. Conversely, Trezze San Pietro showed the most unique characteristics of the fish community.

Activities with ROV, standard and 360° cameras at Torre Guaceto.

Stereo camera calibration procedure at Paguro wreck and a video processing snapshot with automatic fish detections in overlay.



Additional investigations

- Pathogenic bacteria and contaminants in seawater, sediment and biota
- Volume occupied by the fouling community through Photogrammetry
- Mussel population structure through Photogrammetry
- Environmental load (tourism, maritime traffic, diving centers, fishing activities, including garbage quantity and type)
- Impact of lost fishing gear

All performed investigations were directed at a more comprehensive definition of reef vocations, which included an indication of human activities that should be promoted at site because they follow the principles of the Blue Economy, and those that are not sustainable and therefore need to be banned or carefully managed.

Reef vocation

Case study	Reef vocations
Trezza San Pietro	recreational scuba diving, recreational fishing and professional small-scale fishery should be managed; freediving, scientific research and ocean literacy should be promoted
Paguro wreck	recreational scuba diving, scientific research, ocean literacy, virtual tourism
Porto Recanati	recreational fishing and/or professional small-scale fishery (fish and mussels), recreational scuba diving based on a management plan developed in agreement with the local stakeholders
Torre Guaceto	recreational scuba diving, snorkeling, scientific research, ocean literacy
Plićina Konjsko	recreational scuba diving, ocean literacy
Plić Lagnici	recreational scuba diving, snorkeling and freediving, recreational fishing, professional small-scale fishery, scientific research, ocean literacy
Vis - Plić Seget	small scale fishing, recreational scuba diving (only for advanced divers), scientific research, ocean literacy
Vis - Stupišća	recreational scuba diving, snorkeling, scientific research and ocean literacy

ACTIVITIES

Monitoring of natural and artificial reefs in Italy and Croatia during ADRIREEF project

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ADRIREEF

STARTING CONCEPT

REEFS HAVE A GREAT POTENTIAL ON ENVIRONMENTAL CONSERVATION:

THEIR ROLE IS CRUCIAL TO IMPROVE BIODIVERSITY AND GIVE PHYSICAL PROTECTION FROM ILLEGAL FISHING

SEALOGY FERRARA 20/11/2021

ADRIREEF

THE ACTIVITIES ON ADRIATIC REEFS WHICH CAN PRODUCE INCOME

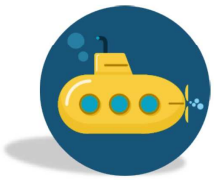
- TOURISM (ABOVE AND BELOW WATER SURFACE)
- RECREATIONAL FISHING
- PROFESSIONAL FISHING
- UNDERWATER PROFESSIONAL FISHING / ACQUACOLTURE

SEALOGY FERRARA 20/11/2021

ADRIREEF

UNDERWATER TOURISM

(PAGURO WRECK CASE STUDY)



ABOUT 2.500 DIVINGS /YEAR

REVENUE: € 150.000 / YEAR

SEALOGY FERRARA 20/11/2021

ADRIREEF

RECREATIONAL FISHING
(ADRIATIC FISHERMEN PROJECT)

ABOUT 20.000 < ATTENDEES / YEAR < 40.000

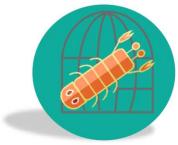
REVENUE: 70.000 < € / YEAR < 200.000

SEALOGY FERRARA 20/11/2021

ADRIREEF

PROFESSIONAL FISHING
(PORTO RECANATI CASE STUDY)

CASE STUDY FOR A PROFESSIONAL SUSTAINABLE FISHING: SQUILLA MANTIS TRAPS



ABOUT 300 CAGES / DAY

REVENUE: 200 < € / DAY < 500

SEALOGY FERRARA 20/11/2021

ADRIREEF

UNDERWATER PROFESSIONAL FISHING

(LA SELVAGGIA DI MARINA DI RAVENNA CASE STUDY)

ABOUT 30.000 KG / YEAR
(*IN A SURFACE OF 1000 M2*)

REVENUE: € 60.000 / YEAR

SEALOGY FERRARA 20/11/2021

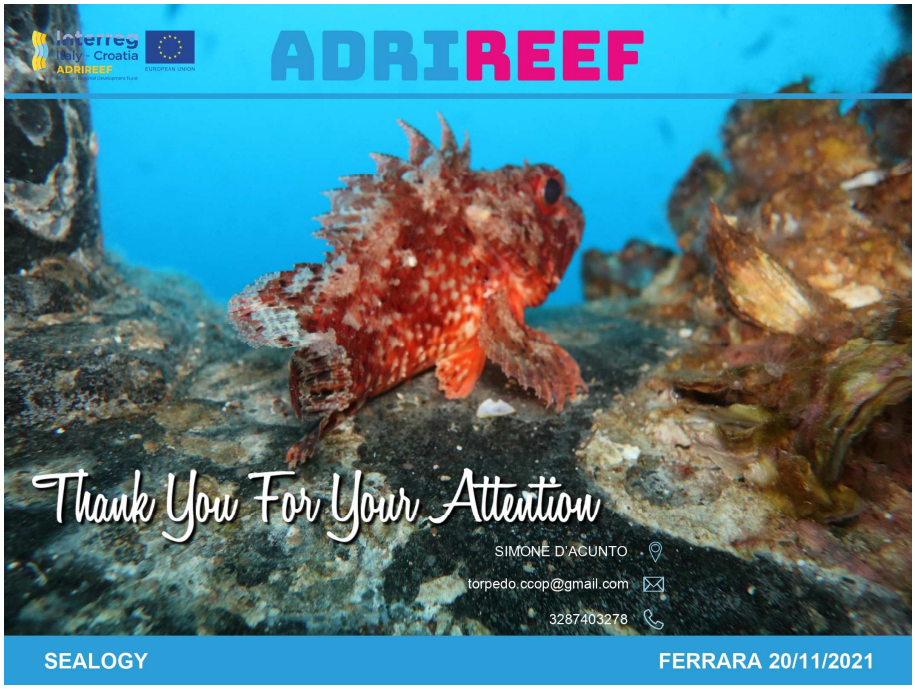
ADRIREEF

CONCLUSIONS

ARTIFICIAL REEF TO IMPROVE AND IMPLEMENT

NEED OF MAKING PROJECTS ON MULTI-ACTION INNOVATIVE SYSTEMS

SEALOGY FERRARA 20/11/2021


ADRIREEF
Thank You For Your Attention
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SEALOGY
FERRARA 20/11/2021