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PREMESSA

Nell'ambito del progetto il partenariato ha partecipato a diverse conferenze nazionali e internazionali e scritto diversi articoli a carattere scientifico, informativo e didattico

allo scopo di divulgare in modo adeguato i risultati del progetto e raggiungere un maggior numero di stakeholders.

Gli articoli sono stati pubblicati su quotidiani locali, su riviste specializzate on-line, e su pubblicazione cartacee/online.

Il presente documento raccoglie tutti gli articoli che il partenariato ha pubblicato nel corso della realizzazione del progetto demandando dove possibile la lettura dell'articolo alla pubblicazione online.

PREDGOVOR

V okviru projekta je partnerstvo sodelovalo na več nacionalnih in mednarodnih konferencah ter napisalo več znanstvenih, informativnih in izobraževalnih člankov, da bi ustrezno razširilo rezultate projekta in doseglo večje število zainteresiranih strani.

Članki so bili objavljeni v lokalnih časopisih, specializiranih spletnih revijah ter v tiskanih in spletnih publikacijah.

V tem dokumentu so zbrani vsi članki, ki jih je partnerstvo objavilo med izvajanjem projekta, pri čemer je bilo branje članka po možnosti preneseno na spletno publikacijo.

PREVIEW

In the framework of the project, the partnership has participated in several national and international conferences and has written several scientific, informative and educational articles in order to disseminate the results of the project and to reach a larger number of stakeholders.

The articles were published in local newspapers, specialised online journals, printed and online publications.

This document brings together all the articles published by the partnership during the project, where possible the content of the article has been transferred to an online publication.

Centro di ricerche scientifiche Capodistria

Znanstveno-raziskovalno središče Koper(ZRS)

Val Stagnon
Škocjanski zatok



Članki, objavljeni v spletnih medijih / Articoli pubblicati in giornali online / Articles published in online newspapers Leto/ Anno/Year: 2020



13. 11. 2020 ➡ čezmejni projekti

Projekt je del programa Interreg Slovenija Italija, prednostna os 3, Varstvo in spodbujanje naravnih in kulturnih virov.

Splošni cilj projekta: Prispevati k ohranitvi biorazličnosti območij Natura 2000 ITA-SLO na osnovi razvoja in pilotne uporabe metod ESS/PES za sestavo načrtov za prilagoditev klimatskim spremembam. Projekt prispeva k cilju CO23 z vzpostavitvijo skupnega prilagodljivega in prenosljivega sistema ESS/PES z načrtovanjem in izvajanjem ukrepov za zaščito biorazličnosti s pilotnimi posegi, tečaji in delavnicami o ESS in PES in posegi za kapitalizacijo v sklopu regijske zakonodaje.

Povzetek projekta: EU je poudarila strateško vlogo zaščite ekosistemov pri blažitvi posledic klimatskih sprememb, hkrati pa podčrtala odpornost območij. Projekt ECO-SMART se sooča z izzivom učinkovitejšega nadzora klimatskih sprememb in načrtovanja ustreznih prilagoditvenih ukrepov, ki bi preprečili negativne učinke, ki ogrožajo kakovost biorazličnosti na območjih Natura 2000 v regijah, vključenih v program ITA-SLO. Splošni cilj projekta ECO-SMART je oceniti in preizkusiti na medregijski ravni ekonomsko izvedljivost financiranja dejanj za zaščito biorazličnosti na območjih Natura 2000 s pilotno uvedbo plačilnih sistemov za ekosistemske storitve (PES). ECO-SMART bo nudil:

- okvirje, ki bodo omogočili ocenjevanje občutljivosti na klimatske spremembe zadevnih območij Natura 2000;
- načrte za prilagoditev, katerih trajnost bodo zagotovili modeli PES v 2 pilotnih izvedbah v ITA in 1 izvedbi v SLO na območjih iz omrežja Natura 2000;
- obsežno širjenje usklajenih postopkov za uporabo pristopov Storitve ekosistemov (ESS) in metod PES pri načrtovanju ohranjanja biorazličnosti na območjih Natura 2000.

Glavni rezultati: Posegi, ki predstavljajo odziv in prilagoditev na klimatske spremembe, zahtevajo znatne tehnična in gospodarska sredstva. Javne oblasti, soudeležene pri projektu, morajo zaradi svoje institucionalne vloge voditi te procese, čeprav razpolagajo z omejenimi sredstvi. ECO-SMART si zastavlja kot namen olajšati potek tega postopka in pripomoči k ohranitvi območij Natura 2000. Predvidevamo, da bomo prispevali k ohranitvi območij: IT 3250033 – Laguna di Caorle – izliv Tilmenta, IT 3250040 – izliv Tilmenta, IT 3250041 – Zumelle Valli di Bibione v deželi Veneto (z gozdovi črnega bora, hrasta, Erica carnea, Rhamnus saxatilis, Epipactis atrorubra), SIC Cavana IT3330007 (naravni biotipi "močvirje Cavana" in "izvir Schiavetti") v FJK, Škocjanski zatok in reka Rižana SI5000008 (250 različnih vrst ptic, kar je več kot 60% vrst cele Slovenije; prisotnost halofitnih rastlin).

Tehnični rezultati so:

- podatkovna baza za ESS (opis, ocenjevanje in kartiranje)(model MAES) ter za učinke klimatskih sprememb (v skladu z orodjem EU CLIMATE-ADAPT);
- analiza učinkovitejših PES za financiranje ukrepov za prilagajanje klimatskim spremembam v projektnih območjih Natura 2000;
- vrsta postopkov ESS/PES/prilagajanje in vodila, ki bi bila po potrebi prenosljiva na druga območja Natura 2000 ;
- sistem, usklajen med ITA in SLO, za odzivanje na učinke klimatskih sprememb na ekosistemi;
- CV s tem v zvezi ;
- 3 pilotne uporabe metod PES za lažje udeležanje prilagoditvenih ukrepov;
- start up 3 prilagoditvenih načrtov za zaščito območij Natura 2000 (eden za vsako regijo).

Poleg Znanstveno-raziskovalnega središča (ZRS) Koper pri projektu sodelujejo še Dežela Benečija, Občina Tržič, Univerza v Padovi in [Regionalni razvojni center Koper](#).

Začetek projekta: 1. februar 2020

Raccolta di pubblicazioni e articoli scientifici, informativi e didattici specializzate
Zbirka znanstvenih, informativnih in izobraževalnih publikacij in člankov
Versione n./Verzija št.:1

7. ECO-SMART Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA2K (Interreg)

Začetek projekta: 1. februar 2020

Lancio del progetto: 1 febbraio 2020

Link: <http://www.natura2000.si/projekt/eco-smart-trzisce-ekosistemskih-storitev-za-napredno-politiko-zascite-obmocij-natura2k/>

Projekt je del programa Interreg Italija Slovenija, prednostna os 3, Varstvo in spodbujanje naravnih in kulturnih virov. Splošni cilj projekta: Prispevati k ohranitvi biorazličnosti območij Natura 2000 ITA-SLO na osnovi razvoja in pilotne uporabe metod ESS/PES za sestavo načrtov za prilagoditev klimatskim spremembam. Projekt prispeva k cilju CO23 z vzpostavitvijo skupnega prilagodljivega in prenosljivega sistema ESS/PES z načrtovanjem in izvajanjem ukrepov za zaščito biorazličnosti s pilotnimi posegi, tečaji in delavnicami o ESS in PES in posegi za kapitalizacijo v sklopu regijske zakonodaje. Povzetek projekta: EU je poudarila strateško vlogo zaščite ekosistemov pri blažitvi posledic klimatskih sprememb, hkrati pa poudarila odpornost območij. Projekt ECO-SMART se sooča z izzivom učinkovitejšega nadzora klimatskih sprememb in načrtovanja ustreznih prilagoditvenih ukrepov, ki bi preprečili negativne učinke, ki ogrožajo kakovost biorazličnosti na območjih Natura 2000 v regijah, vključenih v program ITA-SLO. Splošni cilj projekta ECO-SMART je oceniti in preizkusiti na medregijski ravni ekonomsko izvedljivost financiranja dejanj za zaščito biorazličnosti na območjih Natura 2000 s pilotno uvedbo plačilnih sistemov za ekosistemske storitve (PES). ECO-SMART bo nudil:

- okvirje, ki bodo omogočili ocenjevanje občutljivosti na klimatske spremembe zadevnih območij Natura 2000;
- načrte za prilagoditev, katerih trajnost bodo zagotovili modeli PES v 2 pilotnih izvedbah v ITA in 1 izvedbi v SLO na območjih iz omrežja Natura 2000;
- obsežno širjenje usklajenih postopkov za uporabo pristopov Storitve ekosistemov (ESS) in metod PES pri načrtovanju ohranjanja biorazličnosti na območjih Natura 2000.

Glavni rezultati: Posegi, ki predstavljajo odziv in prilagoditev na klimatske spremembe, zahtevajo znatne tehnična in gospodarska sredstva. Javne oblasti, sodelujoče pri projektu, morajo zaradi svoje institucionalne vloge voditi te procese, čeprav razpolagajo z omejenimi sredstvi. ECO-SMART si zastavlja kot namen olajšati potek tega postopka in pripomoči k ohranitvi območij Natura 2000. Predvidevamo, da bomo prispevali k ohranitvi območij: IT 3250033 - Laguna di Caorle - izliv Tilmenta, IT 3250040

- izliv Tilmenta, IT 3250041 - Zumelle Valli di Bibione v deželi Veneto (z gozdovi črnega bora, hrasta, Erica carnea, Rhamnus saxatilis, Epipactis atropurpurea), SIC Cavana IT3330007 (naravni biotipi "močvirje Cavana" in "izvir Schiavetti") v FJK, Škocjanski zatok in reka Rižana SI5000008 (250 različnih vrst ptic, kar je več kot 60% vrst cele Slovenije; prisotnost halofitnih rastlin).

Tehnični rezultati so:

- podatkovna baza za ESS (opis, ocenjevanje in kartiranje) (model MAES) ter za učinke klimatskih sprememb (v skladu z orodjem EU CLIMATE-ADAPT);
- analiza učinkovitejših PES za financiranje ukrepe za prilagajanje klimatskim spremembam v projektnih območjih Natura 2000;
- vrsta postopkov ESS/PES/prilagajanje in vodila, ki bi bila po potrebi prenosljiva na druga območja Natura 2000 ;
- sistem, usklajen med ITA in SLO, za odzivanje na učinke klimatskih sprememb na ekosistemih;
- CV s tem v zvezi ;
- 3 pilotne uporabe metod PES za lažje udejanjanje prilagoditvenih ukrepov;
- start up 3 prilagoditvenih načrtov za zaščito območij Natura 2000 (eden za vsako regijo).

Poleg Znanstveno-raziskovalnega središča (ZRS) Koper pri projektu sodelujejo še Dežela Benečija, Občina Tržič, Univerza v Padovi in Regionalni razvojni center Koper.

7. Mercato dei servizi ecosistemici ECO-SMART per una politica avanzata di protezione dei siti NATURA2K (Interreg)

Il progetto fa parte del programma Interreg Italia Slovenia, asse prioritario 3, Tutela e promozione delle risorse naturali e culturali. L'obiettivo generale del progetto consiste nel contribuire alla conservazione della biodiversità dei siti Natura 2000 ITA-SLO, sulla base dello sviluppo e dell'applicazione pilota di metodi ESS/PES per la preparazione di piani di adattamento ai cambiamenti climatici. Il progetto contribuisce all'obiettivo CO23 stabilendo un sistema ESS/PES comune flessibile e trasferibile, pianificando e attuando misure a tutela della biodiversità attraverso interventi pilota, corsi e workshop su ESS e PES e interventi di capitalizzazione ai sensi della normativa regionale. Il progetto ECO-SMART affronta la sfida di un controllo più efficace del cambiamento climatico e della pianificazione di adeguate misure di adattamento per prevenire gli effetti negativi che minacciano la qualità della biodiversità nei siti Natura 2000 nelle regioni incluse nel programma ITA-SLO. L'obiettivo generale del progetto ECO-SMART è valutare e testare a livello interregionale la fattibilità economica di azioni di finanziamento per la tutela della biodiversità nei siti Natura 2000, attraverso l'introduzione pilota di sistemi di pagamento per i servizi ecosistemici (PES). Per il ruolo istituzionale, le autorità pubbliche coinvolte nel progetto devono guidare questi processi, sebbene dispongano di risorse limitate. ECO-SMART mira a facilitare questo processo e aiutare a preservare i siti Natura 2000.

I risultati tecnici sono:

- database per l'ESS (descrizione, valutazione e mappatura) (modello MAES) e per gli effetti del cambiamento climatico (secondo lo strumento EU CLIMATE-ADAPT);
- analisi di PES più efficaci per finanziare misure di adattamento ai cambiamenti climatici nelle aree del progetto Natura 2000;
- una serie di procedure e linee guida ESS/PES/di adattamento che potrebbero essere trasferite ad altri siti Natura 2000 se necessario;
- un sistema coordinato tra ITA e SLO per rispondere agli effetti del cambiamento climatico sugli ecosistemi;
- 3 applicazioni pilota di metodi PES per facilitare l'attuazione delle misure di adattamento;
- avviare 3 piani di adeguamento per la tutela dei siti Natura 2000 (uno per regione).

Il progetto coinvolge, oltre al Centro di Ricerca Scientifica (ZRS) di Capodistria, anche la Regione del Veneto, il Comune di Monfalcone, l'Università di Padova e il Centro di sviluppo regionale di Capodistria.

7. ECO-SMART ecosystem services market for an advanced policy for the protection of NATURA2K sites (Interreg)

The project is part of the Interreg Italy Slovenia program, priority axis 3 "Protection and promotion of natural and cultural resources". The general objective of the project is to contribute to the conservation of the biodiversity of Natura 2000 ITA-SLO sites, based on the development and pilot application of ESS / PES methods for the preparation of adaptation plans to climate change. The project contributes to the CO23 objective by establishing a common flexible and transferable ESS / PES system, planning and implementing measures to protect biodiversity through pilot interventions, courses and workshops on ESS and PES and capitalization interventions under the regional legislation.

The ECO-SMART project faces the challenge of more effective control of climate change and planning of adequate adaptation measures to prevent negative effects that threaten the quality of biodiversity in Natura 2000 sites in the regions included in the ITA-SLO program. The general objective of the ECO-SMART project is to evaluate and test the economic feasibility of financing actions for the protection of biodiversity in Natura 2000 sites at an interregional level, through the pilot introduction of payment systems for ecosystem services (PES).

For the institutional role, the public authorities involved in the project must lead these processes, although they have limited resources. ECO-SMART aims to facilitate this process and help preserve Natura 2000 sites.

The technical results are:

- database for the ESS (description, evaluation and mapping) (MAES model) and for the effects of climate change (according to the EU CLIMATE-ADAPT tool);
- more effective PES analyzes to finance climate change adaptation measures in Natura 2000 project areas;
- a set of ESS / PES / adaptation procedures and guidelines that could be transferred to other Natura 2000 sites if needed;
- coordination between ITA and SLO to respond to the effects of climate change on ecosystems;
- 3 pilot applications of PES methods to facilitate the implementation of adaptation measures;
- launch of 3 adaptation plans for the protection of Natura sites 2000 (one per region).

In addition to the Scientific Research Center (ZRS) of Koper, the project also involves the Veneto Region, the Municipality of Monfalcone, the University of Padua and the Regional Development Center of Koper.

ZRS KOPER VABI NA IZOBRAŽEVALNO-INFORMATIVNA DOGODKA: Slišali boste o ekosistemskih storitvah in njihovem vrednotenju

Koper

[N.J. - Uredništvo/Vsebine omogoča ZRS - Znanstveno raziskovalno središče Koper](#) - Foto: Facebook/Znanstveno-raziskovalno središče Koper, Facebook/NeozavAnkara
[rezervat Škocjanski zatok](#) - 07.12.2020 ob 20:11

Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) v decembru 2020 ter januarju 2021 organizirata izobraževalne in informativne dogodke o ekosistemskih storitvah in njihovem vrednotenju.

• [Slovenija](#)

• [Svet](#)

• [Trendi](#)



Dogodki so namenjeni **seznanitvi z ranljivostjo območij**, ekosistemskimi storitvami in **modeli plačila** za ekosistemske storitve, ki so predlagani za **pilotna območja Nature 2000** (Laguna Caorle pri izlivu Tilmenta, delta reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravni rezervat Škocjanski zatok), in sicer kot **orodja za zaščito biotske raznovrstnosti** in spremljanje podnebnih sprememb.

Dogodki potekajo v **italijanskem in slovenskem jeziku**, odvisno od partnerjev, ki so vključeni v organizacijo dogodka.



ECO-SMART delovna skupina partnerjev ZRS Koper, MIOS in RRC Koper bo sodelovala pri organizaciji dogodkov za lokalno skupnost v slovenskem jeziku, in sicer **15. decembra 2020 in 12. januarja 2021**.

Zaključni dogodek, ki bo potekal 20. januarja 2021, bo **vključeval vse partnerje** in bo **dvojezičen** s simultanim prevodom.

Več informacij lahko pridobite [na spletni strani projekta](#), [Facebook strani projekta](#) ali [na LinkedIn strani](#). Informacija o **izobraževalnih dogodkih** pa je [na razpolago tudi na tej povezavi](#).

Raccolta di pubblicazioni e articoli scientifici, informativi e didattici specializzate
Zbirka znanstvenih, informativnih in izobraževalnih publikacij in člankov
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8. ZRS KOPER VABI NA IZOBRAŽEVALNO-INFORMATIVNA DOGODKA: Slišali boste o ekosistemskih storitvah in njihovem vrednotenju

Link: <https://regionalobala.si/novica/zrs-koper-vabi-na-izobrazevalno-informativna-dogodka-slisali-boste-o-ekosistemskih-storitvah-in-njih>

Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) v decembru 2020 ter januarju 2021 organizirata izobraževalne in informativne dogodke o ekosistemskih storitvah in njihovem vrednotenju. Dogodki so namenjeni **seznanitvi z ranljivostjo območij**, ekosistemskimi storitvami in **modeli plačila** za ekosistemske storitve, ki so predlagani za **pilotna območja Nature 2000** (Laguna Caorle pri izlivu Tilmenta, delta reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravni rezervat Škocjanski zatok), in sicer kot **orodja za zaščito biotske raznovrstnosti** in spremljanje podnebnih sprememb. Dogodki potekajo v **italijanskem in slovenskem jeziku**, odvisno od partnerjev, ki so vključeni v organizacijo dogodka. **ECO-SMART delovna skupina** partnerjev ZRS Koper, MIOS in RRC Koper bo sodelovala pri organizaciji dogodkov za lokalno skupnost v slovenskem jeziku, in sicer **15. decembra 2020 in 12. januarja 2021**. Zaključni dogodek, ki bo potekal 20. januarja 2021, bo **vključeval vse partnerje** in bo **dvojezičen** s simultanim prevodom.

Več informacij lahko pridobite [na spletni strani projekta](#), [Facebook strani projekta](#) ali [na LinkedIn strani](#). Informacija o **izobraževalnih dogodkih** pa je [na razpolago tudi na tej povezavi](#).

8. ZRS KOPER INVITA AD EVENTI EDUCATIVI E INFORMATIVI: sentirai parlare dei servizi ecosistemici e della loro valutazione

I partner del progetto ECO-SMART (Mercato dei servizi ecosistemici per la politica avanzata per la protezione dei siti NATURA 2000, Programma di cooperazione INTERREG V-A Italia-Slovenia 2014-2020) a dicembre 2020 e gennaio 2021 organizzano eventi educativi e informativi sui servizi ecosistemici e la loro valutazione. Gli eventi sono volti a mettere in luce la vulnerabilità dei territori, dei servizi ecosistemici e dei modelli di pagamento per i servizi ecosistemici proposti per le aree pilota Natura 2000 (Laguna di Caorle, Foce del Tagliamento, Valle Vecchia - Zumelle - Valli di Bibione, Cavana di Monfalcone, Riserva Naturale Val Stagnon) come strumenti per la tutela della biodiversità e il monitoraggio dei cambiamenti climatici. Gli eventi si svolgono in lingua italiana e slovena, a seconda dei partner coinvolti nell'organizzazione dell'evento. Il

gruppo di lavoro ECO-SMART dei partner ZRS Koper, MIOS e RRC Koper parteciperà all'organizzazione di eventi per la comunità locale in lingua slovena, il 15 dicembre 2020 e il 12 gennaio 2021. L'evento conclusivo, che si terrà il 20 gennaio 2021, coinvolgerà tutti i partner e sarà bilingue con traduzione simultanea.

8. ZRS KOPER INVITES TO EDUCATIONAL AND INFORMATION EVENTS: you will hear about ecosystem services and their evaluation

The partners of the ECO-SMART project (Ecosystem services market for advanced policy for the protection of NATURA 2000 sites, INTERREG V-A Italy-Slovenia 2014-2020 cooperation program) in December 2020 and January 2021 organize educational and information events on ecosystem services and their evaluation. The events are aimed at highlighting the vulnerability of the territories, ecosystem services and payment models for ecosystem services proposed for the Natura 2000 pilot areas (Caorle Lagoon, Tagliamento Mouth, Valle Vecchia - Zumelle - Bibione Valleys, Cavana di Monfalcone, Val Stagnon Nature Reserve) as tools for the protection of biodiversity and the monitoring of climate change. The events are held in Italian and Slovenian, depending on the partners involved in organizing the event. The ECO-SMART working group of the partners ZRS Koper, MIOS and RRC Koper will participate in the organization of events for the local community in Slovenian, on December 15, 2020 and January 12, 2021. The final event, which will be held on January 20, 2021, will involve all partners and will be bilingual with simultaneous translation.



S čezmejnem projektom do učinkovitejšega prilagajanja upravljanja zavarovanih območij

Koper, 22. junija - Partnerji v čezmejnem projektu Eco-smart, med katerimi je tudi ZRS Koper, želijo sodelovati pri soustvarjanju sistema spremljanja stanja, ki bi lokalnim oblastem in upravljalcem zavarovanih območij omogočal učinkovitejše prilagajanje upravljanja območja prihajajočim podnebnim spremembam.

Celotna novica je dostopna le naročnikom.

Novica vsebuje 1.249 znakov (brez presledkov) oziroma 201 besedo.

Novico lahko [kupite](#). Cena: 1 žeton; na računu: 0 žetonov

22.6.2020 14:18 miv/mrn

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9. ČLANEK - S čezmejnimi projektom do učinkovitejšega prilagajanja upravljanja zavarovanih območij

Link: <https://www.sta.si/2778138/s-cezmejnimi-projektom-do-ucinkovitejsjega-prilagajanja-upravljanja-zavarovanih-obmocij>

Koper, 22. junija - Partnerji v čezmejnem projektu Eco-smart, med katerimi je tudi ZRS Koper, želijo sodelovati pri soustvarjanju sistema spremljanja stanja, ki bi lokalnim oblastem in upravljalcem zavarovanih območij omogočal učinkovitejše prilagajanje upravljanja območja prihajajočim podnebnim spremembam.

9. ARTICOLO - Attraverso un progetto transfrontaliero per adeguare in modo più efficace la gestione delle aree protette

Capodistria, 22 giugno - I partner del progetto transfrontaliero Eco-smart, tra cui ZRS Koper, vogliono co-creare un sistema di monitoraggio che permetta alle autorità locali e ai gestori delle aree protette di adattare in modo più efficace la loro gestione ai cambiamenti climatici imminenti.

9. ARTICLE - Through a cross-border project to more effectively adapt the management of protected areas

Koper, 22 June - The partners of the cross-border Eco-smart project, including ZRS Koper, want to co-create a monitoring system that allows local authorities and protected area managers to more effectively adapt their management to the imminent climate changes.

- [Svet](#)
- [Trendi](#)

S ČEZMEJNIM PROJEKTOM DO UČINKOVITEJŠEGA UPRAVLJANJA ZAVAROVANIH OBMOČIJ: Izvajal se bo tudi v Škocjanskem zatoku

Koper

T.R. - Uredništvo/STA - Foto: Liliana Vižintin/ZRS Koper. Facebook/Naravni rezervat Škocjanski zatok - 22.06.2020 ob 16:08

Partnerji v čezmejnem projektu Eco-smart, med katerimi je tudi ZRS Koper, želijo sodelovati pri soustvarjanju sistema spremljanja stanja, ki bi lokalnim oblastem in upravljalcem zavarovanih območij omogočal učinkovitejše prilagajanje upravljanja območja prihajajočim podnebnim spremembam.



(foto: Facebook/Naravni rezervat Škocjanski zatok)

V ta namen bodo projektni partnerji na medregijski ravni med drugim tudi pilotno ocenili ekonomsko izvedljivost ukrepov za **zaščito biotske pestrosti** na pilotnih območjih omrežja Natura 2000, med katerimi je tudi **naravni rezervat Škocjanski zatok** pri Kopru, in sicer preko aplikacije modelov ekonomskega ovrednotenja ekosistemskih storitev, so ob današnji predstavitvi projekta, ki je potekala prek spleta, zapisali v Znanstveno-raziskovalnem središču (ZRS) Koper.

V okviru projekta **Eco-smart**, ki se izvaja v sklopu Programa sodelovanja INTERREG V-A Italija-Slovenija 2014-2020, bodo tako **analizirali ranljivost na podnebne spremembe** za vsa izbrana območja omrežja Natura 2000 in oblikovali načrte prilagajanja na podnebne spremembe za tri pilotna področja, katerih izvedljivost se bo utemeljila na osnovi modelov plačila za ekosistemske storitve.



(foto: Liliana Vižintin/ZRS Koper)

Obenem bo potekalo **osveščanje o pomenu ekosistemskih storitev**, razširili pa bodo tudi usklajene postopke analize le teh, ki bodo uporabni pri oblikovanju načrtov ohranjanja biotske pestrosti na območjih Nature 2000.

Vodilni partner projekta je sicer Direkcija za turizem italijanske dežele Benečija (Veneto), med slovenskimi partnerji pa je poleg ZRS Koper še **Regionalni razvojni center Koper**. Projekt bo trajal **do 31. marca 2022**. Celotna vrednost projekta znaša dobrih **782.000 evrov**, od tega sofinanciranje Evropskega sklada za regionalni razvoj znaša skoraj 540.000 evrov, so še navedli v ZRS Koper.

10. S ČEZMEJNIM PROJEKTOM DO UČINKOVITEJŠEGA UPRAVLJANJA ZAVAROVANIH OBMOČIJ: Izvajal se bo tudi v Škocjanskem zatoku

Koper, 22.06.2020

Link: <https://www.regionalbala.si/novica/s-cezmejnim-projektom-do-ucinkovitejsega-upravljanja-zavarovanih-obmocij-izvajal-se-bo-tudi-v-skocja>

Partnerji v čezmejnem projektu Eco-smart, med katerimi je tudi ZRS Koper, želijo sodelovati pri soustvarjanju sistema spremljanja stanja, ki bi lokalnim oblastem in upravljalcem zavarovanih območij omogočal učinkovitejše prilagajanje upravljanja območja prihajajočim podnebnim spremembam. V ta namen bodo projektni partnerji na medregijski ravni med drugim tudi pilotno ocenili ekonomsko izvedljivost ukrepov za zaščito biotske pestrosti na pilotnih območjih omrežja Natura 2000, med katerimi je tudi naravni rezervat Škocjanski zatok pri Kopru, in sicer preko aplikacije modelov ekonomskega ovrednotenja ekosistemskih storitev, so ob današnji predstavitvi projekta, ki je potekala prek spleta, zapisali v Znanstveno-raziskovalnem središču (ZRS) Koper. V okviru projekta Eco-smart, ki se izvaja v sklopu Programa sodelovanja INTERREG V-A Italija-Slovenija 2014-2020, bodo tako analizirali ranljivost na podnebne spremembe za vsa izbrana območja omrežja Natura 2000 in oblikovali načrte prilagajanja na podnebne spremembe za tri pilotna področja, katerih izvedljivost se bo utemeljila na osnovi modelov plačila za ekosistemske storitve.

Obenem bo potekalo osveščanje o pomenu ekosistemskih storitev, razširili pa bodo tudi usklajene postopke analize le teh, ki bodo uporabni pri oblikovanju načrtov ohranjanja biotske pestrosti na območjih Nature 2000. Vodilni partner projekta je sicer Direkcija za turizem italijanske dežele Benečija (Veneto), med slovenskimi partnerji pa je poleg ZRS Koper še Regionalni razvojni center Koper. Projekt bo trajal do 31. marca 2022. Celotna vrednost projekta znaša dobrih 782.000 evrov, od tega sofinanciranje Evropskega sklada za regionalni razvoj znaša skoraj 540.000 evrov, so še navedli v ZRS Koper.

10. UN PROGETTO TRANSFRONTALIERO PER UNA GESTIONE PIÙ EFFICIENTE DELLE AREE PROTETTE: sarà implementata anche la baia di Stagnon

Capodistria, 22.06.2020

I partner del progetto transfrontaliero Eco-smart, tra cui ZRS Koper, vogliono partecipare alla co-creazione di un sistema di monitoraggio che consentirebbe alle autorità locali e ai gestori delle aree protette di adattare in modo più efficace la gestione dell'area ai cambiamenti climatici imminenti. A tal fine, i partner del progetto a livello interregionale valuteranno anche la fattibilità economica di misure per proteggere la biodiversità nelle aree pilota della rete Natura 2000, inclusa la riserva

naturale Val Stagnon vicino a Capodistria, attraverso l'applicazione di modelli per la valutazione economica dell'ecosistema servizi. Il progetto Eco-smart, implementato nell'ambito del Programma di Cooperazione INTERREG V-A Italia-Slovenia 2014-2020, analizzerà la vulnerabilità ai cambiamenti climatici per tutte le aree selezionate della rete Natura 2000 e svilupperà piani di adattamento ai cambiamenti climatici per tre aree pilota. basati su modelli di pagamento per i servizi ecosistemici. Allo stesso tempo, verrà aumentata la consapevolezza sull'importanza dei servizi ecosistemici e verranno ampliate procedure di analisi armonizzate, utili nello sviluppo di piani di conservazione della biodiversità nei siti Natura 2000. Il capofila del progetto è la Direzione Turismo U.O. Biodiversità e Parchi della Regione del Veneto e tra i partner sloveni, oltre a ZRS Koper, c'è il Centro di Sviluppo Regionale Koper. Il progetto durerà fino al 31 marzo 2022. Il valore totale del progetto è di oltre 782.000 euro, di cui il cofinanziamento del Fondo europeo di sviluppo regionale ammonta a quasi 540.000 euro, ha affermato ZRS Koper.

10. A CROSS-BORDER PROJECT FOR MORE EFFICIENT MANAGEMENT OF PROTECTED AREAS: the bay of Stagnon will also be implemented
Koper, 22.06.2020

The partners of the cross-border Eco-smart project, including ZRS Koper, want to participate in the co-creation of a monitoring system that would allow local authorities and protected area managers to more effectively adapt the management of the area to the imminent climate changes. For this purpose, the project partners at the interregional level will also assess the economic feasibility of measures to protect biodiversity in the pilot areas of the Natura 2000 network, including the Val Stagnon nature reserve near Koper, through the application of models for economic evaluation. of the service ecosystem. The Eco-smart project, implemented as part of the INTERREG V-A Italy-Slovenia 2014-2020 Cooperation Program, will analyze the vulnerability to climate change for all selected areas of the Natura 2000 network and will develop adaptation plans to climate change for three pilot areas, based on payment models for ecosystem services. At the same time, awareness of the importance of ecosystem services will be increased and harmonized analysis procedures will be expanded, useful in the development of biodiversity conservation plans in Natura 2000 sites. The project leader is the Tourism Department - U.O. Biodiversity and Parks - of the Veneto Region and among the Slovenian partners, in addition to ZRS Koper, there is the Koper Regional Development Center. The project will run until March 31, 2022. The total value of the project is over 782,000 euros, of which the European Regional Development Fund co-financing amounts to almost 540,000 euros, said ZRS Koper.

Leto/ Anno/Year: 2021

ŠE ZADNJI DOGODEK PROJEKTA ECO-SMART: O nevarnostih podnebnih sprememb in njihovih posledicah na ekosistemi

Koper

N.J. - Uredništvo/Vsebino omogoča ZRS - Znanstveno raziskovalno središče Koper -

Foto: dr. Liliana Vižintin, Mediteranski inštitut za okoljske študije ZRS Koper, arhiv ZRS Koper - 19.01.2021 ob 14:40

Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij Natura 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) pripravljajo še zadnjega v nizu dogodkov izobraževanja in informiranja deležnikov obmejnih skupnosti Slovenije in Italije, o ekosistemskih storitvah, njihovem ekonomskem vrednotenju in ranljivosti zaradi podnebnih sprememb.



V sklopu tokratnega, zadnjega dogodka partnerjev projekta ECO-SMART, se boste lahko **seznanili z ekosistemskimi storitvami in ranljivostjo območij Nature 2000**, in sicer Lagune Caorle pri izlivu Tilmenta, delte reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravnega rezervata Škocjanski zatok.

Sodelovali bodo **raziskovalci** Univerze v Padovi, Univerze v Vidmu in Mediteranskega inštituta za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS MIOS).



Velik **poudarek bo na nevarnostih**, ki jih povzročajo podnebne spremembe in njihovih posledicah na ekosistemi, biotski raznovrstnosti ter ekosistemskih storitvah, ki jih zagotavljajo zaščiteni sredozemska obalna območja.

Slovenske partnerje bo zastopal **dr. Cecil Meulenberg**, raziskovalec MIOS ZRS Koper, ki bo predstavil **rezultate slovenskega pilotnega primera**. Program si lahko ogledate v priloženem vabilu.

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Dr. Cecil Meulenberg

Spletni dogodek je brezplačen in bo potekal **v sredo, 20. januarja 2021, ob 16. uri** preko aplikacije Cisco WebEx v italijanskem, slovenskem in angleškem jeziku (simultano prevajanje preko aplikacije VEASYT).

Če želite sodelovati na dogodku, pošljite **e-poštno sporočilo** na naslov: liliana.vizintin@zrs-kp.si ali tadej.zilic@rrc-kp.si ali se **prijavite preko spletne povezave**.

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11. ŠE ZADNJI DOGODEK PROJEKTA ECO-SMART: o nevarnostih podnebnih sprememb in njihovih posledicah na ekosistemi

Koper, 19.01.2021

Link: <https://www.regionalobala.si/novica/se-zadnji-dogodek-projekta-eco-smart-o-nevarnostih-podnebnih-sprememb-in-njihovih-posledicah-na-ekos>

Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij Natura 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) pripravljajo še zadnjega v nizu dogodkov izobraževanja in informiranja deležnikov obmejnih skupnosti Slovenije in Italije, o ekosistemskih storitvah, njihovem ekonomskem vrednotenju in ranljivosti zaradi podnebnih sprememb. V sklopu tokratnega, zadnjega dogodka partnerjev projekta ECO-SMART, se boste lahko seznanili z ekosistemskimi storitvami in ranljivostjo območij Nature 2000, in sicer Lagune Caorle pri izlivu Tilmenta, delte reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravnega rezervata Škocjanski zatok. Sodelovali bodo raziskovalci Univerze v Padovi, Univerze v Vidmu in Mediteranskega inštituta za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS MIOS).

Velik poudarek bo na nevarnostih, ki jih povzročajo podnebne spremembe in njihovih posledicah na ekosistemi, biotski raznovrstnosti ter ekosistemskih storitvah, ki jih zagotavljajo zaščiteni sredozemska obalna območja. Slovenske partnerje bo zastopal dr. Cecil Meulenberg, raziskovalec MIOS ZRS Koper, ki bo predstavil rezultate slovenskega pilotnega primera. Program si lahko ogledate v priloženem vabilu. Spletni dogodek je brezplačen in bo potekal v sredo, 20. januarja 2021, ob 16. uri preko aplikacije Cisco WebEx v italijanskem, slovenskem in angleškem jeziku (simultano prevajanje preko aplikacije VEASYT).

11. RECENTE EVENTO DEL PROGETTO ECO-SMART: sui pericoli del cambiamento climatico e le sue conseguenze sugli ecosistemi

Capodistria, 19.01.2021

I partner del progetto ECO-SMART (Ecosystem Services Market for Advanced Natura 2000 Protection Policy, INTERREG V-A Italia-Slovenia 2014-2020 Programma di cooperazione) stanno preparando l'ultimo di una serie di eventi per educare e informare le parti interessate delle comunità di confine slovene e italiane sull'ecosistema servizi e la loro valutazione economica e vulnerabilità ai cambiamenti climatici. Nell'ambito di questo, ultimo evento dei partner del progetto ECO-SMART, si potranno conoscere i servizi ecosistemici e la vulnerabilità dei siti Natura 2000, ovvero Laguna di Caorle, foce del Tagliamento, Valle Vecchia, Zumelle, Valli di Bibione, Cavana di Monfalcone e la Riserva Naturale della Val Stagnon. Parteciperanno ricercatori dell'Università di Padova

e dell'Istituto Mediterraneo per gli Studi Ambientali del Centro di Scienza e Ricerca di Capodistria (ZRS MIOS). Sarà posto un forte accento sulle minacce poste dal cambiamento climatico e sui suoi effetti sugli ecosistemi, sulla biodiversità e sui servizi ecosistemici forniti dalle aree costiere del Mediterraneo protette. I partner sloveni saranno rappresentati dal dott. Cecil Meulenbergh, ricercatore del MIOS ZRS Koper, presenterà i risultati del caso pilota sloveno. Potete vedere il programma nell'invito allegato. L'evento online è gratuito e si svolgerà mercoledì 20 gennaio 2021, alle ore 16, tramite l'applicazione Cisco WebEx in italiano, sloveno e inglese (traduzione simultanea tramite l'applicazione VEASYT).

11. RECENT EVENT OF THE ECO-SMART PROJECT: On the dangers of climate change and its consequences on ecosystems

Koper, 19.01.2021

The partners of the ECO-SMART project (Ecosystem Services Market for Advanced Natura 2000 Protection Policy, INTERREG V-A Italy-Slovenia 2014-2020 Cooperation Program) are preparing the last one of a series of events to educate and inform stakeholders of the communities of Slovenian and Italian border on the ecosystem services and their economic assessment and vulnerability to climate change. As part of this last event of the partners of the ECO-SMART project, it will be possible to learn about the ecosystem services and the vulnerability of Natura 2000 sites, namely Lagoon of Caorle, mouth of the Tagliamento, Valle Vecchia, Zumelle, Valleys of Bibione, Cavana di Monfalcone and the Val Stagnon Nature Reserve. Researchers from the University of Padua and the Mediterranean Institute for Environmental Studies of the Center for Science and Research of Koper (ZRS MIOS) will participate. Strong emphasis will be placed on the threats posed by climate change and its effects on ecosystems, biodiversity and ecosystem services provided by protected Mediterranean coastal areas.

The online event is free of charge and will take place on Wednesday 20 January 2021, at 4 pm, through the Cisco WebEx application in Italian, Slovenian and English (simultaneous translation via the VEASYT application).

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PREDAVANJE MORSKEGA BIOLOGA PROF. DR. LOVRENCA LIPEJA: Vpliv podnebnih sprememb na morske in obalne ekosisteme

Koper

T.K. - Uredništvo/Vsebinno omogoča Znanstveno raziskovalno središče (ZRS) Koper - Foto: DIZRO, Pixabay, Facebook Krajinski park Strunjan

Na delavnici projekta ECO-SMART, Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, bo v torek, 12. januarja 2021, ob 14.00 predaval morski biolog prof. dr. Lovrenc Lipej, znanstveni svetnik na Morski biološki postaji Piran Nacionalnega inštituta za biologijo. Prof. Lipej, ki se posveča raziskovanju raznovrstnosti v Jadranu, še posebej slovenskega obalnega morja, bo tokrat spregovoril o vplivu podnebnih sprememb na morske in obalne ekosisteme. Delavnico organizirata Mediteranski inštitut za okoljske študije (MIOS) ZRS Koper in Regionalni razvojni center (RRC) Koper, slovenska partnerja projekta ECO-SMART.



Morje, pa naj bo slovensko, Jadransko ali Sredozemsko, doživlja spremembe. Sooča se z **višjimi temperaturami**, ki so omogočile, da se v severnejše predele prebijajo ribe, ki jih prej ni bilo opaziti na teh zemljepisnih širinah.

Podnebne spremembe skupaj s človeškimi dejavnostmi dejansko vplivajo na izrazito prerasporeditev vrst v celotnem Sredozemskem bazenu. Poleg omenjenega širjenja vrst proti severu in prihoda **tujerodnih vrst** se vpliv podnebnih sprememb odraža tudi na nekaterih **ogroženih nevretenčarjih**. Še posebej je to očitno pri **sredozemski kameni koral** (*Cladocora caespitosa*), pri kateri zaradi višjih temperatur prihaja do pojava bledenja, ko koralo zapustijo fotosintetski endosimbionti.



Nenazadnje se bodo podnebne spremembe pokazale tudi na nivoju ekoloških sprememb in **negativnih posledic v obalnih mokriščih**.

V okviru predavanja bodo predstavljeni konkretni primeri vpliva podnebnih sprememb na nivoju **slovenskega obalnega morja** in obrežnih mokrišč, ki so povezani s pojavi tropikalizacije, bioinvazije, bledenja koral ter drugimi pojavi. Udeležba na delavnici je **brezplačna**. Izvajala se bo v **slovenskem jeziku**. Spletni dogodek se bo odvijal preko aplikacije ZOOM.



Vabilo: https://www.rrc-kp.si/.../stories/vabilo_dogodek_12-1-21.pdf

Link do prijavnice: <https://forms.gle/luZmxw2U2TDJc83R6>

Prijave so možne le še danes, **11. januarja 2021**. Vsi prijavljeni bodo po elektronski pošti prejeli link do zoom dogodka.

12. PREDAVANJE MORSKEGA BIOLOGA PROF. DR. LOVRENCA LIPEJA: Vpliv podnebnih sprememb na morske in obalne ekosisteme

Koper, 11.01.2021

Link: <https://www.regionalobala.si/novica/predavanje-morskega-biologa-prof-dr-lovrenca-lipeja-vpliv-podnebnih-sprememb-na-morske-in-obalne-eko>

Na delavnici projekta ECO-SMART, Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, bo v torek, 12. januarja 2021, ob 14.00 predaval morski biolog prof. dr. Lovrenc Lipej, znanstveni svetnik na Morski biološki postaji Piran Nacionalnega inštituta za biologijo. Prof. Lipej, ki se posveča raziskovanju raznovrstnosti v Jadranu, še posebej slovenskega obalnega morja, bo tokrat spregovoril o vplivu podnebnih sprememb na morske in obalne ekosisteme. Delavnico organizirata Mediteranski inštitut za okoljske študije (MIOS) ZRS Koper in Regionalni razvojni center (RRC) Koper, slovenska partnerja projekta ECO-SMART. Morje, pa naj bo slovensko, Jadransko ali Sredozemsko, doživlja spremembe. Sooča se z **višjimi temperaturami**, ki so omogočile, da se v severnejše predele prebijejo ribe, ki jih prej ni bilo opaziti na teh zemljepisnih širinah.

Podnebne spremembe skupaj s človeškimi dejavnostmi dejansko vplivajo na izrazito prerazporeditev vrst v celotnem Sredozemskem bazenu. Poleg omenjenega širjenja vrst proti severu in prihoda **tujerodnih vrst** se vpliv podnebnih sprememb odraža tudi na nekaterih **ogroženih nevretenčarjih**. Še posebej je to očitno pri **sredozemski kameni koral** (*Cladocora caespitosa*), pri kateri zaradi višjih temperatur prihaja do pojava bledenja, ko koralo zapustijo fotosintetski endosimbionti. Nenazadnje se bodo podnebne spremembe pokazale tudi na nivoju ekoloških sprememb in **negativnih posledic v obalnih mokriščih**. V okviru predavanja bodo predstavljeni konkretni primeri vpliva podnebnih sprememb na nivoju **slovenskega obalnega morja** in obrežnih mokrišč, ki so povezani s pojavi tropikalizacije, bioinvazije, bledenja koral ter drugimi pojavi. Udeležba na delavnici je **brezplačna**. Izvajala se bo v **slovenskem jeziku**. Spletni dogodek se bo odvijal preko aplikacije ZOOM.

Vabilo: https://www.rrc-kp.si/.../stories/vabilo_dogodek_12-1-21.pdf

Link do prijavnice: <https://forms.gle/iuZmxw2U2TDJc83R6>

Prijave so možne le še danes, 11. januarja 2021. Vsi prijavljeni bodo po elektronski pošti prejeli link do zoom dogodka.

12. CONFERENZA DEL BIOLOGO MARINO PROF. DOTT. LOVRENC LIPEJ: Impatto del cambiamento climatico sugli ecosistemi marini e costieri **Capodistria, 11.01.2021**

Il biologo marino prof. dott. Lovrenc Lipej, consulente scientifico presso la Stazione Biologica Marina di Pirano dell'Istituto Nazionale di Biologia. prof. Lipej, che si dedica alla ricerca sulla diversità nell'Adriatico, in particolare nel mare costiero sloveno, questa volta parlerà dell'impatto del cambiamento climatico sugli ecosistemi marini e costieri. Il workshop è organizzato dall'Istituto Mediterraneo per gli Studi Ambientali (MIOS) ZRS Koper e dal Centro di Sviluppo Regionale (RRC) Koper, partner sloveni del progetto ECO-SMART. Il mare Adriatico o mediterraneo sta subendo dei cambiamenti. Sta affrontando temperature più elevate, che hanno consentito l'irruzione di pesci nelle parti settentrionali che prima non erano stati osservati a queste latitudini. Il cambiamento climatico, insieme alle attività umane, sta infatti influenzando la marcata ridistribuzione delle specie in tutto il bacino del Mediterraneo. Oltre alla già citata diffusione delle specie al nord e all'arrivo di specie aliene, l'impatto del cambiamento climatico si riflette anche in alcuni invertebrati in via di estinzione. Ciò è particolarmente evidente nel corallo di pietra mediterraneo (*Cladocora caespitosa*), dove lo sbiadimento si verifica a causa delle temperature più elevate quando gli endosimbionti fotosintetici lasciano il corallo. Ultimo ma non meno importante, il cambiamento climatico si rifletterà anche nel livello di cambiamento ecologico e nelle conseguenze negative nelle zone umide costiere.

La conferenza presenterà esempi concreti dell'impatto dei cambiamenti climatici a livello del mare costiero sloveno e delle zone umide costiere, che sono associati ai fenomeni di tropicalizzazione, bioinvasione, sbiancamento dei coralli e altri fenomeni.

12. CONFERENCE OF THE MARINE BIOLOGIST PROF. DR. LOVRENC LIPEJ: Impact of climate change on marine and coastal ecosystems **Koper, 11.01.2021**

The marine biologist prof. dr. Lovrenc Lipej, scientific advisor at the Piran Marine Biological Station of the National Institute of Biology. prof. Lipej, who devotes himself to the research on diversity in the Adriatic, particularly in the Slovenian coastal sea, will this time talk about the impact of climate change on marine and coastal ecosystems. The workshop is organized by the Mediterranean Institute for Environmental Studies (MIOS) ZRS Koper and the Regional Development Center (RRC) Koper, Slovenian partners of the ECO-SMART project. The Adriatic or Mediterranean Sea is undergoing changes. It is facing higher temperatures, which have allowed the invasion of fish in the northern parts that had not previously been observed at these latitudes.

Climate change, together with human activities, is in fact influencing the marked redistribution of species throughout the Mediterranean basin. In addition to the aforementioned spread of species to the north and the arrival of alien species, the impact of climate change is also reflected on some endangered species of invertebrates. This is particularly evident in Mediterranean stone coral (*Cladocora caespitosa*), where fading occurs due to the higher temperatures as photosynthetic endosymbionts leave the coral. Last but not least, climate change will also be reflected in the level of ecological change and negative consequences in coastal wetlands. The conference will present concrete examples of the impact of climate change at Slovenian coastal sea level and coastal wetlands, which are associated with tropicalization, bioinvasion, coral bleaching and other phenomena.

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PRILAGAJANJE NA PODNEBNE SPREMEMBE: O načrtih za primer Natura 2000 za Škocjanskih zatok prvič v petek

Koper

T.K. - Uredništvo/Vsebinsko omogoča Znanstveno raziskovalno središče (ZRS) Koper - 16.06.2021 ob 12:20

Mediterranski inštitut za okoljske študije (MIOS) ZRS Koper v sklopu projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000) začneja novo serijo dogodkov, ki so namenjeni izmenjavi znanja, informacij in izkušenj z deležniki projekta. Vaše mnenje šteje, zato vas vljudno vabimo, da se udeležite dogodkov in z nami so-oblikujete rezultate projekta ECO-SMART.



Prvi dogodek bo na sporedu v **petek, 18. junija 2021, od 10 do 12. ure** in bo namenjen predstavitvi načrtov za prilagajanje na podnebne spremembe za pilotni primer Natura 2000 območje Škocjanski zatok. Predaval bo **doc. dr.**

Prvi dogodek bo na sporedu v **petek, 18. junija 2021, od 10 do 12. ure** in bo namenjen predstavitvi načrtov za prilagajanje na podnebne spremembe za pilotni primer Natura 2000 območje Škocjanski zatok. Predaval bo **doc. dr. Danijel Ivajnšič**.

Sledila bo diskusija glede predlaganega načrta za prilagajanje na podnebne spremembe.

Drugi dogodek bo na sporedu v **petek, 2. julija 2021, od 10 do 12. ure**. Namenjen bo predstavitvi simulacije shem plačil za ekosistemske storitve za pilotni primer Natura 2000 območje Škocjanski zatok. Predaval bo **dr. Anže Japelj**.



Sledila bo diskusija glede predlaganih shem **plačila za ekosistemske storitve**. Oba spletna dogodka se bosta odvijala na platformi Zoom in sta brezplačna.

Predavanje in diskusija bosta v **slovenskem jeziku**, zagotovili bomo konsektivno prevajanje v italijanski jezik.

Za udeležbo je potrebna **prijava preko obrazca** na povezavi:

https://docs.google.com/forms/d/e/1FAIpQLSeFHpo_-FJ9nvjrkJu1ghQWRYA3tvfZCcn2a14rLL89S1Y8Q/viewform?usp=sf_link

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Versione n./Verzija št.:1

13. PRILAGAJANJE NA PODNEBNE SPREMEMBE: O načrtih za primer Natura 2000 za Škocjanskih zatok prvič v petek / Koper, 16.06.2021

Link: <https://www.regionalobala.si/novica/prilagajanje-na-podnebne-spremembe-o-nacrtih-za-primer-natura-2000-za-skocjanski-zatok-prvic-v-petek>

Mediterranski inštitut za okoljske študije (MIOS) ZRS Koper v sklopu projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000) začneja novo serijo dogodkov, ki so namenjeni izmenjavi znanja, informacij in izkušenj z deležniki projekta. Vaše mnenje šteje, zato vas vljudno vabimo, da se udeležite dogodkov in z nami so-oblikujete rezultate projekta ECO-SMART. Prvi dogodek bo na sporedu v petek, 18. junija 2021, od 10 do 12. ure in bo namenjen predstavitvi načrtov za prilagajanje na podnebne spremembe za pilotni primer Natura 2000 območje Škocjanski zatok. Predaval bo doc. dr. Danijel Ivajnšič. Sledila bo diskusija glede predlaganega načrta za prilagajanje na podnebne spremembe. Drugi dogodek bo na sporedu v petek, 2. julija 2021, od 10 do 12. ure. Namenjen bo predstavitvi simulacije shem plačil za ekosistemske storitve za pilotni primer Natura 2000 območje Škocjanski zatok. Predaval bo dr. Anže Japelj. Sledila bo diskusija glede predlaganih shem plačila za ekosistemske storitve. Oba spletna dogodka se bosta odvijala na platformi Zoom in sta brezplačna. Predavanje in diskusija bosta v slovenskem jeziku, zagotovili bomo konsektivno prevajanje v italijanski jezik. Za udeležbo je potrebna prijava preko obrazca na [povezavi: https://docs.google.com/forms/d/e/1FAIpQLSeFHpo-FJ9nvjrkJu1ghQTWRYA3tvfZCcn2a14rLL89S1Y8Q/viewform?usp=sf_link](https://docs.google.com/forms/d/e/1FAIpQLSeFHpo-FJ9nvjrkJu1ghQTWRYA3tvfZCcn2a14rLL89S1Y8Q/viewform?usp=sf_link)

13. ADATTAMENTO AI CAMBIAMENTI CLIMATICI: venerdì per la prima volta sui piani Natura 2000 per la baia di Stagnon / Capodistria, 16.06.2021

L'Istituto Mediterraneo per gli Studi Ambientali (MIOS) ZRS Koper sta lanciando una nuova serie di eventi volti allo scambio di conoscenze, informazioni ed esperienze con gli stakeholders del progetto nell'ambito del progetto ECO-SMART (Ecosystem Services Market for Advanced NATURA 2000). La tua opinione conta, quindi ti invitiamo a partecipare agli eventi e a creare insieme a noi i risultati del progetto ECO-SMART. Il primo evento si svolgerà venerdì 18 giugno 2021 dalle 10:00 alle 12:00 e sarà dedicato alla presentazione dei piani di adattamento ai cambiamenti climatici per il caso pilota Natura 2000 nell'area della Baia di Škocjan. La lezione sarà tenuta dal doc. dott. Danijel Ivajnšič. Seguirà una discussione sul piano di adattamento ai cambiamenti climatici proposto. Il secondo appuntamento è in programma venerdì 2 luglio 2021, dalle ore 10:00 alle ore 12:00. Sarà dedicato alla presentazione della simulazione di schemi di pagamento per i servizi ecosistemici per il caso pilota Natura 2000 Škocjanski zatok area. La lezione sarà tenuta dal dott. Anže Japelj. Seguirà una discussione sui regimi di

pagamento proposti per i servizi ecosistemici. Entrambi gli eventi online si svolgeranno sulla piattaforma Zoom e sono gratuiti.

13. ADAPTATION TO CLIMATE CHANGE: Friday for the first time on the Natura 2000 plans for the bay of Stagnon / Koper, 16.06.2021

The Mediterranean Institute for Environmental Studies (MIOS) ZRS Koper is launching a new series of events aimed at exchanging knowledge, information and experiences with the project stakeholders as part of the ECO-SMART project (Ecosystem Services Market for Advanced NATURA 2000). Your opinion matters, so we invite you to participate in the events and create the results of the ECO-SMART project with us. The first event will take place on Friday 18 June 2021 from 10:00 to 12:00 and will be dedicated to the presentation of climate change adaptation plans for the Natura 2000 pilot case in the Škocjan Bay area. The lesson will be held by doc. dr. Danijel Ivajnšič. A discussion on the proposed climate change adaptation plan will follow. The second appointment is scheduled for Friday 2 July 2021, from 10:00 to 12:00. It will be dedicated to the presentation of the simulation of payment schemes for ecosystem services for the pilot case Natura 2000 Škocjanki zatok area. The lesson will be held by dr. Anze Japelj.

A discussion on proposed payment schemes for ecosystem services will follow. Both online events will take place on the Zoom platform and are free of charge.



19. JAN 2021

ŠE ZADNJI DOGODEK PROJEKTA ECO-SMART: O nevarnostih podnebnih sprememb in njihovih posledicah na ekosistemih

□ [N.J. – Uredništvo/Vsebinsko omogoča ZRS – Znanstveno raziskovalno središče Koper](#) – Foto: dr. Liliana Vižintin, Mediteranski inštitut za okoljske študije ZRS Koper, arhiv ZRS Koper – □ 19.01.2021 ob 14:40
Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij Natura 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) pripravljajo še zadnjega v nizu dogodkov izobraževanja in informiranja deležnikov obmejnih skupnosti Slovenije in Italije, o ekosistemskih storitvah, njihovem ekonomskem vrednotenju in ranljivosti zaradi podnebnih sprememb.



V sklopu tokratnega, zadnjega dogodka partnerjev projekta ECO-SMART, se boste lahko seznanili z ekosistemskimi storitvami in ranljivostjo območij Nature 2000, in sicer Lagune Caorle pri izlivu Tilmenta, delte reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravnega rezervata Škocjanski zatok.

Sodelovali bodo **raziskovalci** Univerze v Padovi, Univerze v Vidmu in Mediteranskega inštituta za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS MIOS).



Velik **poudarek bo na nevarnostih**, ki jih povzročajo podnebne spremembe in njihovih posledicah na ekosistemi, biotski raznovrstnosti ter ekosistemskih storitvah, ki jih zagotavljajo zaščitena sredozemska obalna območja.

Slovenske partnerje bo zastopal **dr. Cecil Meulenberg**, raziskovalec MIOS ZRS Koper, ki bo predstavil **rezultate slovenskega pilotnega primera**. Program si lahko ogledate v priloženem vabilu.



Dr. Cecil Meulenberg

Spletni dogodek je brezplačen in bo potekal v **sredo, 20. januarja 2021, ob 16. uri** preko aplikacije Cisco WebEx v italijanskem, slovenskem in angleškem jeziku (simultano prevajanje preko aplikacije VEASYT).

Če želite sodelovati na dogodku, pošljite **e-poštno sporočilo** na naslov: liliana.vizintin@zrs-kp.si ali tadej.zilic@rrc-kp.si ali se **prijavite preko spletne povezave**.

14. ŠE ZADNJI DOGODEK PROJEKTA ECO-SMART: o nevarnostih podnebnih sprememb in njihovih posledicah na ekosistemih

(Uredništvo/Vsebino omogoča ZRS - Znanstveno raziskovalno središče Koper-Foto: dr. Liliana Vižintin, Mediteranski inštitut za okoljske študije ZRS Koper, arhiv ZRS Koper)

Koper, 19.01.2021

Link: <https://www.zdravomesto.org/novice/se-zadnji-dogodek-projekta-eco-smart-o-nevarnostih-podnebnih-sprememb-in-njihovih-posledicah-na-ekosistemih/>

Partnerji projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij Natura 2000, Program sodelovanja INTERREG V-A Italija-Slovenija 2014-2020) pripravljajo še zadnjega v nizu dogodkov izobraževanja in informiranja deležnikov obmejnih skupnosti Slovenije in Italije, o ekosistemskih storitvah, njihovem ekonomskem vrednotenju in ranljivosti zaradi podnebnih sprememb. V sklopu tokratnega, zadnjega dogodka partnerjev projekta ECO-SMART, se boste lahko seznanili z ekosistemskimi storitvami in ranljivostjo območij Nature 2000, in sicer Lagune Caorle pri izlivu Tilmenta, delte reke Tilment, območja Valle Vecchia, Zumelle, Valli di Bibione, Cavana pri Tržiču in Naravnega rezervata Škocjanski zatok. Sodelovali bodo raziskovalci Univerze v Padovi, Univerze v Vidmu in Mediteranskega inštituta za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS MIOS). Velik poudarek bo na nevarnostih, ki jih povzročajo podnebne spremembe in njihovih posledicah na ekosistemih, biotski raznovrstnosti ter ekosistemskih storitvah, ki jih zagotavljajo zaščiteni sredozemska obalna območja.

Slovenske partnerje bo zastopal dr. Cecil Meulenberg, raziskovalec MIOS ZRS Koper, ki bo predstavil rezultate slovenskega pilotnega primera. Program si lahko ogledate v priloženem vabilu. Spletni dogodek je brezplačen in bo potekal v sredo, 20. januarja 2021, ob 16. uri preko aplikacije Cisco WebEx v italijanskem, slovenskem in angleškem jeziku (simultano prevajanje preko aplikacije VEASYT). Če želite sodelovati na dogodku, pošljite e-poštno sporočilo na naslov: liliana.vizintin@zrs-kp.si ali tadej.zilic@rrc-kp.si ali se prijavite preko [spletne povezave](#).

14. RECENTE EVENTO DEL PROGETTO ECO-SMART: sui pericoli del cambiamento climatico e le sue conseguenze sugli ecosistemi

(redazione / Contenuti forniti da ZRS - Centro di ricerca scientifica Koper - Foto: dr. Liliana Vižintin, Istituto Mediterraneo per gli Studi Ambientali ZRS Koper, archivio ZRS Koper)

Capodistria, 19.01.2021

I partner del progetto ECO-SMART (Ecosystem Services Market for Advanced Natura 2000 Protection Policy, INTERREG V-A Italia-Slovenia 2014-2020 Programma di cooperazione) stanno preparando l'ultimo di una serie di eventi per educare e informare le parti interessate delle comunità di confine slovene e italiane sull'ecosistema servizi e la loro valutazione economica e vulnerabilità ai cambiamenti climatici. Nell'ambito di questo, ultimo evento dei partner del progetto ECO-SMART, potrai conoscere i servizi ecosistemici e la vulnerabilità dei siti Natura 2000, ovvero Laguna di Caorle, foce del Tagliamento, Valle Vecchia, Zumelle, Valli di Bibione, Cavana di Monfalcone e la Riserva Naturale della Baia di Stagnon. Parteciperanno ricercatori dell'Università di Padova e dell'Istituto Mediterraneo per gli Studi Ambientali del Centro di Scienza e Ricerca di Capodistria (ZRS MIOS). Sarà posto un forte accento sulle minacce poste dal cambiamento climatico e sui suoi effetti sugli ecosistemi, sulla biodiversità e sui servizi ecosistemici forniti dalle aree costiere del Mediterraneo protette. I partner sloveni saranno rappresentati dal dott. Cecil Meulenberg, ricercatore del MIOS ZRS Koper, che presenterà i risultati del caso pilota sloveno.

14. RECENT EVENT OF THE ECO-SMART PROJECT: on the dangers of climate change and its consequences on ecosystems

(editorial staff / Contents provided by ZRS - Scientific Research Center Koper - Photo: Dr. Liliana Vižintin, Mediterranean Institute for Environmental Studies ZRS Koper, ZRS Koper archive) / Koper, 19.01.2021

The partners of the ECO-SMART project (Ecosystem Services Market for Advanced Natura 2000 Protection Policy, INTERREG V-A Italy-Slovenia 2014-2020 Cooperation Program) are preparing the last one of a series of events to educate and inform stakeholders of the communities of Slovenian and Italian border on the ecosystem services and their economic assessment and vulnerability to climate change. As part of this last event of the partners of the ECO-SMART project, you will be able to learn about the ecosystem services and the vulnerability of Natura 2000 sites, namely Caorle Lagoon, Tagliamento mouth, Valle Vecchia, Zumelle, Valleys of Bibione, Cavana di

Monfalcone and the Natural Reserve of the Bay of Stagnon. Researchers from the University of Padua and the Mediterranean Institute for Environmental Studies of the Center for Science and Research of Koper (ZRS MIOS) will participate. Strong emphasis will be placed on the threats posed by climate change and its effects on ecosystems, biodiversity and ecosystem services provided by protected Mediterranean coastal areas. The Slovenian partners will be represented by dr. Cecil Meulenberg, MIOS ZRS Koper researcher, who will present the results of the Slovenian pilot case.

Leto/ Anno/Year: 2022

Donor: Ekpa



ECO-SMART SPLETNA DELAVNICA: Orodja in smernice za učitelje o vplivu podnebnih sprememb



Mediteranski inštitut za okoljske študije ZRS Koper v sklopu projekta ECO-SMART, radi na spletno delavnico za učitelje "Vpliv podnebnih sprememb na ekosistemske storitve obalnih domov". Načrt 2020: Izobraževalna orodja in smernice za učitelje, ki bo v četrtek, 21. aprila, ob 14.30.



Izobraževanje lahko pomembno prispeva h krepitvi znanja in zavedenosti mladine o posledicah podnebnih sprememb in pomenu dolga razvoja. V sklopu delavnice bodo s strokovnjaki in učitelji poglabili razumevanje in problematiko in povezanih izobraževalnih izgovor. Predstavili bodo tudi izobraževalni spletni portal, ki so ga pripravili v sklopu projekta ECO-SMART, in smernice o vključitvi vsebin portala v učne procese.

Celoten program in načrt prijava najdete TUKAJ.

Projekt ECO-SMART - Triljske ekosistemskih storitev za napredno politiko zaščite domov (NATURA 2000) je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Italijanski partnerji: Občina Montebelluna - Trilje in Univerza v Padovi, slovenski partnerji: pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije ZRS Koper.

15. ECO-SMART SPLETNA DELAVNICA: Orodja in smernice za učitelje o vplivu podnebnih sprememb / Radio Capris, Koper, 2022

Link: <https://www.radiocapris.si/si/aktualno/eco-smart-spletna-delavnica-orodja-in-smernice-za-ucitelje-o-vplivu-podnebnih-sprememb>

Mediteranski inštitut za okoljske študije ZRS Koper v sklopu projekta ECO-SMART vabi na spletno delavnico za učitelje 'Vpliv podnebnih sprememb na ekosistemske storitve obalnih območij Natura 2000: izobraževalna orodja in smernice za učitelje', ki bo v četrtek, 21. aprila, ob 14.30. Izobraževanje lahko pomembno prispeva h krepitvi znanja in ozaveščenosti mladih o posledicah podnebnih sprememb in pomenu biotske raznovrstnosti ter ekosistemskih storitev za prilagajanje nanje. V sklopu delavnice bodo s strokovnjaki in učitelji poglobili razumevanje teh problematik in povezanih izobraževalnih izzivov. Predstavili bodo tudi izobraževalni spletni portal, ki so ga pripravili v sklopu projekta ECO-SMART, in smernice o vključitvi vsebin portala v učne procese. Celoten program in način prijave najdete [TUKAJ](#). Projekt ECO-SMART - Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000 je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Italijanski partnerji na projektu so Dežela Veneto (vodilni partner), Občina Monfalcone - Tržič in Univerza v Padovi, slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije ZRS Koper.

15. LABORATORIO WEB ECO-SMART: Strumenti e linee guida per gli insegnanti sull'impatto del cambiamento climatico / Radio Capris, Capodistria, 2022

Nell'ambito del progetto ECO-SMART, l'Istituto Mediterraneo per gli Studi Ambientali ZRS Koper ti invita a un workshop online per insegnanti dal titolo "The Impact of Climate Change on Ecosystem Services in Coastal Areas Natura 2000: Educational Tools and Guidelines for Teachers", per si terrà giovedì 21 aprile. L'istruzione può dare un contributo importante per aumentare la conoscenza e la consapevolezza dei giovani sulle conseguenze dei cambiamenti climatici e sull'importanza della biodiversità e dei servizi ecosistemici per l'adattamento. Nell'ambito del workshop, esperti e insegnanti approfondiranno la loro comprensione di questi problemi e delle relative sfide educative. Presenteranno anche un portale web educativo preparato nell'ambito del progetto ECO-SMART e linee guida sull'inclusione dei contenuti del portale nei processi di apprendimento. Il progetto ECO-SMART - Mercato dei servizi ecosistemici per la politica avanzata di tutela dei siti NATURA 2000 è cofinanziato nell'ambito del Programma di Cooperazione Interreg V-A Italia-Slovenia 2014-2020 dal Fondo Europeo

di Sviluppo Regionale e da fondi nazionali. I partner italiani del progetto sono la Regione del Veneto (capofila), il Comune di Monfalcone e l'Università di Padova, mentre i partner sloveni sono il Centro di Sviluppo Regionale Koper (RRC Koper) e l'Istituto Mediterraneo per gli Studi Ambientali ZRS Capodistria.

15. ECO-SMART WEB LABORATORY: Tools and guidelines for teachers on the impact of climate change / Radio Capris, Koper, 2022

As part of the ECO-SMART project, the Mediterranean Institute for Environmental Studies ZRS Koper invites you to an online workshop for teachers entitled "The Impact of Climate Change on Ecosystem Services in Coastal Areas Natura 2000: Educational Tools and Guidelines for Teachers ", to be held on Thursday 21 April. Education can make an important contribution to increase young people's knowledge and awareness of the consequences of climate change and the importance of biodiversity and ecosystem services for adaptation. As part of the workshop, experts and teachers will deepen their understanding of these issues and related educational challenges. They will also present an educational web portal prepared as part of the ECO-SMART project and guidelines on the inclusion of portal content in learning processes. The ECO-SMART project - Ecosystem services market for the advanced protection policy of NATURA 2000 sites is co-financed under the Interreg V-A Italy-Slovenia 2014-2020 Cooperation Program by the European Regional Development Fund and national funds. The Italian partners of the project are the Veneto Region (lead partner), the Municipality of Monfalcone and the University of Padua, while the Slovenian partners are the Koper Regional Development Center (RRC Koper) and the Mediterranean Institute for Environmental Studies ZRS Koper.

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Izobraževanje lahko pomembno prispeva h krepitvi znanja in ozaveščenosti mladih o posledicah podnebnih sprememb in pomenu biotske raznovrstnosti ter ekosistemskih storitev za prilagajanje nanje. V sklopu delavnice bodo s strokovnjaki in učitelji **poglobili razumevanje** teh problematik in povezanih izobraževalnih izzivov. Predstavili bodo tudi **izobraževalni spletni portal**, ki so ga pripravili v sklopu projekta ECO-SMART, in smernice o vključitvi vsebin portala v učne procese.

Uvod v projekt ECO-SMART in cilje pilotne aktivnosti za izobraževanje in ozaveščanje bo predstavila **dr. Liliana Vižintin** z Znanstveno-raziskovalnega središča Koper. Nato se bo program nadaljeval s predavanjem **dr. Darje Piciga** o sodobnem znanju o podnebnih, okoljskih in trajnostnih izzivih ter učinkovitem soočanju z njimi, v kontekstu vzgoje in izobraževanja za trajnostni razvoj.



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Globalni izzivi brez primere, kot so podnebne spremembe, izguba biotske raznovrstnosti in netrajnostna raba virov, zahtevajo paradigmatične spremembe v upravljanju za trajnostni razvoj, to je sistemski pristop in inovacije za trajnostne prehode, kot ga skupaj z novo paradigmo znanja razvija **Evropska agencija za okolje (EEA)** in se v okviru **Evropskega zelenega dogovora (EZD)** že vključuje v evropske in nacionalne politike in aktivnosti. Doseganje ciljev Agende 2030 in Pariškega sporazuma bo mogoče le s **sistemsko spremembo razvojnega modela**, in sicer z umeščanjem temeljnih družbeno-ekonomskih sistemov (energija, mobilnost, hrana in sistemi grajenega okolja) v meje ekosistemov, z njihovo globinsko preobrazbo. Kljub izboljššanemu varovanju okolja v Evropi v preteklih desetletjih je EEA v zadnjem poročilu o stanju okolja SOER 2020 opozorila, da Evropa svojih ciljev do leta 2050 ne bo dosegla brez okrepljenih in tudi dodatnih ukrepov v naslednjih desetih letih. Tudi Slovenija dosega blaginjo na način, značilen za razvite države – s **preveliko rabo surovin in ekosistemskih storitev Zemlje**, in to še v nekoliko večji meri, kot je evropsko povprečje. Ključna področja EZD – kot so na primer blaženje podnebnih sprememb in prilagajanje nanje, trajnostna raba energije, trajnostna mobilnost, trajnostna prehranska veriga, skrb za ekosisteme in biotsko raznovrstnost – so hkrati ključna področja, iz katerih je treba konceptualna znanja in znanja o delovanju v povezavi s cilji trajnostnega razvoja vključiti v izobraževalne sisteme. V predavanju bodo navedeni **dokumenti, koncepti in usmeritve** pregledno in povezano prikazani.



Z leve proti desni: dr. Darja Piciga, dr. Peter Skoberne, Bojana Lipej

Dr. Peter Skoberne bo predaval o vlogi in pomenu biotske raznovrstnosti pri trajnostnem razvoju. Trajnosten razvoj temelji na ekološki, gospodarski in družbeni osnovi. Bistvo ekološkega vidika je biotska raznovrstnost – raznovrstnost življenja na **genski, vrstni in ekosistemski ravni**. Prav ta pestrost omogoča prilagodljivost na spremembe v okolju in vzdrževanje stabilnosti celotnega planeta. Gospodarski razvoj temelji na utvari o nenehni rasti, ki v omejenem sistemu ni mogoča in povzroča velike motnje v uravnavnih sistemih narave. K temu prispevajo tudi odločitve posameznika, vsakega od nas. Večina nas je zaradi načina življenja bolj ali manj odtujenih od narave. Ključno je, da se pri odločitvah zavedamo, da smo **neločljivi del narave**, kar najlažje krepimo z neposrednim stikom z rastlinami in živalmi v našem skupnem življenjskem prostoru. Za to so lahko primerna tudi območja Natura 2000 in zavarovana območja narave. V prispevku bodo pokazali, kje najti potrebne podatke in kako jih uporabiti pri izobraževanju.

Praktične primere izobraževalnih aktivnosti v naravi, ki se navezujejo na projektno pilotno območje Natura 2000 Škocjanski zatok pa bo predstavila **Bojana Lipej** iz Društva za opazovanje in proučevanje ptic Slovenije (DOPPS).

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Praktične primere izobraževalnih aktivnosti v naravi, ki se navezujejo na projektno pilotno območje Natura 2000 Škocjanski zatok pa bo predstavila **Bojana Lipej** iz Društva za opazovanje in proučevanje ptic Slovenije (DOPPS).



Naravni rezervat Škocjanski zatok ima poleg svoje izjemne vloge kot območje za ohranjanje redkih in ogroženih rastlinskih in živalskih vrst tudi **pomembno izobraževalno vlogo**. Raznolikost življenjskih okolij, od sladkovodnih do somornih in skorajda povsem morskih habitatov, in bližina urbanih naselij predstavljata edinstveno priložnost za izvajanje različnih vzgojno-izobraževalnih aktivnosti v naravi. Pouk na prostem je zelo **interdisciplinaren** (povezuje naravoslovne, tehnične in družboslovne predmete) in vključuje mnoge **sodobne didaktične pristope**, ki pomagajo pri izoblikovanju intelektualnih sposobnosti učencev, vzpodbujajo njihovo raziskovanje in znanstveno razmišljanje kot tudi iznajdljivost v problemskih situacijah. Ker je pouk na prostem povezan z naravnim okoljem, učence **motivira**, jih navdušuje za raziskovanje in, kar je najpomembnejše, **vzpodbuja in ohranja njihovo radovednost**.

Učenci tako lahko naravo in njeno raznolikost spoznavajo in doživljajo s pomočjo lastnih izkušenj in izkušenj drugih ter posledično razvijajo odgovoren odnos do ohranjanja in varovanja naravnega okolja. Izobraževalne aktivnosti, ki se izvajajo v Škocjanskem zatoku, sledijo skupnemu cilju in to je **prenos informacij in znanja o vrednosti naravnega kapitala** (sredstev in storitev), vlogi Natura 2000 in zavarovanih območij pri ohranjanju biotske raznovrstnosti ter hkrati o krhkosti ekosistemov. Na predavanju bo predstavljen vzgojno-izobraževalni program Naravnega rezervata Škocjanski zatok z aktivnostmi in praktičnimi primeri kot tudi možnosti in priložnosti za izboljšavo ter nadgradnjo z novimi znanji.

Projekt ECO-SMART – Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000 je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev.

16. MEDITERANSKI INŠTITUT VABI NA SPLETNO DELAVNICO: orodja in smernice za učitelje o vplivu podnebnih sprememb / Koper, 14.04.2022

Link: <https://www.regionalobala.si/novica/mediteranski-institut-vabi-na-spletno-delavnico-orodja-in-smernice-za-ucitelje-o-vplivu-podnebnih-sp>

Mediterranski inštitut za okoljske študije ZRS Koper v sklopu projekta ECO-SMART vabi na spletno delavnico za učitelje 'Vpliv podnebnih sprememb na ekosistemske storitve obalnih območij Natura 2000: izobraževalna orodja in smernice za učitelje', ki bo v četrtek, 21. aprila, ob 14.30. Izobraževanje lahko pomembno prispeva h krepitvi znanja in ozaveščenosti mladih o posledicah podnebnih sprememb in pomenu biotske raznovrstnosti ter ekosistemskih storitev za prilagajanje nanje. V sklopu delavnice bodo strokovnjaki in učitelji poglobili razumevanje teh problematik in povezanih izobraževalnih izzivov. Predstavili bodo tudi izobraževalni spletni portal, ki so ga pripravili v sklopu projekta ECO-SMART, in smernice o vključitvi vsebin portala v učne procese. Uvod v projekt ECO-SMART in cilje pilotne aktivnosti za izobraževanje in ozaveščanje bo predstavila dr. Liliana Vižintin z Znanstveno-raziskovalnega središča Koper. Nato se bo program nadaljeval s predavanjem dr. Darje Piciga o sodobnem znanju o podnebnih, okoljskih in trajnostnih izzivih ter učinkovitem soočanju z njimi, v kontekstu vzgoje in izobraževanja za trajnostni razvoj. Globalni izzivi brez primere, kot so podnebne spremembe, izguba biotske raznovrstnosti in netrajnostna raba virov, zahtevajo paradigmatške spremembe v upravljanju za trajnostni razvoj, to je sistemski pristop in inovacije za trajnostne prehode, kot ga skupaj z novo paradigmo znanja razvija Evropska agencija za okolje (EEA) in se v okviru Evropskega zelenega dogovora (EZD) že vključuje v evropske in nacionalne politike in aktivnosti. Doseganje ciljev Agende 2030 in Pariškega sporazuma bo mogoče le s sistemsko spremembo razvojnega modela, in sicer z umeščanjem temeljnih družbeno-ekonomskih sistemov (energija, mobilnost, hrana in sistemi grajenega okolja) v meje ekosistemov, z njihovo globinsko preobrazbo. Kljub izboljššanemu varovanju okolja v Evropi v preteklih desetletjih je EEA v zadnjem poročilu o stanju okolja SOER 2020 opozorila, da Evropa svojih ciljev do leta 2050 ne bo dosegla brez okrepljenih in tudi dodatnih ukrepov v naslednjih desetih letih. Tudi Slovenija dosega blaginjo na način, značilen za razvite države - s preveliko rabo surovin in ekosistemskih storitev Zemlje, in to še v nekoliko večji meri, kot je evropsko povprečje. Ključna področja EZD - kot so na primer blaženje podnebnih sprememb in prilagajanje nanje, trajnostna raba energije, trajnostna mobilnost, trajnostna prehranska veriga, skrb za ekosisteme in biotsko raznovrstnost - so hkrati ključna področja, iz katerih je treba konceptualna znanja in znanja o delovanju v povezavi s cilji trajnostnega razvoja vključiti v izobraževalne sisteme. V predavanju bodo navedeni dokumenti, koncepti in usmeritve pregledno in povezano

prikazani. Dr. Peter Skoberne bo predaval o vlogi in pomenu biotske raznovrstnosti pri trajnostnem razvoju. Trajnostni razvoj temelji na ekološki, gospodarski in družbeni osnovi. Bistvo ekološkega vidika je biotska raznovrstnost - raznovrstnost življenja na genski, vrstni in ekosistemski ravni. Prav ta pestrost omogoča prilagodljivost na spremembe v okolju in vzdrževanje stabilnosti celotnega planeta. Gospodarski razvoj temelji na utvari o nenehni rasti, ki v omejenem sistemu ni mogoča in povzroča velike motnje v uravnavnih sistemih narave. K temu prispevajo tudi odločitve posameznika, vsakega od nas. Večina nas je zaradi načina življenja bolj ali manj odtujenih od narave. Ključno je, da se pri odločitvah zavedamo, da smo neločljivi del narave, kar najlažje krepimo z neposrednim stikom z rastlinami in živalmi v našem skupnem življenjskem prostoru. Za to so lahko primerna tudi območja Natura 2000 in zavarovana območja narave. V prispevku bodo pokazali, kje najti potrebne podatke in kako jih uporabiti pri izobraževanju. Praktične primere izobraževalnih aktivnosti v naravi, ki se navezujejo na projektno pilotno območje Natura 2000 Škocjanski zatok pa bo predstavila Bojana Lipej iz Društva za opazovanje in proučevanje ptic Slovenije (DOPPS). Naravni rezervat Škocjanski zatok ima poleg svoje izjemne vloge kot območje za ohranjanje redkih in ogroženih rastlinskih in živalskih vrst tudi pomembno izobraževalno vlogo. Raznolikost življenjskih okolij, od sladkovodnih do somornih in skorajda povsem morskih habitatov, in bližina urbanih naselij predstavljata edinstveno priložnost za izvajanje različnih vzgojno-izobraževalnih aktivnosti v naravi. Pouk na prostem je zelo interdisciplinaren (povezuje naravoslovne, tehnične in družboslovne predmete) in vključuje mnoge sodobne didaktične pristope, ki pomagajo pri izoblikovanju intelektualnih sposobnosti učencev, vzpodbujajo njihovo raziskovanje in znanstveno razmišljanje kot tudi iznajdljivost v problemskih situacijah. Ker je pouk na prostem povezan z naravnim okoljem, učence motivira, jih navdušuje za raziskovanje in, kar je najpomembneje, vzpodbuja in ohranja njihovo radovednost. Učenci tako lahko naravo in njeno raznolikost spoznavajo in doživljajo s pomočjo lastnih izkušenj in izkušenj drugih ter posledično razvijajo odgovoren odnos do ohranjanja in varovanja naravnega okolja. Izobraževalne aktivnosti, ki se izvajajo v Škocjanskem zatoku, sledijo skupnemu cilju in to je prenos informacij in znanja o vrednosti naravnega kapitala (sredstev in storitev), vlogi Nature 2000 in zavarovanih območij pri ohranjanju biotske raznovrstnosti ter hkrati o krhkosti ekosistemov. Na predavanju bo predstavljen vzgojno-izobraževalni program Naravnega rezervata Škocjanski zatok z aktivnostmi in praktičnimi primeri kot tudi možnosti in priložnosti za izboljšavo ter nadgradnjo z novimi znanji. Projekt ECO-SMART - Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000 je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev.

16. L'ISTITUTO MEDITERRANEO INVITA AL WORKSHOP ONLINE: Strumenti e linee guida per gli insegnanti sull'impatto dei cambiamenti climatici / Capodistria, 14.04.2022

Nell'ambito del progetto ECO-SMART, l'Istituto mediterraneo per gli studi ambientali ZRS Koper ha organizzato un seminario online per insegnanti intitolato "L'impatto dei cambiamenti climatici sui servizi ecosistemici nelle aree costiere Natura 2000: strumenti educativi e linee guida per gli insegnanti" giovedì 21 aprile alle 14:30. L'istruzione può dare un contributo importante per aumentare la conoscenza e la consapevolezza dei giovani sulle conseguenze dei cambiamenti climatici e sull'importanza della biodiversità e dei servizi ecosistemici per l'adattamento. Nell'ambito del workshop, esperti e insegnanti approfondiranno la loro comprensione di questi problemi e delle relative sfide educative. Verranno inoltre presentati il portale web didattico predisposto nell'ambito del progetto ECO-SMART e le linee guida sull'integrazione dei contenuti del portale nei processi di apprendimento. L'introduzione al progetto ECO-SMART e agli obiettivi dell'attività pilota per l'educazione e la sensibilizzazione saranno presentati dalla dott.ssa Liliana Vižintin del Centro di scienza e ricerca di Capodistria. Il programma proseguirà poi con una lezione del dott. Darja Piciga sulla moderna conoscenza del clima, delle sfide ambientali e sostenibili e di una risposta efficace ad esse, nel contesto dell'educazione allo sviluppo sostenibile. Sfide globali senza precedenti come il cambiamento climatico, la perdita di biodiversità e l'uso insostenibile delle risorse richiedono un cambio di paradigma nella governance per lo sviluppo sostenibile, ovvero un approccio sistemico e l'innovazione per le transizioni sostenibili, come sviluppato dall'Agenzia europea dell'ambiente (AEA) insieme al nuovo paradigma della conoscenza, e già integrato nelle politiche e nelle attività europee e nazionali nel quadro del Green Deal europeo (EGD). Il raggiungimento degli obiettivi dell'Agenda 2030 e dell'Accordo di Parigi sarà possibile solo modificando sistematicamente il modello di sviluppo, inserendo i sistemi socio-economici fondamentali (energia, mobilità, cibo e sistemi dell'ambiente costruito) all'interno degli ecosistemi, attraverso la loro profonda trasformazione. Nonostante il miglioramento della protezione ambientale in Europa negli ultimi decenni, l'AEA ha avvertito nel suo ultimo rapporto sullo stato dell'ambiente, SOER 2020, che l'Europa non raggiungerà i suoi obiettivi per il 2050 senza misure rafforzate e aggiuntive nei prossimi dieci anni. Anche la Slovenia sta raggiungendo la prosperità in un modo tipico dei paesi sviluppati, attraverso un uso eccessivo delle materie prime e dei servizi ecosistemici della Terra, e in misura persino maggiore rispetto alla media europea. Le aree chiave dell'EHR come la mitigazione e l'adattamento ai cambiamenti climatici, l'uso sostenibile dell'energia, la mobilità sostenibile, la catena alimentare sostenibile, la cura dell'ecosistema e la biodiversità sono anche aree chiave in cui è necessario affrontare le conoscenze concettuali e operative integrate nei sistemi educativi attraverso lo sviluppo sostenibile. Nella lezione verranno presentati in modo trasparente e coerente i

documenti elencati, i concetti e le linee guida. Dott. Peter Skoberne terrà una conferenza sul ruolo e l'importanza della biodiversità nello sviluppo sostenibile. Lo sviluppo sostenibile si basa su principi ecologici, economici e sociali. L'essenza dell'aspetto ecologico è la biodiversità: la diversità della vita a livello genetico, di specie e di ecosistema. È questa diversità che ci consente di adattarci ai cambiamenti dell'ambiente e mantenere la stabilità dell'intero pianeta. Lo sviluppo economico si basa sull'illusione di una crescita costante, che non è possibile in un sistema limitato e provoca grandi sconvolgimenti nei sistemi di regolamentazione della natura. A questo contribuiscono anche le decisioni dell'individuo, di ciascuno di noi. La maggior parte di noi è più o meno alienata dalla natura a causa del nostro modo di vivere. È fondamentale essere consapevoli nelle nostre decisioni che siamo una parte inseparabile della natura, che è migliorata dal contatto diretto con piante e animali nel nostro spazio di vita comune. Anche i siti Natura 2000 e le aree naturali protette possono essere adatti a questo. Questo documento mostrerà dove trovare le informazioni necessarie e come utilizzarle in ambito educativo. Bojana Lipej della Società per l'osservazione e lo studio degli uccelli della Slovenia (DOPPS) presenterà esempi pratici di attività educative nella natura relative all'area pilota del progetto Natura 2000 Škocjan Bay. Oltre al suo ruolo eccezionale come area per la conservazione di specie animali e vegetali rare e in via di estinzione, la Riserva Naturale della Baia di Stagnon ha anche un importante ruolo educativo. La diversità degli ambienti di vita, dalle acque dolci agli habitat cupi e quasi interamente marini, e la vicinanza degli insediamenti urbani rappresentano un'occasione unica per svolgere diverse attività educative in natura. L'insegnamento all'aperto è interdisciplinare (collega scienza, scienze tecniche e sociali) e include molti approcci didattici moderni che aiutano a plasmare le capacità intellettuali degli studenti, incoraggiano la loro ricerca e il pensiero scientifico, nonché l'ingegnosità in situazioni problematiche. Poiché le lezioni all'aperto sono collegate all'ambiente naturale, motivano gli studenti, li ispirano a esplorare e, soprattutto, incoraggiano e mantengono la loro curiosità. In questo modo, gli studenti possono conoscere e sperimentare la natura e la sua diversità attraverso le proprie esperienze e quelle degli altri, e di conseguenza sviluppare un atteggiamento responsabile nei confronti della conservazione e protezione dell'ambiente naturale. Le attività educative svolte nella baia di Stagnon seguono un obiettivo comune, ovvero il trasferimento di informazioni e conoscenze sul valore del capitale naturale (beni e servizi), sul ruolo di Natura 2000 e delle aree protette nella conservazione della biodiversità e della fragilità degli ecosistemi. La conferenza presenterà il programma educativo della Riserva Naturale della Baia di Stagnon con attività ed esempi pratici, nonché possibilità e opportunità di miglioramento e aggiornamento con nuove conoscenze. Il progetto ECO-SMART - Mercato dei servizi ecosistemici per la politica avanzata di tutela dei siti NATURA 2000 è cofinanziato nell'ambito del Programma di

Cooperazione Interreg V-A Italia-Slovenia 2014-2020 dal Fondo Europeo di Sviluppo Regionale e da fondi nazionali.

16. THE MEDITERRANEAN INSTITUTE INVITES TO THE ONLINE WORKSHOP: Tools and guidelines for teachers on the impact of climate change / Koper 14.04.2022

As part of the ECO-SMART project, the Mediterranean Institute for Environmental Studies ZRS Koper organized an online seminar for teachers entitled "The impact of climate change on ecosystem services in coastal Natura 2000 areas: educational tools and guidelines for teachers" Thursday 21 April at 2.30pm. Education can make an important contribution to increasing young people's knowledge and awareness of the consequences of climate change and the importance of biodiversity and ecosystem services for adaptation. As part of the workshop, experts and teachers will deepen their understanding of these issues and related educational challenges. The didactic web portal prepared as part of the ECO-SMART project and the guidelines on the integration of the portal contents into the learning processes will also be presented. The introduction to the ECO-SMART project and the objectives of the pilot activity for education and awareness will be presented by Dr. Liliana Vižintin of the Science and Research Center of Koper. The program will then continue with a lecture by dr. Darja Piciga on modern knowledge of the climate, environmental and sustainable challenges and an effective response to them, in the context of education for sustainable development. Unprecedented global challenges such as climate change, biodiversity loss and unsustainable resource use call for a paradigm shift in governance for sustainable development, i.e. a systemic approach and innovation for sustainable transitions, as developed by the European Environment Agency (EEA) together with the new knowledge paradigm, and already embedded in European and national policies and activities within the framework of the European Green Deal (EGD). Translated with www.DeepL.com/Translator (free version). The achievement of the objectives of the 2030 Agenda and the Paris Agreement will only be possible by systematically modifying the development model, inserting the fundamental socio-economic systems (energy, mobility, food and built environment systems) within ecosystems, through their profound transformation. Despite improving environmental protection in Europe over the past decades, the EEA warned in its latest state of the environment report, SOER 2020, that Europe will not achieve its 2050 targets without strengthened and additional measures over the next ten years. Slovenia is also achieving prosperity in a way typical of developed countries, through excessive use of the Earth's raw materials and ecosystem services, and to an even greater extent than the European average. Key areas of the EHR such as climate change mitigation and adaptation, sustainable energy use, sustainable mobility, sustainable food chain, ecosystem care and biodiversity are also key areas where it is needed. address the conceptual and operational knowledge integrated into education systems through sustainable development. In the lesson the listed documents, concepts and guidelines will be presented in a transparent and

coherent way. Dr Peter Skoberne will give a lecture on the role and importance of biodiversity in sustainable development. Sustainable development is based on ecological, economic and social principles. The essence of the ecological aspect is biodiversity: the diversity of life at the genetic, species and ecosystem level. It is this diversity that allows us to adapt to changes in the environment and maintain the stability of the entire planet. Economic development is based on the illusion of constant growth, which is not possible in a limited system and causes great upheaval in nature's regulatory systems. The decisions of the individual, of each one of us, also contribute to this. Most of us are more or less alienated from nature due to our way of life. It is vital to be aware in our decisions that we are an inseparable part of nature, which is enhanced by direct contact with plants and animals in our common living space. Natura 2000 sites and protected natural areas may also be suitable for this. This document will show where to find the necessary information and how to use it in education. Bojana Lipej from the Society for Observation and Study of Birds of Slovenia (DOPPS) will present practical examples of educational activities in nature related to the pilot area of the Natura 2000 project Škocjan Bay. In addition to its outstanding role as an area for the conservation of rare and endangered animal and plant species, the Stagnon Bay Nature Reserve also has an important educational role. The diversity of living environments, from fresh waters to gloomy and almost entirely marine habitats, and the proximity of urban settlements represent a unique opportunity to carry out various educational activities in nature. Outdoor teaching is interdisciplinary (connects science, technical and social sciences) and includes many modern teaching approaches that help to shape students' intellectual abilities, encourage their research and scientific thinking, as well as ingenuity in problem situations. Because outdoor classes are connected to the natural environment, they motivate students, inspire them to explore, and most importantly, they encourage and maintain their curiosity. In this way, students can learn about and experience nature and its diversity through their own experiences and those of the others, and consequently develop a responsible attitude towards the conservation and protection of the natural environment. The educational activities carried out in the bay of Stagnon follow a common objective, namely the transfer of information and knowledge on the value of natural capital (goods and services), on the role of Natura 2000 and protected areas in the conservation of biodiversity and the fragility of ecosystems. The conference will present the educational program of the Bay of Stagnon Nature Reserve with activities and practical examples, as well as possibilities and opportunities for improvement and updating with new knowledge. The ECO-SMART project - Ecosystem services market for the advanced protection policy of NATURA 2000 sites is co-financed under the Interreg V-A Italy-Slovenia 2014-2020 Cooperation Program by the European Regional Development Fund and national funds.

Članki, objavljeni v lokalnih časopisi/Articoli pubblicati su quotidiani locali/Articles published in local newspapers

ECO-SMART: Tržišče ekosistemskih storitev za napredno politiko zaščite območij Natura 2000

Zaščita ekosistemskih storitev

Ekosistemi nudijo človeški družbi številne oprijemljive materialne in nematerialne koristi, čeprav se tega premalo zavedamo ali pa jih jemljemo kot samoumevne in neomejene. To so vse storitve in dobrine, od hrane, ki jo uživamo, do zraka, ki ga dihamo, imenovane ekosistemske storitve, ki jih ljudje posredno in neposredno uživamo zaradi delovanja ekosistemov.

Številne raziskave in poročila mednarodnih okoljskih organizacij ugotavljajo, da v moderni dobi človek zaradi naraščajočega števila prebivalstva in s tem rastočih potreb po hrani, vodi, surovinah ter zaradi življenjskega sloga, gospodarstva in prekomerne izrabe naravnih virov spreminja ekosisteme hitreje in obširneje kot v katerem koli primerljivem obdobju človeške zgodovine.

Inovativen sistem spodbud

Z zmanjševanjem biotske pestrosti je ogrožena tudi sposobnost ekosistemov, da bi še naprej zagotavljali številne ekosistemske koristi, kot so na primer zaščita pred poplavami, čist zrak in uravnavanje podnebja. Sredozemski obalni ekosistemi, ki so vključeni v projekt ECO-SMART, so zelo ranljivi, saj so še posebej izpostavljeni številnim posledicam podnebnih sprememb in drugim antropogenim pritiskom.

Projekt ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000) je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020, iz sredstev

Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Začel se je izvajati aprila letos in bo trajal 24 mesecev. Italijanski partnerji projekta so Dežela Benečija, ki je tudi vodilni partner, Občina Tržič in Univerza v Padovi. Slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS Koper).

Cilj projekta ECO-SMART je oceniti, preizkusiti in spodbuditi uporabo shem plačil za ekosistemske storitve kot inovativen sistem spodbud preko katerega bi lahko izboljšali način upravljanja in spremljanja posledic podnebnih sprememb na izbranih pilotnih območjih omrežja Natura 2000 v Sloveniji in Italiji. V sklopu projekta

nameravajo tudi oblikovati in spodbuditi uporabo usklajenih lokalnih načrtov za prilagajanje na podnebne spremembe ter s tem hkrati okrepiti odpornost izbranih pilotnih območij Natura 2000 kot tudi lokalnih skupnosti obmejnega območja.

Delavnice že izvajajo

Vse aktivnosti projekta bodo izvajali v sodelovanju s skupnostjo. Zato je še posebej pomembna krepitev zmogljivosti skupnosti glede omenjenih tematik. Analiza potreb deležnikov bo temelj za vključevanje le-teh v dogodke za ozaveščanje in usposabljanje ter v ostale dejavnosti projekta.

Projektni partnerji vključno s sodelavci Mediteranskega inštituta za okoljske študije ZRS Koper (MIOS),

so že začeli z izvajanjem delavnic, ki obravnavajo tematike kot so: delovanje ekosistemov, ekosistemske storitve, sheme plačil za ekosistemske storitve. V nadaljevanju se bodo še posebej poglobili in vzroke in učinke podnebnih sprememb in vlogo ekosistemov pri blaženju le-teh. Predstavili bodo tudi strategije prilagajanja na podnebne spremembe. Delavnice so namenjene lokalni skupnosti in deležnikom programskega območja Slovenije in Italije ter so še posebej usmerjene k mreženju le-teh, s ciljem, da bi bili pristopi upravljanja območij Natura 2000 in načrti prilagajanja na podnebne spremembe v obmejnem območju čim bolj usklajeni.

V nadaljevanju nameravajo deležnike vključiti tudi v proces oblikovanja lokalnih prilagoditvenih načrtov na osnovi ekosistemskega pristopa, saj z ohranjanjem pomembnih ekosistemskih storitev izbranih območij Natura 2000 le-tim omogočamo tudi večjo odpornost na podnebne spremembe, da bodo lahko zagotavljali dolgoročno blaginjo ter kakovost življenja tako za sedanje kot tudi bodoče generacije. Več informacij na spletni strani (<https://www.ita-slo.eu/eco-smart>) in družbenem omrežju projekta. *

17. Zaščita ekosistemskih storitev

Primorske novice (Koper) - 6. januarja 2021

Link: <https://www.primorske.si/plus/na-valovih-znanja/zascita-ekosistemskih-storitev>

Ekosistemi nudijo človeški družbi številne oprijemljive materialne in nematerialne koristi, čeprav se tega premalo zavedamo ali pa jih jemljemo kot samoumevne in neomejene. To so vse storitve in dobrine, od hrane, ki jo uživamo, do zraka, ki ga dihamo, imenovane ekosistemske storitve, ki jih ljudje posredno in neposredno uživamo zaradi delovanja ekosistemov. Številne raziskave in poročila mednarodnih okoljskih organizacij ugotavljajo, da v moderni dobi človek zaradi naraščajočega števila prebivalstva in s tem rastočih potreb po hrani, vodi, surovinah ter zaradi življenjskega sloga, gospodarstva in prekomerne izrabe naravnih virov spreminja ekosisteme hitreje in obširneje kot v katerem koli primerljivem obdobju človeške zgodovine.

Inovativen sistem spodbud

Z zmanjševanjem biotske pestrosti je ogrožena tudi sposobnost ekosistemov, da bi še naprej zagotavljali številne ekosistemske koristi, kot so na primer zaščita pred poplavami, čist zrak in uravnavanje podnebja. Sredozemski obalni ekosistemi, ki so vključeni v projekt ECO-SMART, so zelo ranljivi, saj so še posebej izpostavljeni številnim posledicam podnebnih sprememb in drugim antropogenim pritiskom. Projekt ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000) je sofinanciran v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020, iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Začel se je izvajati aprila letos in bo trajal 24 mesecev. Italijanski partnerji projekta so Dežela Benečija, ki je tudi vodilni partner, Občina Tržič in Univerza v Padovi. Slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije Znanstveno-raziskovalnega središča Koper (ZRS Koper). Cilj projekta ECO-SMART je oceniti, preizkusiti in spodbuditi uporabo shem plačil za ekosistemske storitve kot inovativen sistem spodbud preko katerega bi lahko izboljšali način upravljanja in spremljanja posledic podnebnih sprememb na izbranih pilotnih območjih omrežja Natura 2000 v Sloveniji in Italiji. V sklopu projekta nameravajo tudi oblikovati in spodbuditi uporabo usklajenih lokalnih načrtov za prilagajanje na podnebne spremembe ter s tem hkrati okrepiti odpornost izbranih pilotnih območij Natura 2000 kot tudi lokalnih skupnosti obmejnega območja.

Delavnice že izvajajo

Vse aktivnosti projekta bodo izvajali v sodelovanju s skupnostjo. Zato je še posebej pomembna krepitev zmogljivosti skupnosti glede omenjenih tematik. Analiza potreb deležnikov bo temelj za vključevanje le-teh v dogodke za ozaveščanje in usposabljanje ter v ostale dejavnosti projekta. Projektni partnerji vključno s sodelavci Mediteranskega inštituta za okoljske študije ZRS Koper (MIOS), so že začeli z izvajanjem delavnic, ki obravnavajo tematike kot so: delovanje ekosistemov, ekosistemske storitve, sheme plačil za ekosistemske storitve. V nadaljevanju se bodo še posebej poglobili v vzroke in učinke podnebnih sprememb in v vlogo ekosistemov pri blaženju le-teh. Predstavili bodo tudi strategije prilagajanja na podnebne spremembe. Delavnice so namenjene lokalni skupnosti in deležnikom programskega območja Slovenije in Italije ter so še posebej usmerjene k mreženju le-teh, s ciljem, da bi bili pristopi upravljanja območij Natura 2000 in načrti prilagajanja na podnebne spremembe v obmejnem območju čim bolj usklajeni. V nadaljevanju nameravajo deležnike vključiti tudi v proces oblikovanja lokalnih prilagoditvenih načrtov na osnovi ekosistemskega pristopa, saj z ohranjanjem pomembnih ekosistemskih storitev izbranih območij Natura 2000 le-tem omogočamo tudi večjo odpornost na podnebne spremembe, da bodo lahko zagotavljali dolgoročno blaginjo ter kakovost življenja tako za sedanje kot tudi bodoče generacije. Več informacij na spletni strani (<https://www.ita-slo.eu/eco-smart>) in družbenem omrežju projekta.

17. Tutela dei servizi ecosistemici

Primorske novice (Capodistria) - 6 gennaio 2021

Gli ecosistemi offrono molti vantaggi tangibili e intangibili alla società umana, anche se non ne siamo consapevoli o li diamo per scontati e illimitati. Questi sono tutti servizi e beni, dal cibo che mangiamo all'aria che respiriamo, chiamati servizi ecosistemici che le persone consumano direttamente e indirettamente a causa del funzionamento degli ecosistemi. Numerosi studi e rapporti di organizzazioni ambientali internazionali hanno dimostrato che nei tempi moderni la popolazione umana sta cambiando gli ecosistemi più velocemente e in modo più esteso che in qualsiasi periodo comparabile della storia umana.

Sistema di incentivazione innovativo

La perdita di biodiversità minaccia anche la capacità degli ecosistemi di continuare a fornire una serie di vantaggi ecosistemici, come la protezione dalle inondazioni, l'aria pulita e la regolazione del clima. Gli ecosistemi costieri mediterranei coinvolti nel progetto ECO-SMART sono molto vulnerabili, in quanto particolarmente vulnerabili a molti degli effetti dei cambiamenti climatici e di altre pressioni antropiche. Il progetto ECO-SMART (Mercato dei servizi ecosistemici per la politica avanzata per la protezione dei siti NATURA 2000) è cofinanziato nell'ambito del Programma di cooperazione Interreg V-A Italia-Slovenia 2014-2020, dal Fondo Europeo di Sviluppo Regionale e da fondi nazionali. È iniziato nell'aprile di quest'anno e durerà 24 mesi. I partner italiani del progetto sono la Regione del Veneto, che è anche capofila, il Comune di Monfalcone e l'Università di Padova. I partner della Slovenia sono il Centro di sviluppo regionale di Capodistria (RRC Koper) e l'Istituto mediterraneo per gli studi ambientali del Centro scientifico e di ricerca di Koper (ZRS Koper). L'obiettivo del progetto ECO-SMART è valutare, testare e promuovere l'uso di schemi di pagamento per i servizi ecosistemici come sistema innovativo di incentivi attraverso il quale migliorare la gestione e il monitoraggio dei cambiamenti climatici in aree pilota Natura 2000 selezionate in Slovenia e in Italia. Il progetto intende inoltre sviluppare e promuovere l'uso di piani locali coordinati per l'adattamento ai cambiamenti climatici, rafforzando così la resilienza di siti pilota Natura 2000 selezionati e delle comunità locali nell'area di confine.

I laboratori sono già in corso

Tutte le attività del progetto saranno svolte in collaborazione con la comunità. Pertanto, è particolarmente importante rafforzare la capacità della comunità su questi

temi. L'analisi dei bisogni delle parti interessate sarà la base per il loro coinvolgimento in eventi di sensibilizzazione e formazione e altre attività del progetto. I partner del progetto, inclusi i collaboratori dell'Istituto Mediterraneo per gli Studi Ambientali ZRS Koper (MIOS), hanno già iniziato a condurre workshop su temi quali: funzionamento degli ecosistemi, servizi ecosistemici, schemi di pagamento per i servizi ecosistemici. Poi, approfondiranno le cause e gli effetti dei cambiamenti climatici e il ruolo degli ecosistemi nel mitigarli. Presenteranno anche strategie per l'adattamento ai cambiamenti climatici. I workshop sono destinati alle comunità locali e alle parti interessate nell'area del programma della Slovenia e dell'Italia e sono volti in particolare a metterli in rete, con l'obiettivo di rendere il più possibile coordinati gli approcci di gestione di Natura 2000 e i piani di adattamento ai cambiamenti climatici nell'area di confine. In futuro, si coinvolgeranno le parti interessate nel processo di creazione di piani di adattamento locali basati sull'approccio ecosistemico, poiché mantenendo importanti servizi ecosistemici di siti Natura 2000 selezionati consentiamo loro anche una maggiore resilienza ai cambiamenti climatici per garantire prosperità a lungo termine e qualità della vita, anche per le generazioni future. Maggiori informazioni sul sito web (<https://www.ita-slo.eu/eco-smart>) e sul social network del progetto.

17. Protection of ecosystem services

Primorske novice (Koper) - January 6, 2021

Ecosystems offer many tangible and intangible benefits to human society, even if we are not aware of them or take them for granted and unlimited. These are all services and goods, from the food we eat to the air we breathe, called ecosystem services that people consume directly and indirectly due to the functioning of ecosystems. Numerous studies and reports from international environmental organizations have shown that in modern times the human population is changing ecosystems faster and more extensively than in any comparable period of human history.

Innovative incentive system

The loss of biodiversity also threatens the ability of ecosystems to continue to deliver a range of ecosystem benefits, such as flood protection, clean air and climate regulation. The Mediterranean coastal ecosystems involved in the ECO-SMART project are very vulnerable, as they are particularly vulnerable to many of the effects of climate change and other anthropogenic pressures. The ECO-SMART project (Ecosystem services market for advanced policy for the protection of NATURA 2000 sites) is co-financed under the Interreg V-A Italy-Slovenia 2014-2020 cooperation program, by the European Regional Development Fund and by national funds . It started in April of this year and will run for 24 months. The Italian partners of the project are the Veneto Region, which is also the lead partner, the Municipality of Monfalcone and the University of Padua. Slovenia's partners are the Koper Regional Development Center (RRC Koper) and the Mediterranean Institute for Environmental Studies of the Koper Science and Research Center (ZRS Koper). The aim of the ECO-SMART project is to evaluate, test and promote the use of payment schemes for ecosystem services as an innovative incentive system through which to improve the management and monitoring of climate change in selected Natura 2000 pilot areas in Slovenia and in Italy. The project also intends to develop and promote the use of coordinated local plans for adaptation to climate change, thereby strengthening the resilience of selected Natura 2000 pilot sites and local communities in the border area. **The workshops are already underway**

All project activities will be carried out in collaboration with the community. Therefore, it is particularly important to strengthen the community's capacity on these issues. The stakeholder needs analysis will be the basis for their involvement in awareness and training events and other project activities. Project partners, including collaborators from the Mediterranean Institute for Environmental Studies ZRS Koper

(MIOS), have already started conducting workshops on topics such as: ecosystem functioning, ecosystem services, payment schemes for ecosystem services. Then, they will delve into the causes and effects of climate change and the role of ecosystems in mitigating it. They will also present strategies for adapting to climate change. The workshops are aimed at local communities and stakeholders in the program area of Slovenia and Italy and are aimed in particular at networking them, with the aim of making Natura 2000 management approaches and adaptation plans to climate change in the border area. In the future, stakeholders will be involved in the process of creating local adaptation plans based on the ecosystem approach, as maintaining important ecosystem services of selected Natura 2000 sites will also enable them to be more resilient to climate change to ensure long-term prosperity and quality of life, even for future generations. More information on the website (<https://www.ita-slo.eu/eco-smart>) and on the social network dedicated to the project.

Tržišče ekosistemskih storitev za napredno politiko varovanja območij Natura 2000

Ekosistemske storitve pomembne za prilagajanja na podnebne spremembe

Projekt "Tržišče ekosistemskih storitev za napredno politiko varovanja območij Natura 2000" (okrajšava: ECO-SMART) je v zaključni fazi. Sofinanciran je v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Italijanski partnerji na projektu so Dežela Veneto (vodilni partner), Občina Monfalcone - Tržič in Univerza v Padovi, slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije ZRS Koper.

DR. LILIANA VIŽINTIN
Mediteranski inštitut za okoljske študije ZRS Koper

Projekt se je soočal z izzivi krepitve odpornosti ekosistemov in lokalnih skupnosti prek obnavljanja in ohranjanja varovanih habitatov in vrst obalnih območij, ki so vključena v omrežje Natura 2000. Velika biotska raznovrstnost teh območij pomembno zmanjšuje tveganja zaradi podnebnih sprememb, hkrati pa povečuje blaginjo prebivalstva. V dveh letih izvajanja je projekt dosegel zastavljene cilje in okrepil sodelovanje projektnih partnerjev z deležniki projekta. Vsi projektni dosežki bodo v kratkem dostopni v slovenskem in italijanskem jeziku na spletni strani projekta www.ita-slo.eu/eco-smart.

V sklopu projekta smo izvajali številne dejavnosti za boljše ovrednotenje ekosistemskih storitev izbranih obalnih območij Natura 2000, analizo okoljskih tveganj in ranljivosti. Posebnost projekta je promocija shem plačil za ekosistemske storitve. Gre za inovativno finančno orodje, ki lahko podpre udeležanje na ekosistemih temelječih



Obalna mokrišča, sipine in ostali ohranjeni ekosistemi ščitijo obalo pred škodo, ki jo povzročajo podnebni ekstremi in dvig morske gladine.

Obalna mokrišča

Ekosistemske storitve so vse materialne in nematerialne dobrine in storitve, ki jih družba prejema od ekosistemov. Omogočajo naše življenje in prinašajo koristi, tudi gospodarske. Te storitve so bistvene za naš obstoj. Tako nam razkrivajo soodvisnost z naravo. Z degradacijo in uničenjem narave te dobrine in storitve izgubljamo in s tem ogrožamo lasten obstoj. Obalna mokrišča, sipine in ostali ohranjeni ekosistemi ščitijo obalo pred škodo, ki jo povzročajo podnebni ekstremi in dvig morske gladine. Ob obilnih padavinah vpijejo viške vode in uravnavajo njeno odtokanje, s tem pa zmanjšujejo nevarnost poplavl. Obalna mokrišča v vročih poletnih dneh z izhlapevanjem hladijo okolico in uravnavajo lokalno podnebje, kot naravni vodni zbiralniki pa blažijo sušne ekstreme. Ta obalna območja omogočajo tudi prepletanje in prehajanje zelenih in modrih koridorjev. Nudijo prostor za rekreacijo, izobraževanje, raziskovanje pa tudi uživanje v naravnem okolju, kar ima pozitiven učinek na fizično in psihično zdravje.

ukrepov za prilagajanje na podnebne spremembe. Pomemben vidik je bil tudi krepitev znanja, ozaveščenosti in kompetenc lokalnih deležnikov za aktivno sodelovanje v tem procesu.

V aprilu bo Mediteranski inštitut za okoljske študije ZRS Koper predstavil izobraževalne dejavnosti namenjene obmejnimi šolam. Učitelje bomo povabili na spletno delavnico s priznanimi strokovnjaki na področju vzgoje in izobraževanja za trajnostni razvoj ter varstva narave. Skupaj bomo razpravljali o vlogi izobraževanja pri podpiranju na ekosistemih temelječega prilagajanja. Namen teh dejavnosti je krepitev odgovornega odnosa mladostnikov do okolja in njihovo bolj po-

globljeno razumevanje vplivov podnebnih sprememb na ekosisteme in lokalne skupnosti. Da bodo učitelji lažje uporabljali vsebine in igre namenjene mladostnikom, pripravljamo izobraževalni spletni portal in e-priročnik. Sledila bosta še izdaja projektne publikacije in vabilo na zaključno konferenco projekta ECO-SMART, ki jo načrtujemo za konec letošnje pomladi, predvidoma v Kopru. Dogodki in publikacije bodo dvojezični, brezplačni in vsem dostopni. O njih bomo javnost obveščali prek medijev in družbenega omrežja projekta. Vabimo vas torej, da se nam pridružite da skupaj postavimo zaključek uspešnega projekta obmejnega sodelovanja. *

18. Ekosistemske storitve pomembne za prilagajanja na podnebne spremembe

Primorski dnevnik (Trieste, Italy) 6 aprila 2022

Link <https://www.primorske.si/plus/na-valovih-znanja/ekosistemske-storitve-pomembne-za-prilagajanja-na>

Projekt "Tržišče ekosistemskih storitev za napredno politiko varovanja območij Natura 2000" (okrajšava: ECO-SMART) je v zaključni fazi. Sofinanciran je v okviru Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. Italijanski partnerji na projektu so Dežela Veneto (vodilni partner), Občina Monfalcone - Tržič in Univerza v Padovi, slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije ZRS Koper. Projekt se je soočal z izzivi krepitve odpornosti ekosistemov in lokalnih skupnosti prek obnavljanja in ohranjanja varovanih habitatov in vrst obalnih območij, ki so vključena v omrežje Natura 2000. Velika biotska raznovrstnost teh območij pomembno zmanjšuje tveganja zaradi podnebnih sprememb, hkrati pa povečuje blaginjo prebivalstva. V dveh letih izvajanja je projekt dosegel zastavljene cilje in okrepil sodelovanje projektnih partnerjev z deležniki projekta. Vsi projektni dosežki bodo v kratkem dostopni v slovenskem in italijanskem jeziku na spletni strani projekta www.ita-slo.eu/eco-smart

Obalna mokrišča

Ekosistemske storitve so vse materialne in nematerialne dobrine in storitve, ki jih družba prejema od ekosistemov. Omogočajo naše življenje in prinašajo koristi, tudi gospodarske. Te storitve so bistvene za naš obstoj. Tako nam razkrivajo soodvisnost z naravo. Z degradacijo in uničenjem narave te dobrine in storitve izgublamo in s tem ogrožamo lasten obstoj. Obalna mokrišča, sipine in ostali ohranjeni ekosistemi ščitijo obalo pred škodo, ki jo povzročajo podnebni ekstremi in dvig morske gladine. Ob obilnih padavinah vpijejo viške vode in uravnavajo njeno odtekanje, s tem pa zmanjšujejo nevarnost poplav. Obalna mokrišča v vročih poletnih dneh z izhlapevanjem hladijo okolico in uravnavajo lokalno podnebje, kot naravni vodni zbiralniki pa blažijo sušne ekstreme. Ta obalna območja omogočajo tudi prepletanje in prehajanje zelenih in modrih koridorjev. Nudijo prostor za rekreacijo, izobraževanje, raziskovanje pa tudi uživanje v naravnem okolju, kar ima pozitiven učinek na fizično in psihično zdravje.

V sklopu projekta smo izvajali številne dejavnosti za boljše ovrednotenje ekosistemskih storitev izbranih obalnih območij Natura 2000, analizo okoljskih tveganj in ranljivosti. Posebnost projekta je promocija shem plačil za ekosistemske storitve. Gre za inovativno finančno orodje, ki lahko podpre udeležanje na ekosistemi temelječih ukrepov za prilagajanje na podnebne spremembe. Pomemben vidik je bil tudi krepitev znanja, ozaveščenosti in kompetenc lokalnih deležnikov za aktivno sodelovanje v tem procesu.

V aprilu bo Mediteranski inštitut za okoljske študije ZRS Koper predstavil izobraževalne dejavnosti namenjene obmejnimi šolam. Učitelje bomo povabili na spletno delavnico s priznanimi strokovnjaki na področju vzgoje in izobraževanja za trajnostni razvoj ter varstva narave. Skupaj bomo razpravljali o vlogi izobraževanja pri podpiranju na ekosistemih temelječega prilagajanja. Namen teh dejavnosti je krepitev odgovornega odnosa mladostnikov do okolja in njihovo bolj poglobljeno razumevanje vplivov podnebnih sprememb na ekosisteme in lokalne skupnosti. Da bodo učitelji lažje uporabljali vsebine in igre namenjene mladostnikom, pripravljamo izobraževalni spletni portal in e-priročnik. Sledila bosta še izdaja projektne publikacije in vabilo na zaključno konferenco projekta ECO-SMART, ki jo načrtujemo za konec letošnje pomladi, predvidoma v Kopru. Dogodki in publikacije bodo dvojezični, brezplačni in vsem dostopni. O njih bomo javnost obveščali prek medijev in družbenega omrežja projekta. Vabimo vas torej, da se nam pridružite da skupaj proslavimo zaključek uspešnega projekta obmejnega sodelovanja.

(Dr. Liliana Vižintin, Mediteranski inštitut za okoljske študije ZRS Koper)

18. Servizi ecosistemici importanti per l'adattamento ai cambiamenti climatici

Primorski dnevnik (Trieste, Italia) 6 aprile 2022

Il progetto “Ecosystem Services Market for Advanced Natura 2000 Protection Policy” (abbreviazione: ECO-SMART) è nella sua fase finale. È cofinanziato nell'ambito del Programma di Cooperazione Interreg V-A Italia-Slovenia 2014-2020 dal Fondo Europeo di Sviluppo Regionale e da fondi nazionali. I partner italiani del progetto sono la Regione del Veneto (capofila), il Comune di Monfalcone e l'Università di Padova, mentre i partner sloveni sono il Centro di Sviluppo Regionale Koper (RRC Koper) e l'Istituto Mediterraneo per gli Studi Ambientali ZRS Capodistria. Il progetto ha affrontato le sfide del rafforzamento della resilienza degli ecosistemi e delle comunità locali attraverso il ripristino e la conservazione degli habitat protetti e delle aree costiere incluse nella rete Natura 2000. In due anni di attuazione, il progetto ha raggiunto gli obiettivi prefissati e ha rafforzato la cooperazione dei partner del progetto con le parti interessate del progetto. Tutti i risultati del progetto saranno presto disponibili in sloveno e italiano sul sito web del progetto www.ita-slo.eu/eco-smart

Zone umide costiere

I servizi ecosistemici sono tutti beni e servizi materiali e immateriali che la società riceve dagli ecosistemi. Consentono la nostra vita e apportano benefici, anche economici. Questi servizi sono essenziali per la nostra esistenza. In questo modo rivelano la loro interdipendenza con la natura. Degradando e distruggendo la natura, perdiamo questi beni e servizi e quindi mettiamo in pericolo la nostra stessa esistenza. Le zone umide costiere, le dune e altri ecosistemi preservati proteggono la costa dai danni causati dalle condizioni estreme climatiche e dall'innalzamento del livello del mare. In caso di forti piogge, assorbono l'acqua in eccesso e ne regolano il deflusso, riducendo così il rischio di allagamento. Le zone umide costiere rinfrescano l'ambiente circostante e regolano il clima locale evaporando nelle calde giornate estive, e come riserve naturali d'acqua alleviano gli estremi di siccità. Queste aree costiere consentono anche l'intreccio e l'attraversamento di corridoi verdi e blu. Offrono spazio per la ricreazione, l'istruzione, la ricerca e la fruizione dell'ambiente naturale, che ha un effetto positivo sulla salute fisica e mentale

Nell'ambito del progetto, abbiamo svolto una serie di attività per valutare meglio i servizi ecosistemici di selezionate aree costiere Natura 2000, analisi dei rischi e delle vulnerabilità ambientali. Una particolarità del progetto è la promozione di schemi di pagamento per i servizi ecosistemici. È uno strumento finanziario innovativo in grado di supportare l'attuazione di misure ecosistemiche per adattarsi ai cambiamenti climatici. Un aspetto importante è stato anche il rafforzamento delle conoscenze, della consapevolezza e delle competenze degli stakeholders locali per la partecipazione attiva a questo processo. Ad aprile, l'Istituto Mediterraneo per gli Studi Ambientali ZRS Koper presenterà attività educative destinate alle scuole frontaliere. Gli insegnanti saranno invitati a un workshop online con rinomati esperti nel campo dell'educazione

allo sviluppo sostenibile e alla protezione della natura. Insieme, discuteremo il ruolo dell'istruzione nel supportare l'adattamento basato sugli ecosistemi. Lo scopo di queste attività è rafforzare l'atteggiamento responsabile dei giovani nei confronti dell'ambiente e la loro più profonda comprensione degli impatti dei cambiamenti climatici sugli ecosistemi e sulle comunità locali. Per facilitare l'utilizzo da parte degli insegnanti di contenuti e giochi destinati ai giovani, stiamo preparando un portale web didattico e un e-manual. A ciò seguirà l'emissione di una pubblicazione del progetto e un invito alla conferenza finale del progetto ECO-SMART, che è prevista per la fine di questa primavera, presumibilmente a Capodistria. Eventi e pubblicazioni saranno bilingue, gratuiti e accessibili a tutti. Informeremo il pubblico su di loro attraverso i media e il social network del progetto. Vi invitiamo pertanto a unirvi a noi per celebrare insieme il completamento di un progetto di cooperazione transfrontaliera di successo.

(Dr. Liliana Vižintin, Istituto Mediterraneo per gli Studi Ambientali ZRS Capodistria)

18. Ecosystem services important for adaptation to climate change

Primorski dnevnik (Trieste, Italy) April 6, 2022

The “Ecosystem Services Market for Advanced Natura 2000 Protection Policy” (abbreviation: ECO-SMART) project is in its final phase. It is co-financed within the Interreg V-A Italy-Slovenia 2014-2020 Cooperation Program by the European Regional Development Fund and by national funds. The Italian partners of the project are the Veneto Region (lead partner), the Municipality of Monfalcone and the University of Padua, while the Slovenian partners are the Koper Regional Development Center (RRC Koper) and the Mediterranean Institute for Environmental Studies ZRS Koper. The project addressed the challenges of strengthening the resilience of ecosystems and local communities through the restoration and conservation of protected habitats and coastal areas included in the Natura 2000 network. In two years of implementation, the project has achieved its objectives and enhanced cooperation of project partners with project stakeholders. All project results will soon be available in Slovenian and Italian on the project website www.ita-slo.eu/eco-smart

Coastal wetlands

Ecosystem services are all tangible and intangible goods and services that society receives from ecosystems. They allow our life and bring benefits, including economic ones. These services are essential for our existence. In this way they reveal their interdependence with nature. By degrading and destroying nature, we lose these goods and services and thus endanger our very existence. Coastal wetlands, dunes and other preserved ecosystems protect the coast from damage caused by extreme climatic conditions and rising sea levels. In case of heavy rain, they absorb excess water and regulate its flow, thus reducing the risk of flooding. Coastal wetlands cool their surroundings and regulate the local climate by evaporating on hot summer days, and as natural water reserves they relieve extremes of drought. These coastal areas also allow for the intertwining and crossing of green and blue corridors. They offer space for recreation, education, research and enjoyment of the natural environment, which has a positive effect on physical and mental health

As part of the project, we carried out a series of activities to better assess the ecosystem services of selected Natura 2000 coastal areas, analysis of environmental risks and vulnerabilities. A particularity of the project is the promotion of payment schemes for ecosystem services. It is an innovative financial instrument that can support the implementation of ecosystem measures to adapt to climate change. An important aspect was also the strengthening of the knowledge, awareness and skills of local stakeholders for active participation in this process. In April, the Mediterranean Institute for Environmental Studies ZRS Koper will present educational activities aimed at border schools. Teachers will be invited to an online workshop with renowned experts in the field of education for sustainable development and nature protection. Together, we will discuss the role of education in supporting ecosystem-based

adaptation. The aim of these activities is to strengthen young people's responsible attitudes towards the environment and their deeper understanding of the impacts of climate change on ecosystems and local communities. To make it easier for teachers to use content and games for young people, we are preparing an educational web portal and an e-manual. This will be followed by the issue of a publication of the project and an invitation to the final conference of the ECO-SMART project, which is scheduled for the end of this spring, presumably in Koper. Events and publications will be bilingual, free and accessible to all. We will inform the public about them through the media and the social network of the project. We therefore invite you to join us in celebrating together the completion of a successful cross-border cooperation project.

(Dr. Liliana Vižintin, Mediterranean Institute for Environmental Studies ZRS Koper)

Članki v specializiranih revijah/ Articoli su riviste specializzate / Articles in specialized journals

Krepitev zmogljivosti za razumevanje pomena ekosistemskih storitev

Dr. Liliana Vžintin in dr. Suzana Skof, Znanstveno-raziskovalno središče Koper

Prehod v nizkoogljično, na podnebne spremembe odporno družbo zahteva ustrezne zmogljivosti skupnosti za zmanjšanje emisij toplogrednih plinov in prilagajanje podnebnim vplivom. Pariški sporazum spodbuja dejavnosti krepitev zmogljivosti za izvajanje prilagoditvenih in blažilnih ukrepov (10., 11. in 12. člen). V skladu s tem Evropski zeleni dogovor predvideva ukrepe, ki vključujejo tudi krepitev zmogljivosti. Na podnebne spremembe odporni družba, gospodarstvo in narava so nujen sestavni del trajnostne vizije za Evropo. Da bi to dosegli, so nujne tudi sistemske spremembe izobraževalnega sistema.

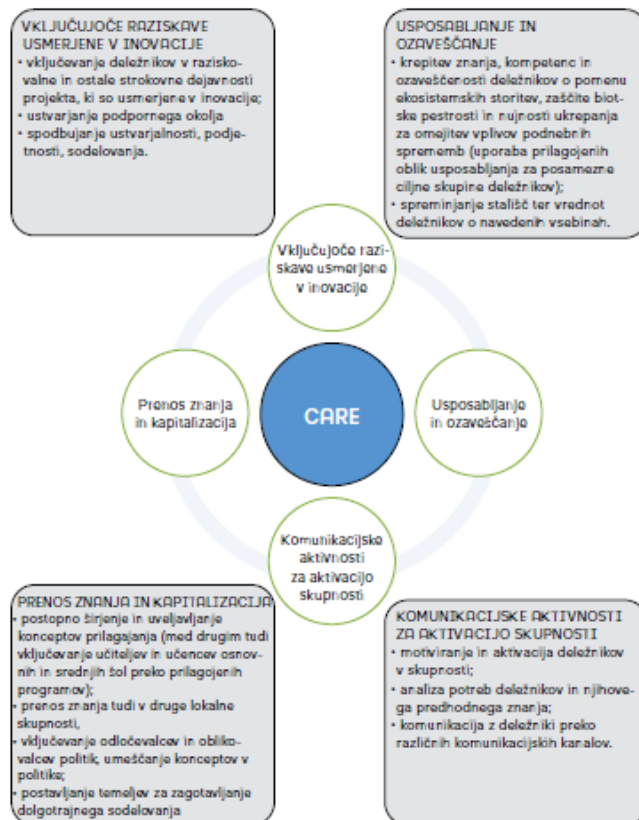
V prispevku sva predstavili inovativni pristop h krepitev zmogljivosti in prve dosežke projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000), sofinanciran v okviru Programa sodelovanja Interreg V-A Italija-Slovenija 2014–2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. V sklopu projekta se obravnavajo izzivi integracije različnih vidikov znotraj celostnega pristopa h krepitev znanja, pridobivanju kompetenc, dvigovanju ozaveščenosti, krepitev sodelovanja in soustvarjanja ustreznih sonaravnih rešitev s posebnim poudarkom na prilagajanje na podnebne spremembe preko zaščite biotske pestrosti in posredno tudi ekosistemskih storitev. S priloženimi vsebinami in dejavnostmi predstavljamo inovativni pristop krepitev zmogljivosti naslavlja različne deležnike v skupnosti, vključuje digitalne vsebine in stremi k širjenju družbeno odgovornega ravnanja. Teorija integralnega razvoja, ki sta jo razvila Schieffer in Lessem iz Centra za integralni razvoj Trans4m in jo v Sloveniji izvajamo v sklopu državljanske pobude za Integralno zeleno Slovenijo, ter model integralnega načela »CARE« (C = Community activation, A = Awakening integral consciousness, R = driven Research, E = Embodying integral development), sta vključena v metodološki pristop projekta ECO-SMART.

Projekt se sicer osredotoča predvsem na krepitev zmogljivosti posameznikov in institucij v lokalni skupnosti, ki so pomembni akterji razvoja te skupnosti, hkrati pa podpira tudi prenos znanja in kapitalizacijo rezultatov na širšo sistemsko raven. Ključne prednosti celostnega, integralnega pristopa krepitev zmogljivosti vidimo v:

- ustvarjanju podpornega okolja za bolj vključujoče in konstruktivno sodelovanje deležnikov v raziskavah, usmerjenih v inovacije, in ostalem strokovnem delu projekta;
- izmenjavi znanja in informacij med partnerji in širšim krogom deležnikov iz obmejnega območja ter ustvarjanju priložnosti soočenja različnih pogledov in dolgotrajnega sodelovanja;

- krepitev inovativnih, podjetniških in kreativnih vidikov reševanja izzivov zaradi posledic podnebnih sprememb (razvoj shem plačila za ekosistemske storitve in novih poslovnih priložnosti v podporo implementaciji ukrepov prilagajanja, obnove ekosistemov, ohranjanja biotske pestrosti in ekosistemskih storitev).

Predlagani integralni model krepitev zmogljivosti temelji predvsem na celovitosti in skladnosti načrtovanih aktivnosti krepitev zmogljivosti z vsemi delovnimi sklopi in interdisciplinarnimi vidiki, ki jih projekt zajema: od znanja o ekosistemi, ekosistemskih storitvah in podnebnih spremembah do razumevanja družbenih in ekonomskih posledic le-teh ter nujnosti ukrepov prilagajanja in blaženja podnebnih sprememb.



Integralni vidiki modela krepitev zmogljivosti

19. Krepitev zmogljivosti za razumevanje pomena ekosistemskih storitev (Dr. Liliana Vižintin in dr. Suzana Škof, Znanstveno-raziskovalno središče Koper)

Zelena-Slovenija: Iz Slovenije za prihodnost Evrope - EOL št. 161
10-11 Junij 2021

Link: <https://www.zelenaslovenija.si/EOL/Clanek/3374/embalaza-okolje-logistika-st-161/iz-slovenije-za-prihodnost-evrope-eol-st-161>

Prehod v nizkoogljično, na podnebne spremembe odporno družbo zahteva ustrezne zmogljivosti skupnosti za zmanjšanje emisij toplogrednih plinov in prilagajanje podnebnim vplivom. Pariški sporazum spodbuja dejavnosti krepitev zmogljivosti za izvajanje prilagoditvenih in blažilnih ukrepov (10., 11. in 12. člen). V skladu s tem Evropski zeleni dogovor predvideva ukrepe, ki vključujejo tudi krepitev zmogljivosti. Na podnebne spremembe odporni družba, gospodarstvo in narava so nujen sestavni del trajnostne vizije za Evropo. Da bi to dosegli, so nujne tudi sistemske spremembe izobraževalnega sistema. V prispevku sva predstavili inovativni pristop h krepitvi zmogljivosti in prve dosežke projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000), sofinanciran v okviru Programa sodelovanja Interreg V-A Italija-Slovenija 2014-2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev. V sklopu projekta se obravnavajo izzivi integracije različnih vidikov znotraj celostnega pristopa h krepitvi znanja, pridobivanju kompetenc, dviganju ozaveščenosti, krepitvi sodelovanja in soustvarjanja ustreznih sonaravnih rešitev s posebnim poudarkom na prilagajanje na podnebne spremembe preko zaščite biotske pestrosti in posredno tudi ekosistemskih storitev. S prilagojenimi vsebinami in dejavnostmi predstavljeni inovativni pristop krepitev zmogljivosti naslavlja različne deležnike v skupnosti, vključuje digitalne vsebine in stremi k širjenju družbeno odgovornega ravnanja. Teorija integralnega razvoja, ki sta jo razvila Schieffer in Lessem iz Centra za integralni razvoj Trans4m in jo v Sloveniji izvajamo v sklopu državljanske pobude za Integralno zeleno Slovenijo, ter model integralnega načela »CARE« (C = Community activation, A = Awakening integral consciousness, R = driven Research, E = Embodying integral development). sta vključena v metodološki pristop projekta ECO-SMART. Projekt se sicer osredotoča predvsem na krepitev zmogljivosti posameznikov in inštitucij v lokalni skupnosti, ki so pomembni akterji razvoja te skupnosti, hkrati pa podpira tudi prenos znanja in kapitalizacijo rezultatov na širšo sistemsko raven. Ključne prednosti celostnega, integralnega pristopa krepitev zmogljivosti vidimo v:

ustvarjanju podpornega okolja za bolj vključujoče in konstruktivno sodelovanje deležnikov v raziskavah, usmerjenih v inovacije, in ostalem strokovnem delu projekta;

izmenjavi znanja in informacij med partnerji in širšim krogom deležnikov iz obmejnega območja ter ustvarjanju priložnosti soočenja različnih pogledov in dolgotrajnega sodelovanja; krepitvi inovativnih, podjetniških in kreativnih vidikov reševanja izzivov zaradi posledic podnebnih sprememb (razvoj shem plačila za ekosistemske storitve in novih poslovnih priložnosti v podporo implementaciji ukrepov prilagajanja, obnove ekosistemov, ohranjanja biotske pestrosti in ekosistemskih storitev). Predlagani integralni model krepitve zmogljivosti temelji predvsem na celovitosti in skladnosti načrtovanih aktivnosti krepitve zmogljivosti z vsemi delovnimi sklopi in interdisciplinarnimi vidiki, ki jih projekt zajema: od znanja o ekosistemi, ekosistemskih storitvah in podnebnih spremembah do razumevanja družbenih in ekonomskih posledic le-teh ter nujnosti ukrepov prilagajanja in blaženja podnebnih sprememb.

19. Sviluppo delle capacità per comprendere l'importanza dei servizi ecosistemici

(Dr. Liliana Vižintin in dr. Suzana Škof, Centro di Scienza e Ricerca di Capodistria)

Slovenia Verde: Dalla Slovenia per il futuro dell'Europa - EOL n. 161

10-11 giugno 2021

La transizione verso una società a basse emissioni di carbonio e resiliente al clima richiede un'adeguata capacità della comunità di ridurre le emissioni di gas serra e adattarsi agli impatti climatici. L'accordo di Parigi incoraggia le attività di rafforzamento delle capacità per attuare misure di adattamento e mitigazione (articoli 10, 11 e 12). Di conseguenza, l'accordo verde europeo prevede misure, compreso il rafforzamento delle capacità. La società, l'economia e la natura resistenti al clima sono una componente necessaria di una visione sostenibile per l'Europa. Per raggiungere questo obiettivo, sono necessari anche cambiamenti sistemici nel sistema educativo. In questo paper abbiamo presentato un approccio innovativo al capacity building e i primi risultati del progetto ECO-SMART (Ecosystem Services Market for Advanced NATURA 2000), cofinanziato nell'ambito del Programma di Cooperazione Interreg V-A Italia-Slovenia 2014-2020 dell'Unione Europea Fondo di sviluppo regionale e fondi nazionali. Il progetto affronta le sfide dell'integrazione di vari aspetti all'interno di un approccio integrato al miglioramento delle conoscenze, all'acquisizione di competenze, alla sensibilizzazione, alla cooperazione e alla co-creazione di soluzioni sostenibili appropriate con particolare attenzione all'adattamento ai cambiamenti climatici attraverso la protezione della biodiversità e indirettamente i servizi ecosistemici. L'approccio innovativo per lo sviluppo delle capacità presentato con contenuti e attività su misura si rivolge a varie parti interessate della comunità, include contenuti digitali e si sforza di diffondere un comportamento socialmente responsabile. La teoria dello sviluppo integrale, sviluppata da Schieffer e Lessem del Center for Integral Development Trans4m e implementata in Slovenia nell'ambito dell'iniziativa dei cittadini per la Slovenia verde integrale, e il modello del principio integrale "CARE" (C = Community activation, A = Risveglio della coscienza integrale, R = Ricerca guidata, E = Incarnazione dello sviluppo integrale). sono inclusi nell'approccio metodologico del progetto ECO-SMART. Il progetto si concentra principalmente sul rafforzamento delle capacità degli individui e delle istituzioni nella comunità locale, che sono attori importanti nello sviluppo di questa comunità, ma sostiene anche il trasferimento di conoscenze e la capitalizzazione dei risultati a un livello sistemico più ampio. Vediamo i vantaggi chiave di un approccio integrato e (adattato) al rafforzamento delle capacità in:

creare un ambiente favorevole per una partecipazione più inclusiva e costruttiva delle parti interessate alla ricerca orientata all'innovazione e ad altri lavori professionali del progetto; lo scambio di conoscenze e informazioni tra i partner e una più ampia gamma di parti interessate dell'area di confine e la creazione di opportunità di confronto e cooperazione a lungo termine; rafforzare gli aspetti innovativi, imprenditoriali e creativi nell'affrontare le sfide del cambiamento climatico (sviluppare schemi di pagamento per i servizi ecosistemici e nuove opportunità commerciali per sostenere l'attuazione di misure di adattamento, ripristino degli ecosistemi, conservazione della biodiversità e servizi ecosistemici). Il modello integrato di sviluppo delle capacità proposto si basa principalmente sull'integrità e la coerenza delle attività pianificate di sviluppo delle capacità con tutti i pacchetti di lavoro e gli aspetti interdisciplinari coperti dal progetto: dalla conoscenza degli ecosistemi, dei servizi ecosistemici e dei cambiamenti climatici alla comprensione delle loro conseguenze sociali ed economiche e della necessità di azioni di adattamento e mitigazione dei cambiamenti climatici.

19. Capacity building to understand the importance of ecosystem services

(Dr. Liliana Vižintin in dr. Suzana Škof, Koper Science and Research Center)

Green Slovenia: From Slovenia for the future of Europe - EOL n. 161
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The transition to a low-carbon, climate-resilient society requires an adequate community capacity to reduce greenhouse gas emissions and adapt to climate impacts. The Paris Agreement encourages capacity-building activities to implement adaptation and mitigation measures (Articles 10, 11 and 12). Consequently, the European Green Agreement includes measures, including capacity building. Climate-resistant society, economy and nature are a necessary component of a sustainable vision for Europe. To achieve this, systemic changes in the education system are also needed. In this paper we presented an innovative approach to capacity building and the first results of the ECO-SMART project (Ecosystem Services Market for Advanced NATURA 2000), co-financed under the Interreg V-A Italy-Slovenia 2014-2020 Cooperation Program of the European Union. regional development and national funds. The project addresses the challenges of integrating various aspects within an integrated approach to improve knowledge, acquire skills, raise awareness, cooperate and co-create appropriate sustainable solutions with a focus on adapting to climate change through the protection of biodiversity and indirectly ecosystem services. The innovative approach to capacity building presented with bespoke content and activities targets various community stakeholders, includes digital content and strives to disseminate socially responsible behavior. The integral development theory, developed by Schieffer and Lessem of the Center for Integral Development Trans4m and implemented in Slovenia as part of the citizens' initiative for integral green Slovenia, and the model of the integral principle "CARE" (C = Community activation, A = Awakening of integral consciousness, R = Guided research, E = Embodiment of integral development) are included in the methodological approach of the ECO-SMART project. The project mainly focuses on strengthening the capacities of individuals and institutions in the local community, who are important actors in the development of this community, but also supports the transfer of knowledge and the capitalization of results at a broader systemic level. We see the key benefits of an integrated and tailored approach to capacity building in:

create a favorable environment for more inclusive and constructive stakeholder participation in innovation-oriented research and other professional project work; the

exchange of knowledge and information between partners and a wider range of border area stakeholders and the creation of opportunities for comparison and long-term cooperation; strengthen innovative, entrepreneurial and creative aspects in addressing the challenges of climate change (developing payment schemes for ecosystem services and new business opportunities to support the implementation of adaptation measures, ecosystem restoration, biodiversity conservation and ecosystem services). The proposed integrated capacity development model is mainly based on the integrity and coherence of the planned capacity development activities with all the work packages and interdisciplinary aspects covered by the project: from knowledge of ecosystems, ecosystem services and climate change to understand their social and economic consequences and the need for adaptation and mitigation actions to climate change.

SMERNICE IN ORODJA ZA POGOVOR O PODNEBNIH SPREMEMBAH IN EKOSISTEMSKIH STORITVAH V ŠOLI

GUIDELINES AND TOOLS FOR TALKING ABOUT CLIMATE AND ECOSYSTEM SERVICES IN THE SCHOOL

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IZVLEČEK

Ekosistemske storitve ali usluge so vse dobrine in koristi, ki jih zagotavljajo ekosistemi in so pomembne za ohranjanje blaginje družbe ter njen trajnostni obstoj. Podnebne spremembe in drugi antropogeni pritiski povzročajo številne kumulativne učinke na ekosisteme, kažejo pa se tako v degradaciji ekosistemskih procesov kot tudi v izgubi biotske pestrosti in spreminjanju habitatov, posledično pa še v manjši zmogljivosti ekosistemov za zagotavljanje ekosistemskih storitev.

Cilja projekta ECO-SMART, ki je sofinanciran s programom Interreg V-A Slovenija-Italija, sta bila: a) analiza vplivov podnebnih sprememb na ekosistemske storitve izbranih obalnih območij Natura 2000, ki so še posebej izpostavljena podnebnim spremembam, b) priprava načrtov za prilagajanje na podnebne spremembe prek sonaravnih rešitev za zaščito ekosistemskih storitev in biotske pestrosti teh območij. V vse dejavnosti projekta pa je umeščena celostna strategija krepitev zmogljivosti skupnosti. Pomembna ciljna skupina za aktivnosti krepitev zmogljivosti so tudi lokalne šole, ki so jim posvečene prilagojene projektne aktivnosti, na primer smernice za učitelje in spletni izobraževalni portal za učence. S tem se krepi sodelovanje med raziskovalci in šolami, prav tako pa se omogočata soustvarjanje inovativnega izobraževalnega okolja in podpiranje družbeno odgovornega izobraževanja.

Ključne besede: ekosistemske storitve, podnebne spremembe, vzgoja in izobraževanje za trajnostni razvoj

ABSTRACT

Ecosystem services include all services and goods provided by ecosystems that are important for the well-being of society and its sustainable existence. Climate change and other anthropogenic pressures cause a number of cumulative impacts on ecosystems, which are reflected in degraded ecosystem processes as well as in the loss of biodiversity and habitat changes, consequently also in the reduced capacity of ecosystems to provide ecosystem service.

The aim of the project ECO-SMART, co-financed by Cooperation Program Interreg Slovenia-Italy, has been: a) to analyse the impacts of climate change on ecosystem services of selected coastal Natura 2000 sites that are particularly exposed to climate change and b) to develop plans for adaptation to climate change through nature-based solutions for the protection of ecosystem services and biodiversity. A holistic community capacity building strategy is embedded in all project activities. Key target groups of capacity building activities are also local schools, to whom specially tailored project activities are dedicated,

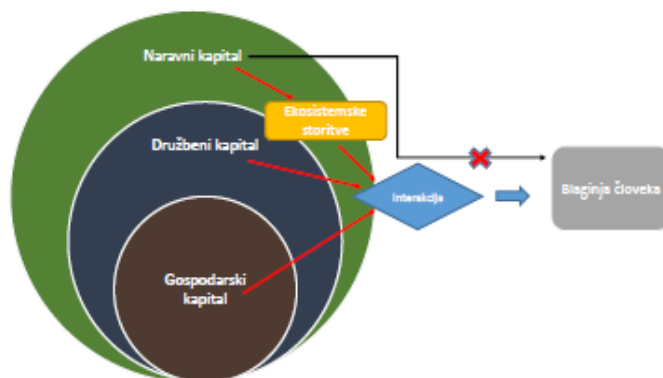
such as guidelines for teachers and an online educational portal for students. This strengthens cooperation between researchers and schools, enables the co-creation of an innovative educational environment and the support of socially responsible education.

Key words: ecosystem services, climate change, education for sustainable development

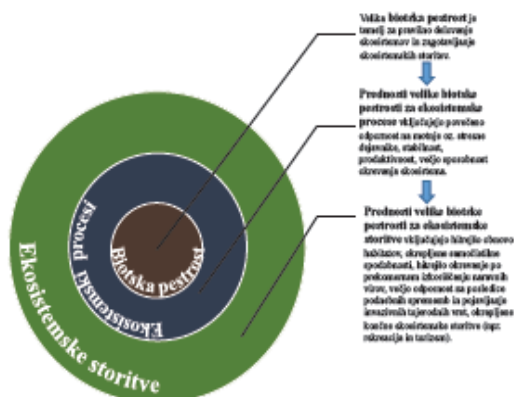
1 UVOD

Med ekosistemskih storitev ali uslug uvrščamo vse procese in dobrine, ki nam jih neposredno ali posredno zagotavlja delovanje ekosistemov. Delimo jih na:

- podpore (tvorba prsti, fotosinteza, primarna produkcija, kroženje hranil ...);
- regulatorne ali uravnavne (uravnavanje podnebja, poplav, pojavov boleznih, kakovosti vode, erozije tal, samočistilne sposobnosti ekosistemov ...);
- oskrbovalne (oskrba s hrano, pitno vodo, gorivom, lesno biomaso, zdravilnimi učinkovinami ...);



Slika 1: Povezava med naravnim, družbenim in gospodarskim kapitalom
Vir: Prirejeno po Costanza in sod., 2014.



Slika 2: Biotska pestrost kot temelj ekosistemskih procesov in storitev
Vir: Prirejeno po Palumbi in sod., 2009.

- kulturne (estetske, duhovne, izobraževalne, inspiracijske, rekreativne, športne in druge dejavnosti, ki jih omogočajo ekosistemi).

Načini, na katere lahko naravni kapital posredno sovpliva na blaginjo družbe, so prav ekosistemskih storitev. Med ekosistemi in družbeno-ekonomskimi sistemi se torej ustvarja prehodni tok koristi, ki temelji prav na ekosistemskih storitvah. To ustvarja vrednosti, ki se lahko celostno ocenjujejo z gospodarskega, okoljskega, družbenega in tudi kulturno etičnega zornega kota (Potschin in Haines-Young, 2011). Za obravnavo ekosistemskih storitev in njihovo vključevanje v procese upravljanja in odločanja s spodbujanjem večsektorskih sinergij je bistveno sprejeti široko, transdisciplinarno perspektivo (Costanza in sod., 2014, slika 1).

Ekosistemske storitve temeljijo na zmogljivosti ekosistemov za zagotavljanje teh storitev. Na to vplivajo predvsem okoljski dejavniki, kot so ekosistemski procesi in biotska pestrost, posredno tudi prožnost in vitalnost ekosistemov (Palumbi in sod., 2009, slika 2). Ampak antropogeni pritiski in podnebne spremembe negativno vplivajo na biotsko pestrost in dinamiko ekosistemskih procesov (Mooney in sod., 2009; Mantyka-Pringle in sod., 2015; Weiskopf in sod., 2020), s tem pa zmanjšujejo zmogljivosti ekosistemov za zagotavljanje ekosistemskih storitev.

Dejanska raba ekosistemskih storitev je odvisna od številnih dejavnikov, vključno s političnimi, družbenimi in gospodarskimi. Lahko se zgodi, da vsi deležniki ne izkoristijo dobrin in storitev, ki jih nudijo ekosistemi, v enaki meri, kar je odvisno predvsem od odnosov med deležniki (Felipe-Lucia in sod., 2015). V nekaterih primerih lah-

ko tudi način upravljanja in uporabe teh storitev privede do povečanega antropogenega pritiska na ekosisteme. Ker se torej v različnih kontekstih ustvarjajo posebni družbeno-ekološki sistemi, je treba vsak primer podrobneje preučiti. Na primer pri ugotavljanju odnosov med deležniki določenih ekosistemskih storitev lahko opazimo neenakovredno obravnavanje ranljivih družbenih skupin, ki imajo manjšo moč odločanja in vplivanja ter s tem večkrat tudi omejen dostop do ekosistemskih storitev. Hkrati lahko opazimo tudi netrajnostne turistične in kmetijske dejavnosti, ki povzročajo različne pritiske na ekosisteme. Vsa ta opažanja nato uporabimo za pripravo modela upravljanja določenega ekosistema ali zavarovanega območja narave, ki temelji na integrativni analizi ekosistemskih storitev in njihovih deležnikov (Raum, 2018).

Iz doslej navedenega izhaja potreba po okrepitevi zmogljivosti skupnosti z izobraževanjem in ozaveščanjem deležnikov, vključno z upravljavci zavarovanih območij narave in oblikovalci sektorskih politik. To bo osnova za večjo učinkovitost pri vzpostavitvi modelov soupravljanja ekosistemov, še posebej zavarovanih območij narave, npr. omrežja Natura 2000. Ti modeli soupravljanja in prilagajanja na podnebne spremembe morajo temeljiti na soustvarjanju možnosti trajnostnega razvoja in omogočati ena-

kovreden dostop do teh storitev vsem deležnikom.

Zaščita in vzdržna raba naravnih virov, vzdrževanje in obnova zelene infrastrukture, zniževanje emisij toplogrednih plinov, razvoj proti podnebnim spremembam odpornih ekosistemov in družbe, preusmeritev v trajnostno, krožno gospodarstvo so nujni sestavni deli globalne in evropske trajnostne vizije (EC, 2019) ter tudi vizije Slovenije, ki je opredeljena v Resoluciji o Dolgoročni podnebni strategiji Slovenije do leta 2050 (ReD-PS50, Uradni list RS, št. 119/21). Zадnja temelji na odločitvah, opredeljenih v Strategiji razvoja Slovenije 2030 (SRS 2030), Celovitem nacionalnem energetske in podnebnem načrtu (NEPN), Resoluciji o Nacionalnem programu varstva okolja za obdobje 2020–2030 (ReNPVO20–30, Uradni list RS, št. 31/20) in drugih sektorskih dokumentih. Navedeni dokumenti poudarjajo sistemsko reševanje globalnih izzivov in skupno ukrepanje. Sprememba odnosa do okolja, spodbujanje aktivnega vključevanja v preobrazbo družbe in povečanje sprejemljivosti posameznikov do prihodnjih tehnoloških in družbenih sprememb so neizogibni, zato so v podporo ekološkemu prehodu potrebne tudi sistemske spremembe izobraževalnega sistema (Holfelder, 2019). Namen prispevka je predstaviti dejavnosti projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, sofinanciran v okviru programa sodelovanja Interreg V-A Italija-Slovenija 2014–2020 iz sredstev Evropskega sklada za regionalni razvoj in nacionalnih sredstev), ki so namenjene učencem in učiteljem na ravni osnovnošolskega in srednješolskega izobraževanja, torej predvsem šolam v programskem območju. Projekt se je začel izvajati v 2020 in se letos zaključuje. Italijanski partnerji projekta so Dežela Benetija, ki je tudi vodilni partner, Občina Tržič in univerza v Padovi. Slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Znanstveno-raziskovalnega središča Koper, Mediteranski inštitut za okoljske študije (ZRS Koper). Splošni



Slika 3: Logotip projekta ECO-SMART in projektne partnerjeve

20. SMERNICE IN ORODJA ZA POGOVOR O PODNEBNIH SPREMEMBAH IN EKOSISTEMSKIH STORITVAH V ŠOLI - aprila 2022

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Link: <http://www.bc-naklo.si/visja-sola/strokovnarevija/arhiv-stevilk-revija-moje-podezelje/>

PRENOS ZNANJA IZ RAZISKAV O PODNEBNIH SPREMEMBAH IN EKOSISTEMSKIH STORITVAH IZ RAZISKAV V ŠOLSKE UČILNICE

IZVLEČEK

Ekosistemske storitve ali usluge so vse dobrine in koristi, ki jih zagotavljajo ekosistemi in so pomembne za ohranjanje blaginje družbe ter njen trajnostni obstoj. Podnebne spremembe in drugi antropogeni pritiski povzročajo številne kumulativne učinke na ekosisteme, kažejo pa se tako v degradaciji ekosistemskih procesov kot tudi v izgubi biotske pestrosti in spreminjanju habitatov, posledično pa še v manjši zmogljivosti ekosistemov za zagotavljanje ekosistemskih storitev.

Cilja projekta ECO-SMART, ki je sofinanciran s programom Interreg V-A Slovenija-Italija, sta bila: a) analiza vplivov podnebnih sprememb na ekosistemske storitve izbranih obalnih območij Nature 2000, ki so še posebej izpostavljena podnebnim spremembam, b) priprava načrtov za prilagajanje na podnebne spremembe prek sonaravnih rešitev za zaščito ekosistemskih storitev in biotske pestrosti teh območij. V vse dejavnosti projekta pa je umeščena celostna strategija krepitve zmogljivosti skupnosti. Pomembna ciljna skupina za aktivnosti krepitve zmogljivosti so tudi lokalne šole, ki so jim posvečene prilagojene projektne aktivnosti, na primer smernice za učitelje in spletni izobraževalni portal za učence. S tem se krepi sodelovanje med raziskovalci in šolami, prav tako pa se omogočata soustvarjanje inovativnega izobraževalnega okolja in podpiranje družbeno odgovornega izobraževanja.

20. LINEE GUIDA E STRUMENTI PER LA DISCUSSIONE SU CAMBIAMENTI CLIMATICI E SERVIZI ECOSISTEMICI A SCUOLA - aprile 2022

TRASFERIMENTO DI CONOSCENZE DALLA RICERCA SUI CAMBIAMENTI CLIMATICI E SERVIZI ECOSISTEMICI DALLA RICERCA ALLE AULE SCOLASTICHE

RIASSUNTO

I servizi ecosistemici comprendono tutti i servizi e beni forniti dagli ecosistemi che sono importanti per il benessere della società e la sua esistenza sostenibile. I cambiamenti climatici e altre pressioni antropogeniche causano una serie di impatti cumulativi sugli ecosistemi, che si riflettono nei processi ecosistemici degradati, nonché nella perdita di biodiversità e nei cambiamenti degli habitat, di conseguenza anche nella ridotta capacità degli ecosistemi di fornire servizi ecosistemici.

Lo scopo del progetto ECO-SMART, cofinanziato dal Programma di Cooperazione Interreg Slovenia-Italia, è stato: a) analizzare gli impatti dei cambiamenti climatici sui servizi ecosistemici di selezionati siti Natura 2000 costieri particolarmente esposti ai cambiamenti climatici e b) di elaborare piani di adattamento ai cambiamenti climatici attraverso soluzioni basate sulla natura per la protezione dei servizi ecosistemici e della biodiversità. Una strategia olistica di rafforzamento delle capacità della comunità è incorporata in tutte le attività del progetto. I gruppi target chiave delle attività di rafforzamento delle capacità sono anche le scuole locali, a cui sono dedicate attività progettuali su misura, come le linee guida per gli insegnanti e un portale educativo online per gli studenti. Ciò rafforza la cooperazione tra ricercatori e scuole, consente la co-creazione di un ambiente educativo innovativo e il supporto di un'educazione socialmente responsabile.

20. GUIDELINES AND TOOLS FOR DISCUSSION ON CLIMATE CHANGE AND ECOSYSTEM SERVICES IN SCHOOL - april 2022

TRANSFER KNOWLEDGE FROM RESEARCH ON CLIMATE CHANGE AND ECOSYSTEM SERVICES FROM RESEARCH TO THE CLASSROOM

ABSTRACT

Ecosystem services include all services and goods provided by ecosystems that are important for the well-being of society and its sustainable existence. Climate change and other anthropogenic pressures cause a number of cumulative impacts on ecosystems, which are reflected in degraded ecosystem processes as well as in the loss of biodiversity and habitat changes, consequently also in the reduced capacity of ecosystems to provide ecosystem services.

The aim of the project ECO-SMART, co-financed by Cooperation Program Interreg Slovenia-Italia, has been: a) to analyse the impacts of climate change on ecosystem services of selected coastal Natura 2000 sites that are particularly exposed to climate change and b) to develop plans for adaptation to climate change through nature-based

solutions for the protection of ecosystem services and biodiversity. A holistic community capacity building strategy is embedded in all project activities. Key target groups of capacity building activities are also local schools, to whom specially tailored project activities are dedicated, such as guidelines for teachers and an online educational portal for students. This strengthens cooperation between researchers and schools, enables the co-creation of an innovative educational environment and the support of socially responsible education.

Znanstveni in strokovni članki/Articoli scientifici e professionali/Scientific and expert's articles

Integralni model krepite zmogljivosti skupnosti za boljše razumevanje pomena ekosistemskih storitev

Integralni model krepite zmogljivosti skupnosti za boljše razumevanje pomena ekosistemskih storitev

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Povzetek

Prehod v nizkoogljično, na podnebne spremembe odporno družbo zahteva ustrezne zmogljivosti skupnosti za zmanjšanje emisij toplogrednih plinov in prilagajanje podnebnim vplivom. Pariški sporazum spodbuja dejavnosti krepite zmogljivosti za izvajanje prilagoditvenih in blažilnih ukrepov (10., 11. in 12. člen). V skladu s tem Evropski zeleni dogovor predvideva ukrepe, ki vključujejo tudi krepitev zmogljivosti. Na podnebne spremembe odporni družba, gospodarstvo in narava so nujen sestavni del trajnostne vizije za Evropo. Da bi to dosegli, so nujne tudi sistemske spremembe izobraževalnega sistema.

1

Cilj prispevka je predstaviti inovativni pristop h krepitev zmogljivosti in prve dosežke projekta ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000), financiranega v okviru Programa sodelovanja INTERREG V-A Italija-Slovenija 2014–2020. V sklopu projekta se obravnavajo izzivi integracije različnih vidikov znotraj celostnega pristopa h krepitev znanja, pridobivanju kompetenc, dviganju ozaveščenosti, krepitev sodelovanja in soustvarjanja ustreznih sonaravnih rešitev s posebnim poudarkom na prilagajanju na podnebne spremembe z zaščito biotske pestrosti in posredno tudi ekosistemskih storitev. S prilagojenimi vsebinami in dejavnostmi predstavljeni inovativni pristop h krepitev zmogljivosti naslavlja različne deležnike v skupnosti, vključuje digitalne vsebine in stremi k širjenju družbeno odgovornega ravnanja. Teorija integralnega razvoja, ki sta jo razvila Schieffer in Lessem (2014) in jo v Sloveniji izvajamo v sklopu državljanske pobude za Integralno zeleno Slovenijo, ter model integralnega načela »CARE« sta vključena in pojasnjena v sklopu metodološkega pristopa projekta ECO-SMART.

Ključne besede: krepitev zmogljivosti, ekosistemske storitve, prilagajanje na podnebne spremembe, integralni pristop VITR (vzgoja in izobraževanje za trajnostni razvoj).



*Prva nacionalna strokovno-poslovna konferenca IRDO in Državljska pobuda za celostno zeleno Slovenijo:
Izzivi in priložnosti za trajnostni razvoj Slovenije v evropskem kontekstu, 11. junij 2021, VIRTUALNO*

21. IRDO - Joint Conferences on Socially Responsible Society 2021. 10-11 June 2021, Slovenia, Maribor, European Union

Povzetki referatov Abstracts of Conference Proceedings - Integralna zelena pot k trajnostni. Izvirni slovenski prispevek h Konferenci p prihodnosti Evrope.

21. Integralni model krepitve zmogljivosti skupnosti za boljše razumevanje pomena ekosistemskih storitev

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Link: <https://www.irdo.si/irdo2021/referati/abs-02-09-Vizintinetal-abs-eng-slo.pdf>

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21. IRDO - Conferenze congiunte sulla società socialmente responsabile 2021. 10-11 giugno 2021, Slovenia, Maribor, Unione europea.

21. Un modello integrato di capacity building della comunità per una migliore comprensione dell'importanza dei servizi ecosistemici

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Abstract

La transizione verso una società a basse emissioni di carbonio e resiliente al clima richiede un'adeguata capacità comunitaria di ridurre le emissioni di gas serra e adattarsi al cambiamento climatico impatto. L'accordo di Parigi incoraggia le attività di rafforzamento delle capacità per attuare misure di adattamento e mitigazione (articoli 10, 11 e 12). Di conseguenza, l'accordo verde europeo prevede misure che includono il rafforzamento delle capacità. La società, l'economia e la natura resistenti al clima sono una componente necessaria di una visione sostenibile per l'Europa. Per raggiungere questo obiettivo, sono necessari anche cambiamenti sistemici nel sistema educativo. L'obiettivo del documento è presentare un approccio innovativo al capacity building e le prime realizzazioni del progetto ECO-SMART (Mercato dei servizi ecosistemici per la politica di protezione avanzata dei siti NATURA 2000), finanziato nell'ambito del progetto INTERREG V-A Italia-Slovenia 2014-2020 Programma di cooperazione: vari aspetti all'interno di un approccio integrato al rafforzamento delle conoscenze, all'acquisizione di competenze, alla sensibilizzazione, al rafforzamento della cooperazione e alla co-creazione di soluzioni sostenibili adeguate, con particolare attenzione all'adattamento ai cambiamenti climatici attraverso la protezione della biodiversità e, indirettamente, dei servizi ecosistemici. L'approccio innovativo per lo sviluppo delle capacità presentato con contenuti e attività su misura si rivolge a varie parti interessate della comunità, include contenuti digitali e si sforza di diffondere un comportamento socialmente responsabile. La teoria dello sviluppo integrale, sviluppata da Schieffer e Lessem (2014) e attuata in Slovenia nell'ambito dell'iniziativa dei cittadini per la Slovenia verde integrale, e il modello del principio integrale "CARE" sono inclusi e spiegati nell'approccio metodologico del Progetto ECO-SMART. Parole chiave: capacity building, servizi ecosistemici, adattamento ai cambiamenti climatici, approccio integrato ESD (educazione allo sviluppo sostenibile).

21. IRDO - Joint Conferences on Socially Responsible Society 2021. 10-11 June 2021, Slovenia, Maribor, European Union.

21. An integrated model of community capacity building for a better understanding of the importance of ecosystem services

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Abstract

The transition to a low-carbon, climate-resilient society requires adequate community capacity to reduce greenhouse gas emissions and adapt to climate change impact. The Paris Agreement encourages capacity building activities to implement adaptation and mitigation measures (Articles 10, 11 and 12). Accordingly, the European Green Agreement provides for measures, including capacity building. Climate change-resistant society, the economy and nature are a necessary component of a sustainable vision for Europe. To achieve this, systemic changes in the education system are also needed. The aim of this document is to present an innovative approach to capacity building and the first achievements of the ECO-SMART project (Market of ecosystem services for advanced protection policy of NATURA 2000 sites), funded under the INTERREG V-A Italy-Slovenia 2014-2020 Cooperation Program: various aspects within an integrated approach to strengthening knowledge, acquiring competences, raising awareness, strengthening cooperation and co-creating appropriate sustainable solutions, with special emphasis on adapting to climate change through the protection of biodiversity and, indirectly, ecosystem services. The innovative capacity building approach presented with tailored content and activities addresses various stakeholders in the community, includes digital content and strives to spread socially responsible behavior. The theory of integral development, developed by Schieffer and Lessem (2014) and implemented in Slovenia as part of the citizens' initiative for Integral Green Slovenia, and the model of the integral principle "CARE" are included and explained in the methodological approach of the ECO-SMART project. Key words: capacity building, ecosystem services, adaptation to climate change, integrated ESD approach (education for sustainable development)

KREPITEV ZMOGLJIVOSTI SKUPNOSTI O VLOGI EKOSISTEMSKIH STORITEV PRI PRILAGAJANJU NA PODNEBNE SPREMEMBE

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Povzetek Ekosistemske storitve so vse dobrine in koristi, ki jih ima človek od ekosistemov. So bistvene za preživetje človeka in za njegov družbeni in gospodarski razvoj. Zaradi vplivov podnebnih sprememb, degradacije ekosistemov in upada biotske pestrosti je ogrožena tudi zmožnost ekosistemov, da bi še naprej nemoteno zagotavljali ekosistemske storitve. V prispevku smo predstavili dejavnosti krepitev zmogljivosti skupnosti o ekosistemskih storitvah in podnebnih spremembah, ki se izvajajo v sklopu projekta ECO-SMART (Programa Sodelovanja Interreg V-A Italija-Slovenija 2014–2020). Ker je namen projekta oblikovanje usklajenih lokalnih načrtov za prilagajanje na podnebne spremembe za izbrana pilotna območja omrežja Natura 2000 v Sloveniji in Italiji, so še posebej pomembne dejavnosti, namenjene krepitevi kompetenc in soočenju različnih stališč deležnikov obmejnih lokalnih skupnosti. Izobraževalne potrebe lokalne skupnosti smo raziskali s pomočjo ankete. Ugotavljali smo poznavanje opisanih vsebin, interes za krepitev kompetenc in za udeležbo na izobraževalnih dogodkih. Rezultate anketiranja smo uporabili pri načrtovanju dogodkov za krepitev zmogljivosti.

Ključne besede:

ekosistemske
storitve,
podnebne
spremembe,
krepitev
zmogljivosti,
omrežje
Natura 2000,
obmejno
sodelovanje.



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22. - 40. MEDNARODNA KONFERENCA O RAZVOJU ORGANIZACIJSKIH ZNANOSTI, VREDNOTE. KOMPETENCE IN SPREMEMBE V ORGANIZACIJAH

University of Maribor / Faculty of Organizational Sciences - March 2021

22. KREPITEV ZMOGLJIVOSTI SKUPNOSTI O VLOGI EKOSISTEMSKIH STORITEV PRI PRILAGAJANJU NA PODNEBNE SPREMEMBE / COMMUNITY CAPACITY BUILDING REGARDING THE ROLE OF ECOSYSTEM SERVICES IN CLIMATE CHANGE ADAPTATION

Liliana Vižintin

(od strani 1093 do strani 1107)

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<https://press.um.si/index.php/ump/catalog/book/552>

Krepitev zmogljivosti skupnosti o vlogi ekosistemskih storitev pri prilagajanju na podnebne spremembe.

Povzetek. Ekosistemske storitve so vse dobrine in koristi, ki jih ima človek od ekosistemov. So bistvene za preživetje človeka in za njegov družbeni in gospodarski razvoj. Zaradi vplivov podnebnih sprememb, degradacije ekosistemov in upada biotske pestrosti je ogrožena tudi zmožnost ekosistemov, da bi še naprej nemoteno zagotavljali ekosistemske storitve. V prispevku smo predstavili dejavnosti krepitve zmogljivosti skupnosti o ekosistemskih storitvah in podnebnih spremembah, ki se izvajajo v sklopu projekta ECO-SMART (Programa Sodelovanja Interreg V-A Italija-Slovenija 2014-2020). Ker je namen projekta oblikovanje usklajenih lokalnih načrtov za prilagajanje na podnebne spremembe za izbrana pilotna območja omrežja Natura 2000 v Sloveniji in Italiji, so še posebej pomembne dejavnosti, namenjene krepitvi kompetenc in soočenju različnih stališč deležnikov obmejnih lokalnih skupnosti. Izobraževalne potrebe lokalne skupnosti smo raziskali s pomočjo ankete. Ugotavljali smo poznavanje opisanih vsebin, interes za krepitev kompetenc in za udeležbo na izobraževalnih dogodkih. Rezultate anketiranja smo uporabili pri načrtovanju dogodkov za krepitev zmogljivosti.

22. 40° CONVEGNO INTERNAZIONALE SULLO SVILUPPO DELLE SCIENZE ORGANIZZATIVE, VALORI. COMPETENZE E CAMBIAMENTI NELLE ORGANIZZAZIONI

22.SVILUPPO DELLE CAPACITÀ COMUNITARIE SUL RUOLO DEI SERVIZI ECOSISTEMICI NEI CAMBIAMENTI CLIMATICI ADATTAMENTO

Liliana Vižintin

(da pg. 1093 a pg. 1107)

Abstract

I servizi ecosistemici sono tutti i beni e i benefici che l'uomo trae dagli ecosistemi. Sono essenziali per la sopravvivenza umana e lo sviluppo sociale ed economico. Gli impatti dei cambiamenti climatici, del degrado degli ecosistemi e della perdita di biodiversità mettono a repentaglio anche la capacità degli ecosistemi di continuare a fornire servizi ecosistemici senza interruzioni. In questo documento sono state presentate le attività di rafforzamento delle capacità comunitarie sui servizi ecosistemici e sui cambiamenti climatici, che sono implementate nell'ambito del progetto ECO-SMART (Interreg V-A Italy-Slovenia Cooperation Programme 2014-2020). Poiché l'obiettivo del progetto è creare piani locali coordinati per l'adattamento ai cambiamenti climatici per siti pilota selezionati di Natura 2000 in Slovenia e in Italia, le attività volte a rafforzare le competenze e a confrontare le diverse posizioni degli stakeholder nelle comunità locali di confine sono particolarmente importanti. Abbiamo studiato i bisogni educativi della comunità locale con l'aiuto di un sondaggio. Abbiamo determinato la conoscenza dei contenuti descritti, l'interesse a rafforzare le competenze e la partecipazione ad eventi formativi. Abbiamo utilizzato i risultati del sondaggio per pianificare eventi di rafforzamento delle capacità.

22. 40th International conference on organizational science development, values. Competencies and changes in organizations

22. STRENGTHENING COMMUNITY CAPACITY ON THE ROLE OF ECOSYSTEM SERVICES IN ADAPTATION TO CLIMATE CHANGE / COMMUNITY CAPACITY BUILDING REGARDING THE ROLE OF ECOSYSTEM SERVICES IN CLIMATE CHANGE ADAPTATION.

Liliana Vižintin

(from pg. 1093 to pg. 1107)

Summary

Ecosystem services are all the goods and benefits that humans derive from ecosystems. They are essential for human survival and social and economic development. The impacts of climate change, ecosystem degradation and biodiversity loss also jeopardize the ability of ecosystems to continue providing ecosystem services without interruption. This document presented the activities for strengthening community capacities on ecosystem services and climate change, which are implemented within the ECO-SMART project (Interreg V-A Italy-Slovenia Cooperation Program 2014-2020). As the aim of the project is to create coordinated local plans for climate change adaptation for selected Natura 2000 pilot sites in Slovenia and Italy, activities aimed at strengthening skills and comparing different stakeholder positions in local border communities are particularly important. We studied the educational needs of the local community with the help of a survey. We determined the knowledge of the contents described, the interest in strengthening skills and participation in training events. We used the survey results to plan capacity-building events.

Mainstreaming education for climate change adaptation using bottom-up approaches: a review and experiences gained

Krepitev izobraževanja za prilagajanje na podnebne spremembe z uporabo pristopov od spodaj navzgor: pregled in pridobljene izkušnje

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Povzetek

Na naravi temelječe rešitve se v razvojnih strategijah in politikah vse bolj spodbujajo, saj so temelj za izboljšanje prilagoditvene sposobnosti in družbeno-ekološke odpornosti območij, in sicer od lokalne do globalne ravni. Med te rešitve sodijo tudi ukrepi na ekosistemih temelječega prilagajanja podnebnim spremembam, ki so še posebej pomembni za ranljiva obalna območja. Transdisciplinarni pristopi, ki se uporabljajo za te procese prilagajanja, so doseženi z vključevanjem prebivalcev v proces sprememb in iskanjem inovativnih načinov za združevanje prizadevanj in zmogljivosti različnih lokalnih deležnikov.

Izobraževanje je temelj osebne izpolnitve, zaposljivosti, aktivnega in odgovornega državljanstva. Hkrati je tudi močno orodje za učinkovito lokalno prilagajanje podnebnim spremembam. Prilagojeno izobraževanje in ozaveščanje je zato ključni vidik vseh modelov za krepitev zmogljivosti, ki so v podporo temu procesu, in jih je treba uskladiti s potrebami različnih ciljnih skupin, njihove vloge in načina sodelovanja v procesu prilagajanja. Podpora raziskovalcev za izobraževanje in učenje o prilagajanju na podnebne spremembe lahko pospeši družbene spremembe z maksimiranjem učenja pred in med procesom prilagajanja.

V prispevku smo pregledali ključne evropske politike in pobude, ki zagotavljajo konceptualni okvir za pristope od spodaj navzgor v sklopu izobraževanja o podnebnih spremembah za trajnostni razvoj. Predstavili smo izkušnje in rezultate, ki smo jih pridobili v sklopu projekta ECO-SMART, program sodelovanja Interreg Italija-Slovenija.

Ključne besede: na ekosistemih temelječe prilagajanje, krepitev zmogljivosti, izobraževanje o podnebnih spremembah za trajnostni razvoj



17th IRDO International Conference, SOCIALLY RESPONSIBLE SOCIETY CHALLENGES 2022:
Green, digital, and inclusive transition: how to make it happen?
2-3 June 2022, Maribor, Slovenia, EU, ONLINE, www.irdo.si, info@irdo.si

23. Krepitev izobraževanja za prilagajanje na podnebne spremembe z uporabo pristopov od spodaj navzgor: pregled in pridobljene izkušnje

Link: <https://irdo.si/irdo2022/referati/day2-2022-paper-vizintin-ok.pdf>

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Ključne besede: na ekosistemih temelječe prilagajanje, krepitev zmogljivosti, izobraževanje o podnebnih spremembah za trajnostni razvoj

23. Integrazione dell'istruzione per l'adattamento ai cambiamenti climatici utilizzando approcci dal basso verso l'alto: una revisione e le esperienze acquisite

Riassunto

Le soluzioni basate sulla natura sono sempre più promosse nelle strategie e nelle politiche di sviluppo, in quanto costituiscono la base per migliorare l'adattabilità e la resilienza socio-ecologica delle aree, dal livello locale a quello globale. Queste soluzioni includono misure sull'adattamento ecosistemico ai cambiamenti climatici, che sono particolarmente importanti per le zone costiere vulnerabili. Gli approcci transdisciplinari applicati a questi processi di adattamento si ottengono coinvolgendo i cittadini nel processo di cambiamento e trovando modi innovativi per unire gli sforzi e le capacità delle diverse parti interessate.

L'istruzione, come base per la realizzazione personale, l'occupabilità e la cittadinanza attiva e responsabile, è un potente strumento per consentire un efficace adattamento locale ai cambiamenti climatici. Pertanto, attività di educazione e sensibilizzazione su misura sono aspetti critici dei modelli di rafforzamento delle capacità e dovrebbero essere adattate alle esigenze dei diversi gruppi target. Il supporto basato sulla ricerca per l'apprendimento dell'adattamento può accelerare il cambiamento sociale massimizzando l'apprendimento prima e durante il processo di adattamento.

In questo articolo vengono esaminate le principali politiche e iniziative europee che forniscono un quadro concettuale per approcci dal basso verso l'alto all'educazione ai cambiamenti climatici per lo sviluppo sostenibile e l'apprendimento all'adattamento. Viene presentata l'esperienza con l'approccio bottom-up proposta nel progetto ECO-SMART, il programma di cooperazione Interreg Slovenia-Italia.

23. Mainstreaming education for climate change adaptation using bottom-up approaches: a review and experiences gained

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Abstract

Nature-based solutions are increasingly being promoted in development strategies and policies, as they are the basis for improving the adaptability and socio-ecological resilience of areas, from the local to the global levels. These solutions include measures on ecosystem-based adaptation to climate change, which are particularly important for vulnerable coastal areas. Transdisciplinary approaches applied to these adaptation processes are achieved by engaging citizens in the change process and finding innovative ways to unite the efforts and capacities of different stakeholders.

Education, as a foundation for personal fulfilment, employability and active and responsible citizenship, is a powerful tool to enable effective local adaptation to climate change. Tailored education and awareness-raising activities are therefore critical aspects of capacity-building models and should be adapted to the needs of different target groups. Research-based support for adaptation learning can accelerate social change by maximising learning before and during the adaptation process.

In this article, key European policies and initiatives that provide a conceptual framework for bottom-up approaches to climate change education for sustainable development and adaptation learning, are reviewed. The experience with the bottom-up approach proposed in the project ECO-SMART, the Interreg Slovenia-Italy cooperation programme, is presented.

Keywords: ecosystem based adaptation, capacity building, climate change education for sustainable development

Poglavje v e-knjigi/Capitolo in e-book/ Chapter in the e-book

Priročnik za prepoznavanje
in načrtovanje zelene infrastrukture

Eden od projektov, ki razvija take pristope, je tudi ECO-SMART (Tržišče ekosistemskih storitev za napredno politiko zaščite območij NATURA 2000, Programa Sodelovanja Interreg V-A Italija-Slovenija 2014–2020). Italijanski partnerji projekta so Dečela Benečija, ki je tudi vodilni partner, Občina Tržič in Univerza v Padovi. Slovenska partnerja pa sta Regionalni razvojni center Koper (RRC Koper) in Mediteranski inštitut za okoljske študije Znanstveno-raziskovalnega središča Koper (MIOS, ZRS Koper).

Interreg
ITALIA-SLOVENIJA
ECO-SMART

Gilj projekta ECO-SMART je razviti uporabna orodja, ki bodo spodbudila uporabo plačila za ekosistemske storitve (PES) kot inovativnega sistema finančnih spodbud, prek katerega bi lahko izboljšali način upravljanja in spremljanja posledic podnebnih sprememb območij Natura 2000. Inovativni pristop projekta ECO-SMART temelji na ustvarjanju sinergij med različnimi vidiki vrednotenja ekosistemskih storitev in med različnimi deležniki, hkrati pa na spodbujanju prilagoditvenih pristopov, ki temeljijo na ekosistemi. Na osnovi opravljenih analiz ekosistemskih storitev in njihove ranljivosti partnerji projekta namenjajo predlagati obsejne usklajene načrte prilagajanja podnebnim spremembam za dve pilotni območji Natura 2000 v Italiji in eno v Sloveniji, in sicer na osnovi ekosistemskega pristopa k prilagajanju.



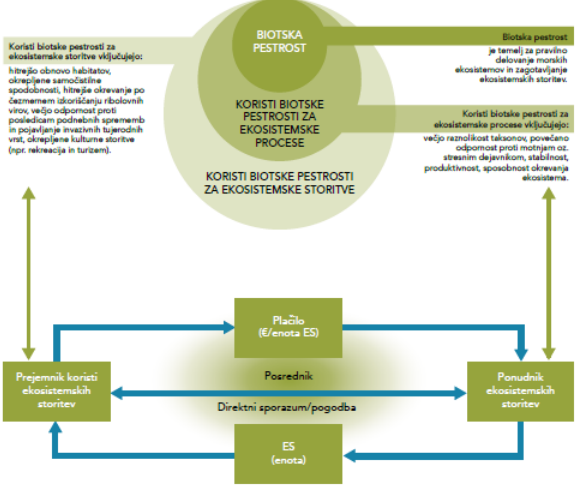
Fotografija 4: Rob krškega klifa nad Mesečevim zalivom. Zavarovano območje obale, ki tvori pomembno hribovsko zelene infrastrukture v Tržaškem zalivu.

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Zelena infrastruktura v prihodnje

Na globalni ravni je bil ekosistemski pristop k prilagajanju podnebnim spremembam (t. i. ecosystem-based adaptation, EbA; [41.]) opredeljen kot koncept prilagajanja, ki temelji na predpostavki, da ukrepi za zaščito biotske pestrosti in ekosistemskih storitev vodijo do večje družbeno-ekološke odpornosti lokalnih skupnosti proti podnebnim spremembam. Z uporabo opisanega pristopa je torej dolgoročni cilj partnerjev projekta ECO-SMART prispevati h krepitvi odpornosti območij Natura 2000 in lokalnih skupnosti obmejnega območja Italije in Slovenije. Da bi bil učinkovit čim večji, v vse faze projekta vključujejo tudi dejavnosti za krepitve zmogljivosti lokalnih skupnosti.

Inovativni vidik projekta predstavlja predvsem vpljava shem plačila za ekosistemske storitve (PES), pri katerih prejemniki koristijo določenih merljivih ekosistemskih storitev v ekonomskem smislu prispevajo tistim, ki storitve zagotavljajo – na primer vzdrževalci ali upravitelji teh ekosistemov (**Slika 21**). Opisani finančni mehanizmi so uporabni kot inovativni način sofinanciranja obnove in vzdrževanja območij Natura 2000 in širše tudi ostalih naravnih območij zelene infrastrukture.



Slika 21: Pomen biotske pestrosti in ekosistemskih procesov za zagotavljanje ekosistemskih storitev, opisan na primeru morskih ekosistemov (prirejeno po [42.]) ter shematični prikaz finančnega mehanizma PES za vzdrževanje in ohranjanje koristi, ki jih prinašajo ekosistemske storitve in biotska pestrost (prirejeno po [43.]).

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24. POGLAVJE 4.5 UVAJANJE SISTEMA PLAČEVANJA ZA EKOSISTEMSKÉ STORITVE

Link: <http://www.izvors.si/wp-content/uploads/2021/06/Prirocnik-za-prepoznavanje-in-nacrtovanje-zelene-infrastrukture.pdf>

11-12 maggio 2021/maja 2021/may 2021

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24. INTRODURRE SISTEMI DI PAGAMENTO PER I SERVIZI ECOSISTEMICI

Uno dei progetti che sviluppa tali approcci è anche ECO-SMART (il mercato dei servizi ecosistemici per le politiche avanzate di protezione delle aree NATURA 2000, il programma di cooperazione Interreg V-A Italia-Slovenia 2014-2020). Tra i partner italiani del progetto figurano la regione Veneto, che è anche capofila, il comune di Tržič Monfalcone e l'università di Padova. I partner sloveni includono il Centro di sviluppo regionale di Koper (RRC Koper) e l'Istituto mediterraneo per gli studi ambientali del Centro di ricerche scientifiche Koper (MIOS, ZRS Koper).

L'obiettivo del progetto ECO-SMART è quello di sviluppare strumenti utili che promuovano l'utilizzo dei pagamenti per i servizi ecosistemici (PES) come sistema innovativo di incentivi finanziari, attraverso i quali potrebbero migliorare le modalità di gestione e monitoraggio delle conseguenze dei cambiamenti climatici nelle aree Natura2000. L'approccio innovativo del progetto ECO-SMART si basa sulla creazione di sinergie tra i vari aspetti della valutazione dei servizi ecosistemici e tra i vari stakeholder, promuovendo anche approcci di adeguamento basati sugli ecosistemi. Sulla base delle analisi effettuate sui servizi ecosistemici e sulle loro vulnerabilità, i partner del progetto intendono proporre piani di confine armonizzati di adattamento ai cambiamenti climatici per due aree pilota di Natura 2000 in Italia e una in Slovenia, ovvero sulla base dell'approccio dell'adattabilità ecosistemica. A livello globale, l'approccio di adattamento ecosistemico (EbA; [41.]) è stato definito come un concetto di adattamento che si basa sul presupposto che le misure per la protezione della biodiversità e dei servizi ecosistemici portino a una maggiore resilienza socioecologica delle comunità locali ai cambiamenti climatici. Utilizzando l'approccio descritto, l'obiettivo a lungo termine dei partner del progetto ECO-SMART è quello di contribuire a una maggiore resilienza delle aree Natura 2000 e delle comunità locali ai confini dell'Italia e della Slovenia. Per massimizzare l'effetto, tutte le fasi del progetto prevedono anche attività di rafforzamento delle capacità delle comunità locali.

L'articolo è stato pubblicato anche nella versione inglese

The green infrastructure of the future

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water environment and the role of forests, which are the core areas of GI. In addition to the sea and the inland activities and bathing waters, the water environment also exposes an artificial water body of the right relieving stream of Rillana. The forest is seen as a key "resource in the cultural landscape", which despite its vast surface area (or because of it), has major and multi-layered importance. Because there are fewer forests, the forest patches and wedges play an important role, because they perform important functions and improve the landscape diversity of an area, and represent one of the most important resources of the area's landscape.

With the Decree on the landscape park of Trieste, the natural values are additionally protected, and management is established, in the framework of which the management of cultural monuments and archaeological sites are also assumed, should the state issue an act on the declaration of a cultural monument. In cooperation with the other competent services, the protection of forests is also upgraded. In addition to this, the landscape design also recognises the aesthetic value of monocultural crops, and proposes their preservation with ecological corrections in the sense of forest vegetation links.

On the basis of the strategic decisions and proposals based on professional grounds, the municipality of Aulian adopted the implementation of measures. In the process of adopting the NRP, it changes the NRP and harmonises it with the DSR in the NRP. It places vast surface areas of unbuild building plots, it also preserves all the forest land, while unbuild building plots in the coastal zone are changed into farmland, and where unbuild land is kept, it changes them into green areas. Where possible, the municipality, as the core for the implementation of GI, uses legal bases, while elsewhere it leans on policies.

The example clearly shows how a landscape design may serve as a lever for planning GI in an area. A landscape design must consider not only the appearance of the landscape, but also the functions and services of the area - ecosystems and others. If the landscape design, which is a compulsory part of spatial planning, would also be required to include an analysis of an area as per the GI and ES, then the green planning on the micro and meso level would become standard. Nature, waters, agriculture, forests, etc. - these are all areas in which we are fully dependent on nature and the quality of the natural environment, in practice and in legislation. The GI in spatial planning should therefore serve as a link between sectors and usages, functions and services of areas in the future.

4.5 The implementation of the payment system for ecosystem services

In a human society, the exchange of goods and services is done almost exclusively on a market which, in addition to the supply and demand, defines, with its monetary model, the relationships of mutual value of individual goods and services. Can the ecological aspect also be included in this socio-economic context by making ecosystems the providers of goods and services as well? Are ecosystems fairly evaluated as suppliers of goods and services that we market (wood, game, fish, mushrooms, etc.), or is this just exploitation and an excess depletion?

If a man chops down a tree on his property because he needs more space to park his car, then he loses important ecosystem services that were provided by this tree. For example, some shade or more favourable microclimate conditions, not to mention those that we are not even aware of, like the production of oxygen, a place for birds, binding carbon, the occurrence and preservation of ground fertility, etc. Of course, shade may be provided by a pergola, and favourable microclimate conditions may be created by installing a new air conditioner. However, in general, technological solutions may replace comprehensive ecosystem services provided by nature to a limited scope. In addition, raw materials from

nature need to be provided for the production of a pergola and an air conditioner, as well as an area for production and energy. These three things, again, reduce the total stocks of ecosystem services (Figure 3), which supports the continuation of the non-sustainable development of the economy.

To bridge the above, economic approaches in this area have been introduced for some time globally. Based on the "polluter pays" principle, these approaches make those who damage the environment (emissions of pollutants, nutrients, heat, CO₂, etc.), also pay for the damage. Thus, the economy is motivated to include in their development and operations, the plans for reducing the burdens on the environment.

In a similar fashion, approaches are being developed in the area of evaluating, preserving and renewing ecosystem services that would promote the preservation of the ecosystem services in an environment at the economic development and area usage. Of course, comparable or increased competitiveness of such an economic development and operations must be made possible for those acting responsibly, compared to the economic entities who are ignoring these measures (Figure 3).

One of the projects that develops such approaches is also ECO-SMART (the marketplace of ecosystem services for advanced policies of protecting the NATURA 2000 areas, the Interreg V-A Italy-Slovenia 2014-2020 cooperation programme). The Italian partners of the project include the Veneto region, which is also the leading partner, the municipality of Treviso, and Padova university. Slovenian partners include the Koper regional development centre (JRC Koper) and the Mediterranean Institute for Environmental Studies of the Science and Research Centre Koper (MIOES, ZRS Koper).



The aim of the ECO-SMART project is to develop useful tools that will promote the usage of payments for ecosystem services (PES) as an innovative system of financial incentives, through which they could improve the means of managing and monitoring the consequences of climate changes at Natura



Photo 4: The edge of a fragile cliff above Moon Bay. A protected coastal area that forms an important backbone of green infrastructure in the Gulf of Trieste.

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The green infrastructure of the future

2000 areas. The innovative approach of the ECO-SMART project is based on creating synergies between the various aspects of evaluating ecosystem services and between the various stakeholders, while also promoting adjustment approaches that are based on ecosystems. Based on the performed analyses of ecosystem services and their vulnerabilities, the project partners intend to propose harmonised border plans of adapting to climate changes for two pilot areas of Natura 2000 in Italy and one in Slovenia, namely on the basis of the ecosystem adaptability approach. On the global level, the ecosystem-based adaptation approach (EBA) [41] was defined as an adaptation concept that is based on the assumption that measures for the protection of biodiversity and ecosystem services lead to higher socioecological resilience of the local communities to climate changes. By using the described approach, the long-term goal of the ECO-SMART project partners is to contribute to the increased resilience of Natura 2000 areas and local communities on the borders of Italy and Slovenia. To maximise the effect, all project phases also include activities for strengthening the capability of the local communities.

The innovative aspect of the project is mainly the introduction of payment schemes for ecosystem services (PES), whereby the recipients of benefits of certain quantifiable ecosystem services in the economic sense, contribute to those who provide the services, i.e. maintainers or operators of these ecosystems (Figure 2). The described financial mechanisms are usable as an innovative way of co-financing renewals and maintenance works of Natura 2000 areas and beyond, and other natural areas of the green infrastructure.

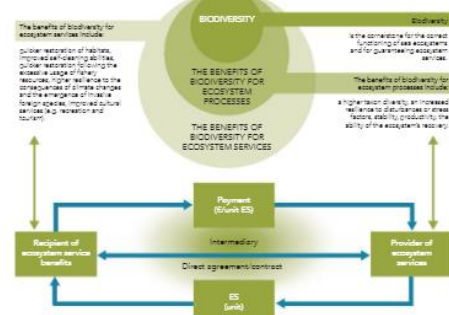


Figure 2: The importance of biodiversity and ecosystem processes for guaranteeing ecosystem services has been described in the case of two ecosystems (made as per [42]) and the schematic overview of the financial mechanism of PES for maintaining and preserving the benefits brought forward by the ecosystem services and biodiversity (made as per [43]).

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Photo 5: Planning and implementation of coastal spatial arrangements require active participation, including control.

24. CHAPTER 4.5 THE IMPLEMENTATION OF THE PAYMENT SYSTEM FOR ECOSYSTEM SERVICES

Link: <http://www.izvrs.si/wp-content/uploads/2021/06/Handbook-for-Recognising-and-Planning-Green-Infrastructure-2.pdf>

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PARTENARIATO CONGIUNTO

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Article

A Methodological Proposal for the Climate Change Risk Assessment of Coastal Habitats Based on the Evaluation of Ecosystem Services: Lessons Learnt from the INTERREG Project ECO-SMART

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Abstract: Climate change is seriously impacting coastal biodiversity and the benefits it provides to humans. This issue is particularly relevant in the case of the European Union's Natura 2000 network of areas for nature protection, where the sensitivity of local ecosystems calls for intervention to increase resistance and resilience to climate-related risks. Given the complex ways in which climate can influence conservation hotspot areas, there is a need to develop effective strategic approaches and general operational models to identify priorities for management and inform adaptation and mitigation measures. Here, a novel methodological proposal to perform climate risk assessment in Natura 2000 sites is presented that implements the systematic approach of ISO 14090 in combination with the theoretical framework of ecosystem services assessment and local stakeholder participation to identify climate-related issues for local protected habitats and improve the knowledge base needed to plan sustainable conservation and restoration measures. The methodology was applied to five Natura 2000 sites located along the Adriatic coast of Italy and Slovenia. Results show that each of the assessed sites, despite being along the coast of the same sea, is affected by different climate-related issues, impacting different habitats and corresponding ecosystem services. This novel methodology enables a simple and rapid screening for the prioritization of conservation actions and of the possible further investigations needed to support decision making, and was found to be robust and of general applicability. These findings highlight the importance of designing site-specific adaptation measures, tailored to address the peculiar response to climate change of each site in terms of biodiversity and ecosystem services.

Keywords: ecosystem services; climate change adaptation; Natura 2000; nature conservation; sustainability; coastal management

1. Introduction

The United Nations' Intergovernmental Panel on Climate Change (IPCC) recently stated that human civilization has already influenced climate irreversibly on timescales much longer than human lives. Human-driven climate changes are much larger than those due to naturally occurring drivers, and they are affecting not only average descriptors of weather and climate, such as mean annual global surface temperature, but

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Abstract

Climate changes are seriously impacting the biodiversity of coastal ecosystems and the benefits they provide to humans. This issue is particularly relevant in the case of the European Union's Natura 2000 network of areas for nature protection, where the sensitivity of local ecosystems calls for intervention to increase resistance and resilience to climate related risks. Given the multiple and complex ways through which climate changes can influence areas of conservation importance, there is an urgent need to develop strategic approaches and general operative models to identify hot-spots for management actions and inform adaptation and mitigation measures. Here a novel methodological proposal to perform climate risk assessment of Natura 2000 sites is presented. The systematic approach of ISO 14090 is combined with the socio-ecological theoretical framework of Ecosystem Services assessment and with local stakeholder participation to identify climate related issues for local protected habitats and address them by planning measures of conservation and restoration. The methodology was applied to five Natura 2000 sites located along the Adriatic Sea coast of Italy and Slovenia. Results show that each of the assessed sites, despite being along the coast of the same sea, is affected by different climate related issues impacting different habitats and connected ecosystem services. This finding highlights the

importance of designing site-specific adaptation measures, tailored to address the peculiar response to climate change of each nature conservation site in term of habitats, species, and provided ecosystem services.

Introduction

The United Nations' Intergovernmental Panel on Climate Change recently stated that human civilization has already influenced climate irreversibly on timescales much longer than human lives. Human-driven climate changes are much larger than those due to naturally occurring drivers, and they are affecting not only average descriptors of weather and climate such as mean annual global surface temperature, but also extreme events across the whole Earth. The global warming will continue, likely exceeding 2 °C, until at least 2050, unless strict reductions in CO₂ and other greenhouse gas emissions are implemented within the next two decades (IPCC 2021 AR6). Consequently, it is predicted that the frequency and intensity of climate and weather extremes, like heatwaves, droughts, heavy rainfall will become larger. While climate change affects all ecosystems, on land and on water, through the multiple changes already occurring, e.g. in weather, climate and the intensified water cycle, coastal ecosystems are especially vulnerable. Here relative sea level rise contributes to the increases in the frequency and severity of coastal flooding and erosion in low-lying coastal areas, impacting both biodiversity and human settlements, which are usually concentrated along coasts (Millennium Ecosystem Assessment 2005; IPCC 2021 AR6).

In 1992, the European Union (EU) established Natura 2000, a coherent network of areas for nature protection where its most valuable and threatened habitats and species, as listed in the EU's Directive 92/43/EEC 'Habitats' and 2009/147/EC 'Birds', are safeguarded. Natura 2000 is the largest coordinated network of protected areas existing within the EU and the world, stretching over 27 countries, and it has a core role also within the recent EU Biodiversity Strategy for 2030 which aims, among others, for an improved and wider network of protected areas and an EU nature restoration plan, transformative change in environmental governance, and the implementation of a global biodiversity agenda.

Such network of protected land and sea areas host habitats and species whose conservation and restoration is not only important for biodiversity: in these ecosystems, human activities are not excluded, if sustainable, and actually the ecosystem services (ESS for short: the benefits that nature provides humans with) provided by Natura 2000 and contributing to local economies are multiple and extremely valuable as shown by the recent EU's fitness check of the Habitats and Birds Directive. While the Natura 2000 network shares a general EU approach to conservation and sustainable use, its individual managements ensures sustainability, both ecologically and economically (EC Natura 2000). Such socio-ecological interrelations link the ecosystem's properties to

specific ecosystem services giving humans (or its society) benefits and enhances social welfare based on co-existence with natural habitats. Especially the services sprouting from well-management-directives, are needed to assess on one hand the value in nature conservation and the socio-economic importance, and on the other hand, to guarantee the nature restoration potential and the resilience to climate change (EU Biodiversity Strategy 2030; Natura 2000 network). The EU recognizes the threats to protected nature areas in the forms of climate change, pollution, anthropogenic activities, and in addition, it should be noted that a broad and growing network like Natura 2000 can raise awareness and respect for the natural world (and its changes therein due to climate change), while supporting natural and cultural heritage (and empowering climate action by stakeholders).

Initially the risks of climate-related impacts were assessed as a result from the interaction of climate-related hazards (including hazardous events and trends) with the vulnerability and exposure of human and natural systems, including their ability to adapt (IPCC 2014 AR5) and guidelines for assessing the risks related to the potential impacts of climate change have been published (ISO 14091, 2021). However, up till now structural and up to date approaches to describe adaptation measures based on ecosystem services and stakeholder interaction are lacking (in general and for coastal wetlands). Basically, there are limited methodologies that assess the interrelation of the degree of resilience and vulnerability of the protected areas while considering interacting species, natural heritage, ecosystems and services, and thus its importance to nature conservation. A guidance paper based on mountain ecosystems provides information how to holistically integrate ecosystems and their services into a climate change-vulnerability and impact assessment (UNEP-WCMC, 2015). It emphasizes the evaluation of current and future adaptive capacities and vulnerability plans, while understanding the related social-ecological background with the relevant stakeholders. More recently, a report was published on a river lagoon that used similar - stakeholder involved - development of an ecosystem services-based action plan (Parkinson & Seidel 2018).

Consequently, regarding coastal wetlands, climate change adaptation methodologies are sparsely reported as well (Parkinson and Seidel, 2018; Thompson and Friess, 2019). Although the ecosystems services of coastal wetlands are numerous (Newton et al., 2018), and as already mentioned are severely influenced by climatic impact-drivers: relative sea level rise, flooding and erosion (Millennium Ecosystem Assessment 2005; IPCC 2021 AR6). Thus, an ecosystem-based climate change adaptation methodology for coastal areas accounting for the interactions between ecosystem quality, resilience and services is lacking.

The cross-border cooperation project ECO-SMART - *'Market of ecosystem services for an advanced Natura 2000 area protection policy'* (<https://www.ita-slo.eu/en/eco->

[smart](#)), funded by the EU Interregional Cooperation Programme ‘Interreg V-A Italia-Slovenija 2014-2020’, intends to help filling the apparent lack of concrete experiences regarding climate change adaptation of Natura 2000 sites by adopting a holistic, ecosystem-based perspective to achieve sustainability and mobilize funding and stakeholder capacity. The objectives of the current paper are to illustrate some outcomes of ECO-SMART, and so 1) to develop a systematic ecosystem-based methodology for adaptation in coastal wetlands representing nature protection sites, inspired by of the recent guidelines by the International Organization for Standardization (ISO), which includes site-specific assessments (biophysical quantification, valuation) of ecosystem services, climate change vulnerability of habitats and services, and stakeholder involvement, 2) to apply such methodological approach to three Italian and Slovenian Natura 2000 coastal wetlands 3) to consequently verify its applicability and validate its theoretical framework, and 4) to open the discussion for a more general use of this ecosystem-based approach in European Natura 2000 sites extending beyond coastal wetlands.

2. Material and Methods

2.2 Methodological proposal

In this paper, a methodological proposal to address the vulnerability of coastal transition ecosystems is developed based on the concept and structure of the ISO 14091 International standard on adaptation to climate change. This document is part of the ISO 14090 family of standards that address climate change adaption. It provides requirements and guidelines to perform a climate change risk assessment by organizations and support them in developing suitable climate change adaptation plans. The standard is structured in an introduction to the concept of climate change risk assessment, followed by the preparation, the implementation and the documentation and communication of the climate change risk assessment.

According to ISO 14091, climate change risk assessment, also referred as vulnerability, can be addressed as the result of the evaluation of hazards, exposure, sensitivity and the adaption capacity of the system under assessment. Hazard is defined the potential source of harm that can affect the organization; for example, the sea level rise, which can result in coastal flooding influencing the activities of local businesses working along the sea side. Exposure is defined as the presence of people, livelihoods, species or ecosystems, environmental functions, services, resources, infrastructure, or economic, social or cultural assets in places and settings that could be affected by the climate change hazards. Sensitivity is defined as the degree to which the system is affected, either adversely or beneficially, by climate variability or change. As such, sensitivity can be seen as a function of the applicable hazards and the exposure of the system

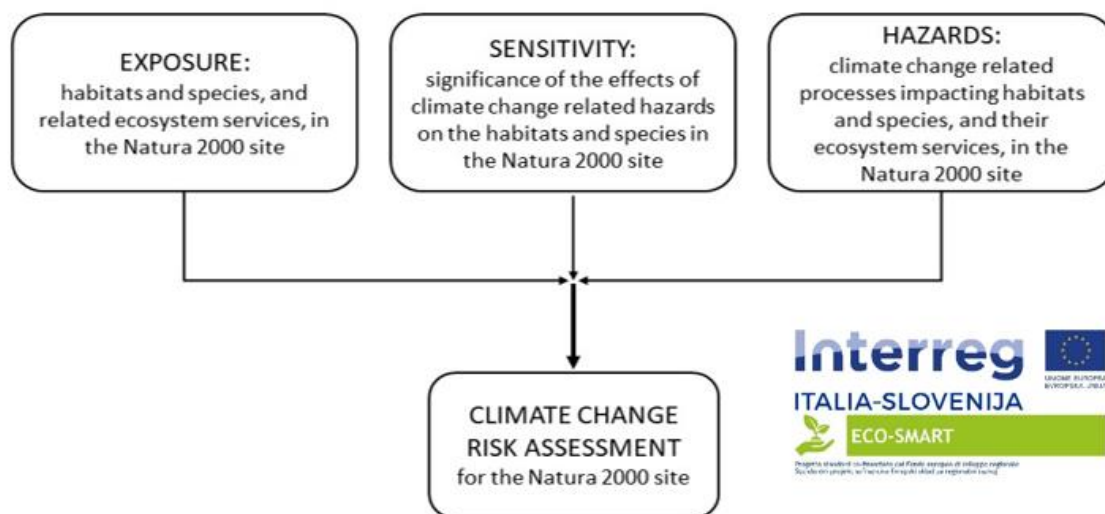
under study that results in the quantification of potential climate change risks and related impacts. The adaptive capacity is therefore defined as the ability of the system to adjust to potential damages and/or take advantage of emerging opportunities and, thus, to respond to climate change consequences. The vulnerability of the organization is finally represented as the propensity or predisposition of the organization to be adversely affected by climate change and it is determined as a function of applicable climate-related risks combined with the adaptive capacity of the organization.

In more general terms the climate change risk assessment presented by ISO 14091 follows the assessment report number 5 report of the IPCC [2][3]. In the project ECO-SMART, the framework presented by ISO 14091 was adapted and developed for the vulnerability assessment of coastal NATURA 2000 sites. The adaptation was based on the objective of ECOSMART project which aims at the conservation of NATURA 2000 sites from climate change effects through the application of the ecosystem services framework, local stakeholder involvement and payment for ecosystem service schemes. The methodology followed in this research is generally structured into four steps:

- 1) Quantification of the *exposure* of the Natura 2000 site being assessed, in terms of habitats and species and related provision of ecosystem services, to climate change effects. In this screening step, all of the identified habitats and species, and related ecosystem services, are included regardless of their actual exposure to climate change effects;
- 2) Identification of *hazards*, defined here as the climate change driven processes which can affect, positively or negatively, the habitats and species of the Natura 2000 site being assessed, and consequently the services they provide;
- 3) Assessment of the *sensitivity*, determined as the significance (to borrow the terminology of the Habitats Directive), or relevance, of the effects of the climate change related hazards on the habitats and species of the Natura 2000 site being assessed. Local sensitivity can be determined with several technical methodologies, e.g. quantitative ones such as ecological modelling or qualitative ones, as done in this paper, such as the use of expertise and local ecological knowledge (REF) of stakeholders;
- 4) Assessment of the potential *climate change risk*, or vulnerability, for the Natura 2000 site under investigation, which is finally determined based on the previous steps by considering how many habitats, species and ecosystems services are at risk. This risk differs from the actual climate change risk in that adaptive capacity of the stakeholders is not accounted for.

Details of each step as implemented in ECO-SMART are described in the following sections. Figure 1 presents the conceptual framework of the analysis that links the main risk components, pointing out that the risk results from the interaction of exposure and hazard mediated by sensitivity.

II



II

II

Figure 1. Conceptual framework of climate risk assessment for a given Natura 2000 site according to the ECO-SMART methodology, adapted from ISO 14091.

The quantification of adaptive capacity is out of the scope of this paper but is a task planned in the project ECO-SMART, namely in the activities leading to the definition of sustainable and applicable payment for ecosystem services schemes.

2.2.1 QUANTIFICATION OF EXPOSURE

The selected reference system for the identification of the ecosystem services occurring in the study areas is the Common International Classification of Ecosystem Services (CICES), the classification system developed by the European Environment Agency (EEA) [7]. The currently most recent CICES classification (version 5.1) is hierarchically organized in the following five levels, from broader to more detailed ones:

- 1) Section. Each ecosystem service could be ascribed to one of these categories:
 - a) Provisioning services: the nutritional, material and energetic contributions of ecosystem to human need and economic activities;
 - b) Regulation and maintenance: the way in which living organisms or abiotic agents can influence the environmental variables that affect human quality of life and safety;
 - c) Cultural services: every non-material and normally non-consumptive output of ecosystem that influence the psychophysical state of people;
- 2) Division: it divides the section in outputs or main process.

- a) Provisioning services include both supply of biotic biomass and abiotic services (for example those related to water supply, mining etc.)
- b) Regulating and maintenance ESS comprehend services of transformation and neutralization of biochemical or physical inputs, such as waste, toxic substances or other pollutantsservices, and services that categorize all the various ways in which living systems can modify chemical-physical and biological environmental conditions.
- c) Even cultural services can be partitioned into biotic and abioitic ESS.
- 3) Group, Class e Class Type: represent further levels of subdivision, more and more specific, necessary to identify all the different services concretely present in the area and the best indicators to measure each ESS.

According to this hierarchical system, an ESS of cereals supply can be indentify by the process: Provisiong service (Section)> Biomass (Division)> Cultivated plant (Group)> Cultivated plants for nutrition (Class)> Cereals (Class type) (Haines-Young et Potschin, 2018).

A check list electronic datasheet, containing the 90 possible ecosystem service typologies according to the CICES classification, was drafted and, for each Natura 2000 site investigated in ECO-SMART, a project partner considered to be expert of the site provided information concerning the presence and relevance of each of these ecosystem service typologies in the site, a brief description of each ecosystem service as it actually happens in the site, and the relevant stakeholders for each service.

Habitats were classified by adopting the Natura 2000 code system (the four digit code given in the Natura 2000 standard data-entry form) as found in the Habitats directive 92/43/CEE (the habitat types are grouped and sorted according to Annex I of the Directive). Data were taken from Standard Data Form of each Rete Natura 2000 site. Although the Natura 2000 network and the Habitats directive deal with species protection too, in ECO-SMART the focus was on habitats because of their structural role in ecosystem services provision. It should be noted, however, that the illustrated methodology can also be applied to species.

The aim of this data collection step in ECO-SMART was to obtain a general mapping of habitats and ecosystem services occurring in the project Natura 2000 sites, as well as to detect the most important ecosystem services, which are also those most relevant from a management point of view (e.g. to develop payment for ecosystem services schemes, as per ECO-SMART goal), and to identify the corresponding local stakeholders.

2.2.2 IDENTIFICATION OF HAZARDS

In this screening step, the hazards that possibly influence the Natura 2000 sites from the point of climate change driven processes, affecting either positively or negatively, the habitats and species of the Natura 2000 sites, and consequently the services they

provide, were identified. Once the identification of habitats and ecosystem services was completed, the step of identifying the relevant hazards connected to climate change that could affect those habitats and ecosystem services was then performed. The most important climate-driven hazards affecting coastal and wetland transitional ecosystems along the Northern Adriatic coast were selected according the recent climate change projection scenarios of IPCC: global average temperature rise, increase in average sea level, increase of intensity and frequency of extreme weather events, increase of intensity and frequency of heat waves, ocean acidification, changing of hypoxia and anoxia of soils and water, increase of wildfires, salt-wedge, subsidence, changing sea currents, changing in the river water regime, variation in the frequency of precipitations and in rainfall abundance, increase in tidal range, increase in the high tide level. The hazards' influence on habitats and ecosystem services was evaluated and each Natura 2000 site ranked according to severity.

2.2.3 ASSESSMENT OF SENSITIVITY

In this screening step, the significance, or relevance, of the effects of the climate change related hazards on the habitats and species of the assessed Natura 2000 sites were determined. The local sensitivities were determined by site-specific experts through a qualitative ecological stakeholder-knowledge methodology.

A table (Figure 2) was completed in which habitats and related ecosystem services were needed to be indicated to be under influence by the specific hazards, either (severely) negatively or (severely) positively. The matrix merely indicates if there are some links between habitats and their ecosystem services and the hazards, apart from the effect (positive or negative) of the hazard and the entity of this relationship, it is just a presence/absence matrix. Whether this relationship exists, it will be under further and more deep investigation.

		Hazard					
		Hazard 1	Hazard 2	...	Hazard n-th		
Habitat	Habitat 1st					ESS 1	ESS
	Habitat 2nd					ESS 2	
	...					...	
	2130*- Fixed coastal dunes with herbaceous	Saline wedge	Increase in the frequency of extreme		Increased intensity of extreme	Control of erosion rates	

	vegetation ("grey dunes")	0	weather events 1		weather events 1	Seed dispersal	
						Maintaining nursery populations and habitats (Including gene pool protection)	
	Habitat i-th					ESS j-th	

Figure 2. Sensitivity matrix. In each cell you can find: in the first column the habitat type (for example 2130*- grey dunes), in the second the list of the hazards (for example saline wedge) and their presence/absence in the habitat (1=presence, 0=absence) and in the third column the ecosystem services provided by the habitat (for example control of erosion rates and seed dispersal).

2.2.4 CLIMATE CHANGE RISK ASSESSMENT

The final step consists out of a cumulative risk effect based on the previous three steps by considering how many habitats, species and ecosystems services are at risk, the so called *climate change risk assessment* for the Natura 2000 site under investigation. This cumulative effect differs from the actual climate change risk in that the adaptive capacity of the stakeholders is not accounted for.

Based on data obtained through the abovementioned data collections (the previously described checklist exposure quantification and sensitivity matrix datasheet) it was possible to build, for each of the investigated Natura 2000 sites, an Impact Chain, which is a network representation of the impact of climate change hazards on habitats and ecosystem services, i.e. a potential climate change risk assessment (that can be interpreted as a vulnerability assessment).

This assessment can be performed in different ways, each generating a different output indicator:

- Habitat vulnerability analysis

This analysis aims to identify the habitats which are most vulnerable to climate change in the area under study. Habitat vulnerability was quantified through the sum of the hazards affecting the selected habitat:

$$Habitat_{i-th} \text{ vulnerability} = \sum_1^i \text{Hazards influencing } Habitat_{i-th}$$

- Ecosystem service analysis

This analysis aims to identify the ecosystem services provided by the Natura 2000 habitats of the investigated site which are most vulnerable to climate change. ESS vulnerability was quantified through the sum of the hazards affecting the selected service, remembering that an ecosystem service could be provided by more than one habitat (just for example, nursery services can be provided not only by dunal habitat but also by wetlands). So, the more habitats provide a certain ecosystem service, the more this ES is vulnerable.

$$ESS_{j-th} \text{ vulnerability} = \sum_1^j \text{Hazards influencing } ESS_{j-th}$$

- Analysis of relevance of hazards

The most widespread hazards in the area under study are identified through the following vector.

$$Hazard_{n-th} \text{ relevance} = \begin{bmatrix} \sum_1^i \text{Habitat influenced by } Hazard_{n-th} ; \\ \sum_1^j \text{ESS influenced by } Hazard_{n-th} \end{bmatrix}$$

From these three assessments, an overview is obtained for each aspect related to vulnerability.

In Figure 3 an example of impact chain is shown.

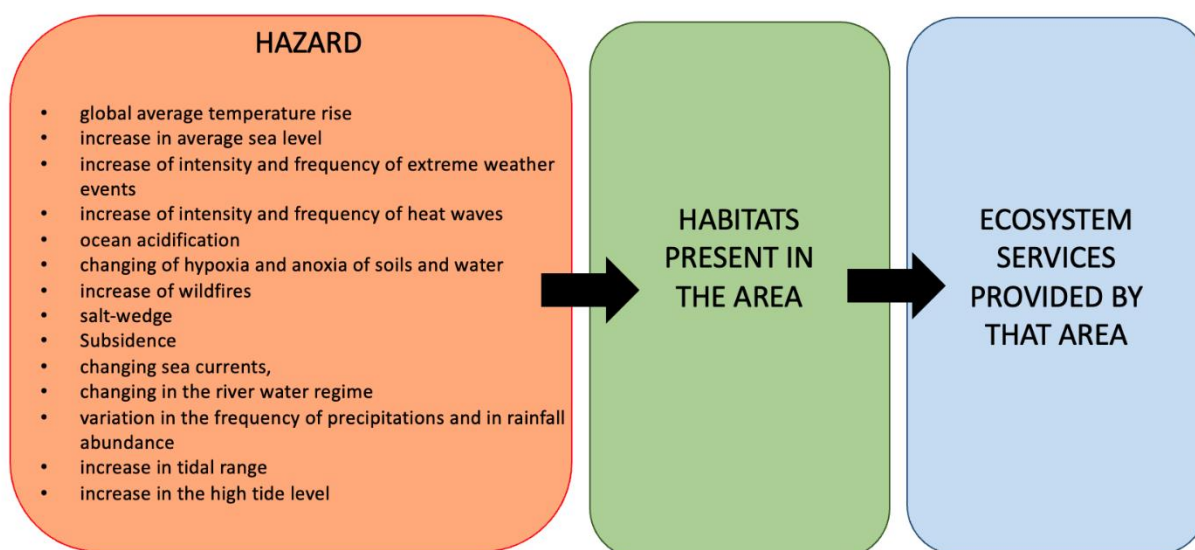


Figure 3. Example of an impact chain linking climate related hazards, habitats and ecosystem services

3. Results and discussion

The current paper applied the methodological approach to five sites located along the Adriatic Sea coast of Italy and Slovenia: IT3250033 “Laguna di Caorle - Foce del Tagliamento”, IT3250040 “Foce del Tagliamento”, IT3250041 “Valle Vecchia - Zumelle - Valli di Bibione” in Veneto region; IT3330007 “Cavana di Monfalcone” in Friuli Venezia Giulia region; SI5000008 - Škocjanski zatok in Slovenia. The sites were chosen among the NATURA 2000 protected areas having previously shown expertise and implementation of select pilot cases by extension and ecosystem services, management and stakeholders’ engagement up to several degrees. To assess the feasibility of the current climate change risk assessment-approach the methodology was applied to five areas differently characterized. Thus, altogether the five sites provide a broad set of coastal habitats, species, ESSs and represent an even more broader set of stakeholders.

3.1 Škocjanski zatok nature reserve (SI3000252)

Established in 1998, Škocjanski zatok Nature Reserve comprises approx. 122 hectares that in 2004 was declared a Special Protected Area (SPA) upon the Decree on Natura 2000 sites (SI5000008, Official Journal of RS, no. 49/2004) and upon the same Decree in 2012 was upgraded to Special Area of Conservation (SAC) (SI3000252, Official Journal of RS, no. 8/2012). From 1999, the reserve is managed by the NGO DOPPS-Birdlife Slovenia.

The site contains five Natura 2000 habitat types (see Figure 1): Mediterranean and thermo-Atlantic halophilous scrubs *Sarcocornetea fruticosi* (code 1420); Mudflats and sandflats not covered by seawater at low tide (code 1140); Salicornia and other annuals

colonizing mud and sand (code 1310); Mediterranean salt meadows *Juncetalia maritimi* (code 1410); Coastal lagoons (code 1150).

To the site and its habitats, 31 identified CICES Ecosystem Services are linked that are classified as 45% regulatory and maintenance, while only 10% provisioning, and another 45% cultural. Of the latter *interactions with nature* have a prominent role for the various stakeholders of the wider community: like citizens, civil societies and organisations; governance public bodies; small and large businesses; educational and science sectors.

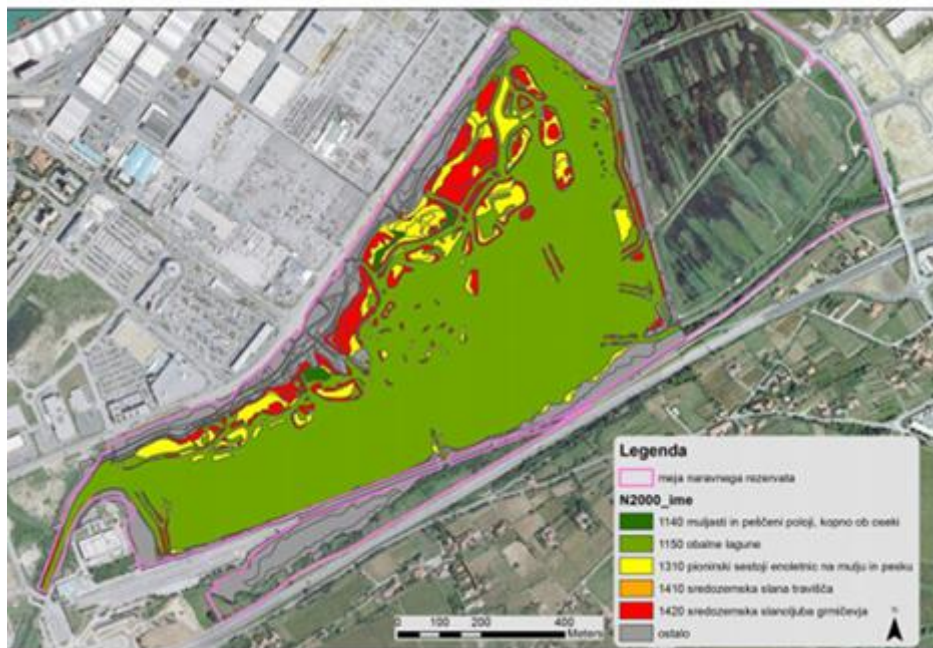


Figure 4. Aerial view for the Slovenian Natura 2000 site of Škocjanski zatok (SI5000008) showing the habitats identified according to colour coding

A total of 17 potential hazards were considered of importance to impact coastal wetlands. Potential hazard of Natura 2000 site Škocjanski zatok has been assessed using data collected and analyzed by the Slovenian environmental agency - ARSO (Climate change projections for Slovenia over the 21st century) and other already existing research literature. Climate change projection has been done at national and regional level, so determination of the climate change connected potential hazards impact on local level or even on the level of habitats was impossible. Therefore, potential hazards are referred to all Natura 2000 habitats of Škocjanski zatok. Only the potential hazard Increase in the average water level is assessed as less relevant for the habitat Coastal lagoons (code 1150).

Through the impact chain analysis, the hazards affecting the whole area of Škocjanski zatok nature reserve, as in affecting both the individual habitats and the site-specific ESS combined, can be identified (Figure 5). The hazards of greatest significance are depicted as pink boxes on the left side, these were: 1. Average temperature rise (of water, soil and air); 2. Increased entity of heat peaks; 3. Increased frequency of heat peaks; 4. Increased duration of each heat spike; 5. Increase in the frequency of extreme weather events; 6. Increased intensity of extreme weather events; 7. Changes in the river water regime; 8. Variations in the frequency of precipitation; 9. Variation in rainfall abundance.

The vulnerability analyses considered the Natura 2000 habitat types localized in the brackish part of the reserve (Natura 2000 habitats are not present in the fresh water part). This part that included Natura 2000 habitats is considered more vulnerable than the freshwater part of the reserve. Previous researches (Kaligarič and Ivajnšič, 2014) assessed that sea level rise is a major hazard to these Natura 2000 habitats. Depending on different scenarios of climate changes and in particular projection of sea level rise in the 21. century, the mentioned Natura 2000 habitats could shift to each other and decrease their surfaces in total. These habitats represent a relatively small part of the reserve, only approx. 13 % of the total area, but are very important as bird's nesting and feeding grounds.

The hazards influenced the cultural ESS, *interactions with nature*, the most (right blue boxes in Figure 2). These are: 1. Natural, abiotic characteristics of nature that enable active or passive physical and experiential interactions; 2. Natural, abiotic characteristics of nature that enable intellectual interactions; 3. Natural, abiotic characteristics of nature that enable spiritual, symbolic and other interactions; 4. Natural, abiotic characteristics or features of nature that have either an existence, option or bequest value.

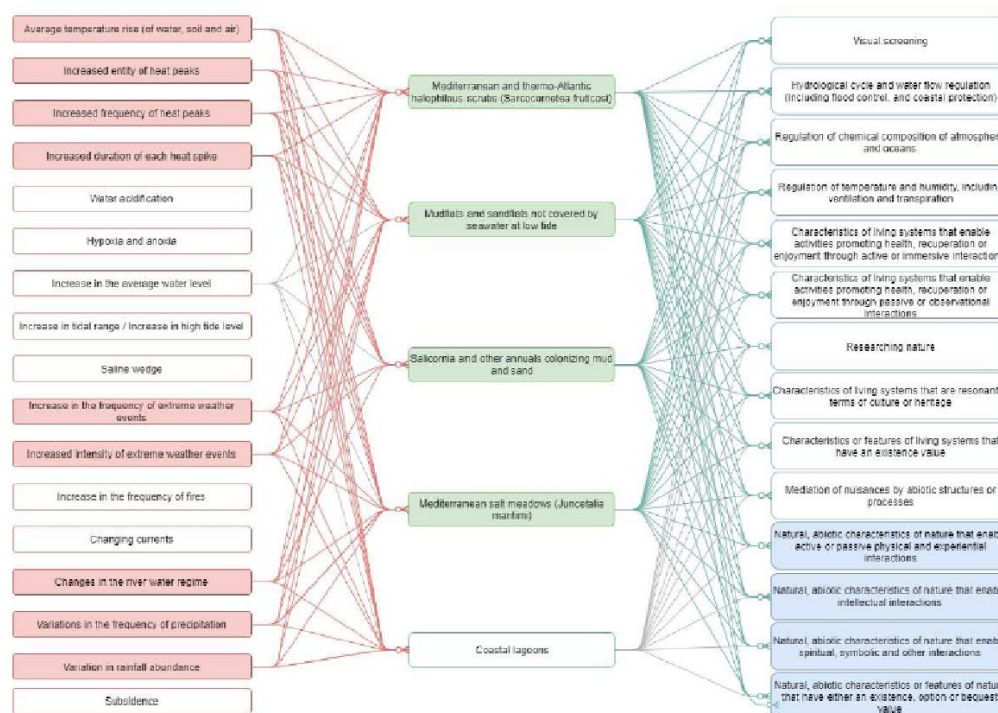


Figure 5. Impact Chain analysis for the Slovenian Natura 2000 site of Škocjanski zatok (SI5000008). This site-specific coastal climate change risk assessment, represents the impact network of climate change hazards (left, pink) on the site's habitats (middle, green) and site-specific ecosystem services (right, blue). Hazards, habitats and ESSs of most relevance to the coastal climate change risk assessment are indicated by coloured boxes, while less relevant ones are left blank

3.2 Laguna di Caorle - Foce del Tagliamento (IT3250033), Foce del Tagliamento (IT3250040), Valle Vecchia - Zumelle - Valli di Bibione (IT3250041)

The “Caorle Lagoon System” comprises wetlands in the area among Caorle, San Michele al Tagliamento and Concordia Sagittaria municipalities, that are included in Natura 2000 sites and subjected to protection bond by “Piano Territoriale Regionale di Coordinamento”.

Proposed as Site of Community Importance (SCI) in 1995, the site “Laguna di Caorle-Foce del Tagliamento” comprises 4'386 hectares and it was declared Special Area of Conservation (SAC) upon the DM 27/07/2018 - G.U. 190 of the 17 August 2018; while the site “Valle Vecchia - Zumelle - Valli di Bibione” was designated as Special Protection Areas (SPA) in 2003 and it has an extension of 2'089 ha.

The sites contain various Natura 2000 habitat types (see Figure x): Mudflats and sandflats not covered by seawater at low tide (code 1140); Coastal lagoons (code 1150*); Annual vegetation of drift lines (1210); Salicornia and other annuals colonizing mud and sand (1310); Spartina swards (Spartinion maritimae)(code 1320), Mediterranean salt meadows (Juncetalia maritimi) (code 1410), Mediterranean and

thermo-Atlantic halophilous scrubs (*Sarcocornetia fruticosi*) (code 1420); Mediterranean salt steppes (*Limonietalia*) (code 1510*), Embryonic shifting dunes (code 2110); Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (code 2120); Fixed coastal dunes with herbaceous vegetation (grey dunes) (code 2130*); Humid dune slacks (code 2190); Malcolmietalia dune grasslands (code 2230), coastal dunes with *Juniperus spp.* (code 2250*); Wooded dunes with *Pinus pinea* and/or *Pinus pinaster* (code 2270*); Mediterranean tall humid herb grasslands of the Molinio-Holoschoenion (code 6420); *Salix alba* and *Populus alba* galleries (code 92A0) and *Quercus ilex* and *Quercus rotundifolia* forests (code 9340).

The Ecosystem Services identification process identified a total number of 32 ecosystem services (36% of the total ecosystem services proposed), 26 of them particularly relevant for the area. Among the latter ones, 7 were classified as Provisioning (biotic), 10 belong to the category Regulating and Maintenance (biotic), 7 were Cultural (biotic) and only 2 Provisioning (abiotic). The ecosystem services were identified also with the contribution of the local stakeholders. The stakeholders involved in these ecosystem services were mainly landowners, the local reclamation consortium, fish farmers and hunters, various naturalistic associations, Veneto Agricoltura (Veneto agency for innovation in the primary sector, an instrumental body of the Veneto Region), the Veneto Region, municipal administrations and the whole citizenry.



Figure 6. Aerial view for the Italian Natura 2000 sites IT3250033, IT3250040, IT3250041 showing the habitats identified according to colour coding in the legend.

The vulnerability analysis highlighted which habitat and ecosystem services were heavily exposed to climate change hazards and so, which are potentially more vulnerable. The analysis also showed which hazards were more relevant in each Natura 2000 site. The results are presented for each site as follows:

3.2.1 FOCE DEL TAGLIAMENTO

The most relevant hazards connected with climate change were indicated in the pink boxes of the Impact Chain figure (Fig. 7) and they were: subsidence, the increase in average sea level, the increase of intensity and frequency of extreme weather events, changing in the river flow regime, the variation in the frequency of precipitations and in rainfall abundance.

The habitat vulnerability analysis detected the following most threatened habitat types, that are indicated in the green boxes in Fig x: 6410: *Molinia* meadows on calcareous, peaty or clayey-siltladen soils (*Molinion caeruleae*), 1210: Annual vegetation of drift lines, 2110: Embryonic shifting dunes, 1420: Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetia fruticosi*), 1310: *Salicornia* and other annuals colonizing mud and sand.

The ecosystem services mainly affected by the hazards were highlighted in the blue box in the impact chain figure and they were: bioremediation by micro-organism, algae, plants and animals; hydrogeological cycle and water flow regulation (including flood control and coastal protection); maintaining nursery population and habitats (including gene pool protection); control of erosion rates and, lastly, weathering processes and their effect on soil quality.

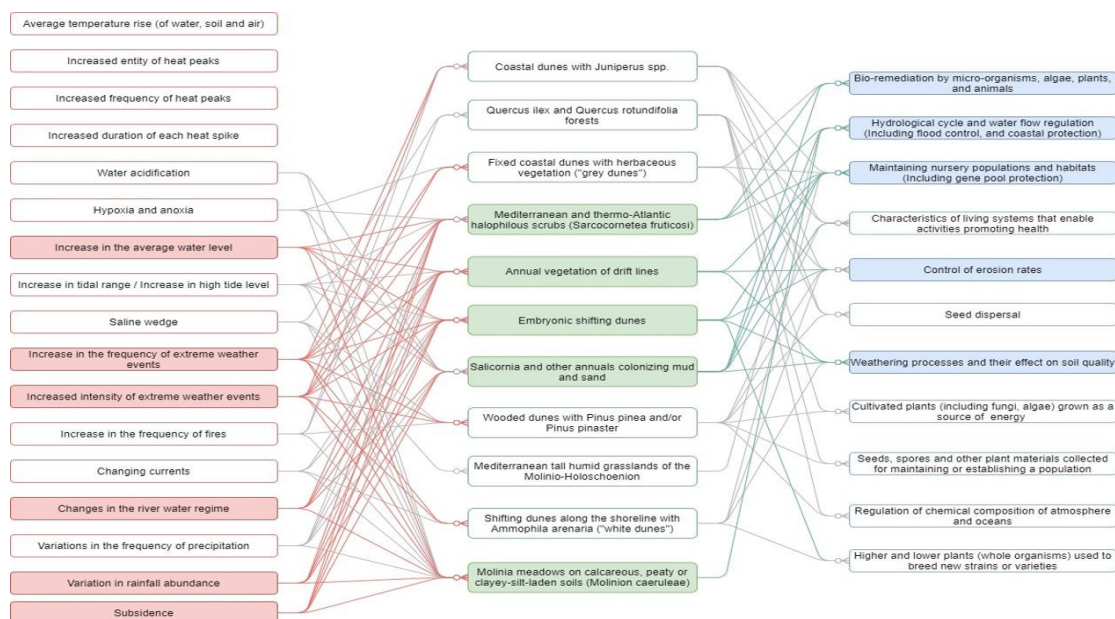


Figure 7. Impact Chain analysis for the Italian Natura 2000 site Foce del Tagliamento IT3250040. This site-specific coastal climate change risk assessment, represents the impact network of climate change hazards (left, pink) on the site's habitats (middle, green) and site-specific ecosystem services (right, blue). Hazards, habitats and ESs of most relevance to the coastal climate change risk assessment are indicated by coloured boxes, while less relevant ones are left blank

3.2.2 LAGUNA DI CAORLE - FOCE DEL TAGLIAMENTO

The most relevant hazard in this Rete Natura 2000 site were: increase in the average water level, increase in tidal range/ increase in high tide level, saline wedge, changes in the river water regime, variation in rainfall abundance and subsidence. They are indicated in the pink boxes in Fig. 8.

The habitat most threatened were indicated in green in Fig. 8 and they were: 1150*: Coastal lagoons, 7210*: Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*, 6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae), 2230: Malcolmietalia dune grasslands, 2250*: Coastal dunes with *Juniperus spp.*

The ecosystem services most affected by the hazards (blue box in Fig. 8) were bioremediation by micro-organism, algae, plants and animals; hydrogeological cycle and water flow regulation (including flood control and coastal protection); maintaining nursery population and habitats (including gene pool protection); characteristics of living systems that enable aesthetic experiences and the control of erosion rates.

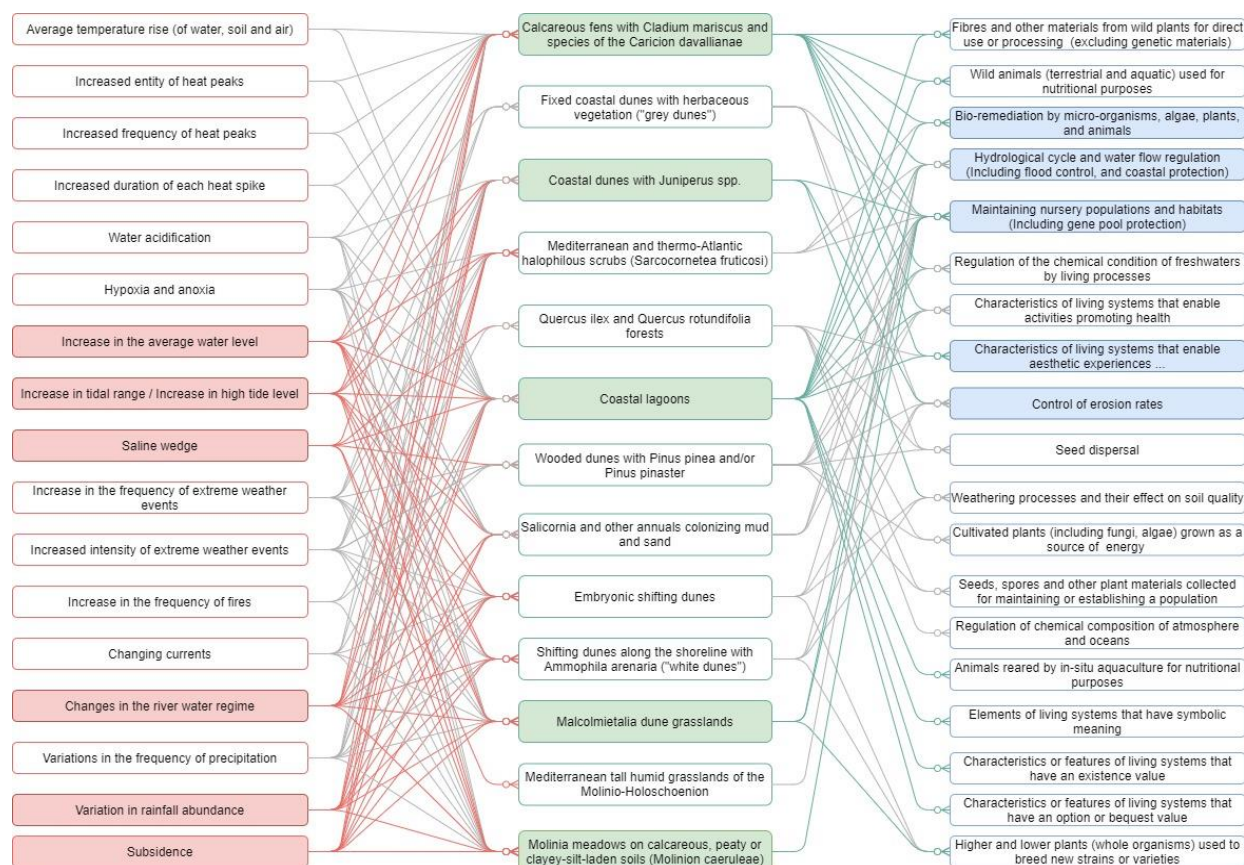


Figure 8. Impact Chain analysis for the Italian Natura 2000 site of Laguna di Caorle - Foce del Tagliamento IT3250033.

3.2.3 VALLEVECCHIA - ZUMELLE - VALLI DI BIBIONE

The most significant hazards for this site were subsidence, increase in tidal range/ increase in high tide level, changes in the river water regime, increase in the average water level, variation in the rainfall abundance and frequency (pink boxes in Fig. 9).

These hazards have more influence on the following types of habitat: 1150*: Coastal lagoons, 2110: Embryonic shifting dunes, 1420: Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*), 6410: *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caeruleae*), 1310: *Salicornia* and other annuals colonizing mud and sand, 2270*: Wooded dunes with *Pinus pinea* and/or *Pinus pinaster*.

The ecosystem services most affected by the hazards (blue box in Fig. 9) were bioremediation by micro-organism, algae, plants and animals; hydrogeological cycle and water flow regulation (including flood control and coastal protection); maintaining nursery population and habitats (including gene pool protection); characteristics of living systems that enable aesthetic experiences and the control of erosion rates.

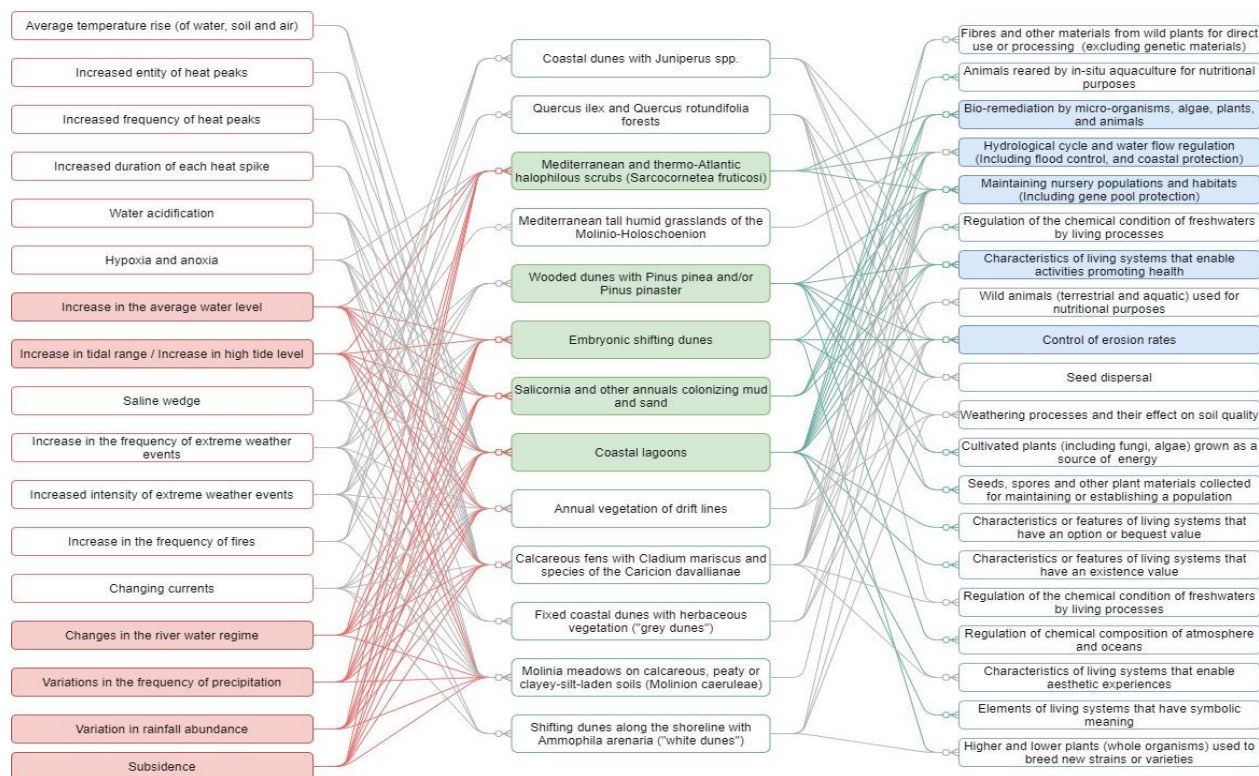


Figure 9. Impact Chain analysis for the Italian Natura 2000 site of Vallevecchia - Zumelle - Valli di Bibione (IT3250041).

3.3 CAVANA OF MONFALCONE - IT 3330007

The Cavana of Monfalcone - IT 3330007 was declared as Special Area of Conservation (SAC) in 2013. Is a transition area located between the lower Isonzo plain and the Adriatic Sea. The site has a total extension of 133.42 hectares. A large part (84.8 %) includes the municipality of Monfalcone, a small part the municipality of Staranzano (3.3 %) and a significant part at sea (11.9 %). A part of the site is affected by the land reclamation works of the last century that transformed the transition areas into extensive monoculture cultivations. The naturalistic value of the site is determined by the presence of resurgence areas close to the sea that have resisted the land reclamation and the intense industrialization present near the site. In the SAC, 56.9% of the surface is characterized by habitats that are not of Community interest, while in

the remaining fraction 10 types of habitats included in Annex I of the Habitats Directive have been identified, of which 2 are considered priority: 7210* "Alkaline fens", 91E0* "Alluvial forests of *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)".

With regard to the degree of representativeness, which reveals "how typical" a habitat type is in the site, several habitats are classified with "Excellent" representativeness: these are habitats 1110 "Sandbanks which are slightly covered by sea water all the time", 1140 "Mudflats and sandflats emerging at low tide", and priority habitat 7210* "Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*".

With regard to the conservation status (i.e. the degree of conservation of the structure and functions of the habitat type in question and the possibility of restoration), the habitats with an "Excellent" status are habitats 6410 "Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)" and priority habitat 7210* "Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*".

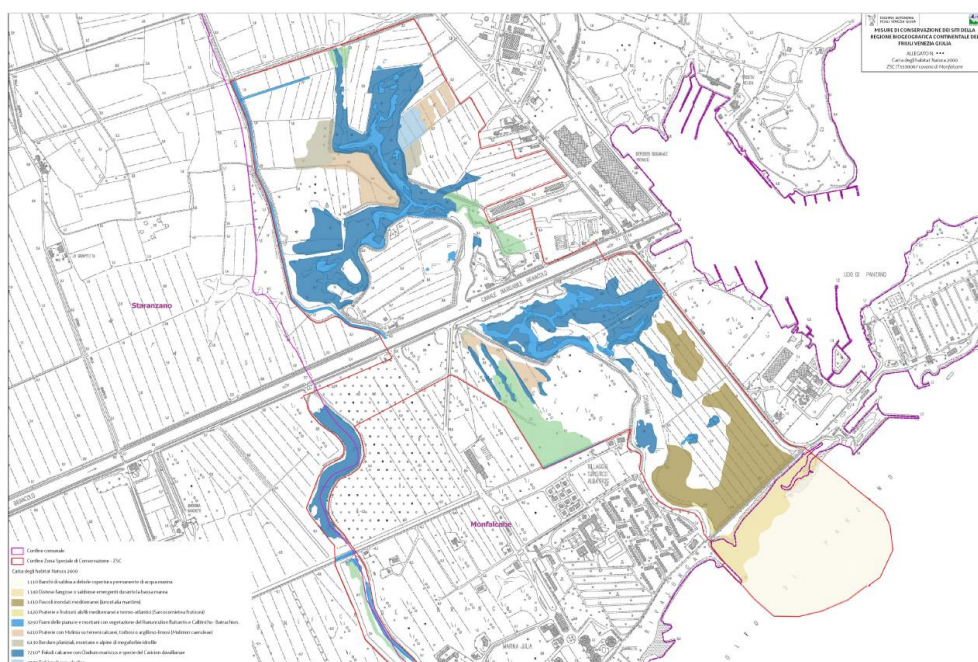


Figure 10: Cavana of Monfalcone - IT3330007 Habitat Natura 2000 (source: Regione Autonoma Friuli Venezia Giulia)

The extent of the site is such that the whole area should be considered as a core area and economic activities are located outside the site. Nevertheless, the anthropogenic pressure on habitats and species is significant (industrial area, port and shipbuilding area, agricultural and tourism area).

Out of the 90 ESS listed by the CICES, 25 were identified in the site. The most represented are classified as regulatory and maintenance (68%), while only 8% provisioning, and 20% are cultural ESS.

Referring to the methodological approach a total of 17 potential hazards were considered. A panel of external experts from research center and academia was established in order to assess the ESS vulnerability to climate change. Figure 11 illustrates the impact chain of the Cavana of Monfalcone. On the left side, the hazards with greatest significance are highlighted in the pink boxes: Average temperature rise (of water, soil and air); Increased entity of heat peaks; Increased frequency of heat peaks; Increase in the average water level; Increase in tidal range / Increase in high tide level; Saline wedge.

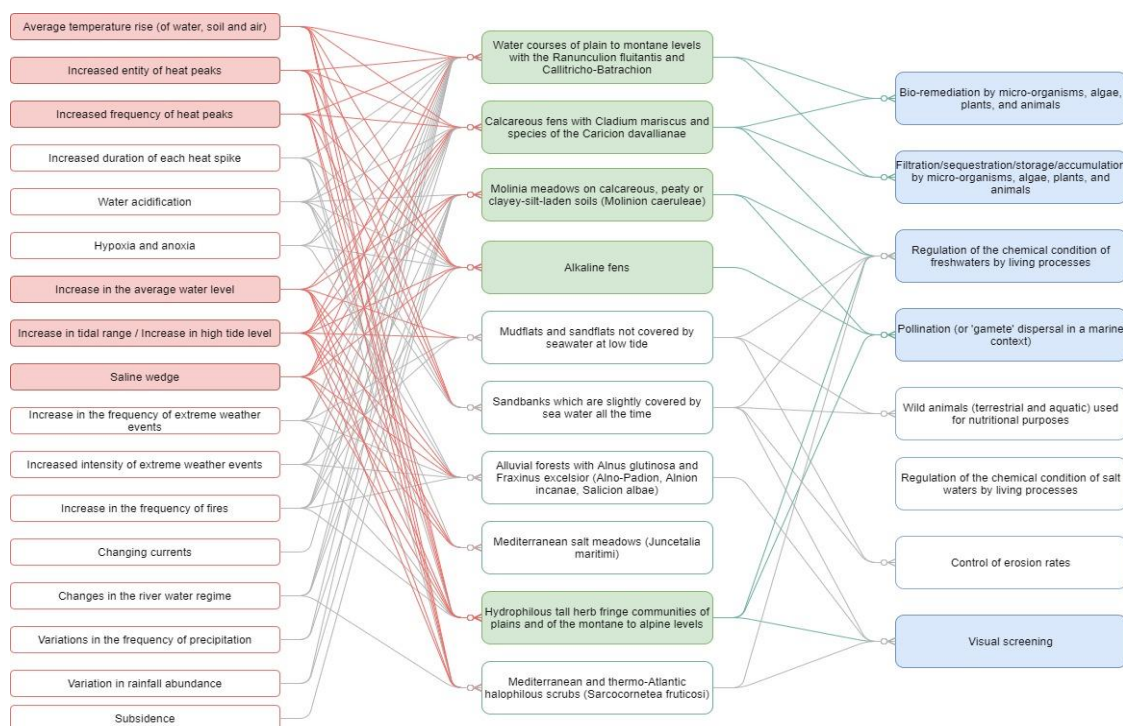


Figure 11: Impact Chain analysis for the Italian Natura 2000 site Cavana of Monfalcone - IT3330007

The most affected habitats (highlighted in the green boxes) are those with an excellent conservation status and are listed in importance order: the Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion; the Calcareous fens with Cladium mariscus and species of the Caricion davallianae; the Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae); the Alkaline fens; the Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels.

The ESS (highlighted in the blue boxes) linked to the previous habitats and therefore most exposed to the selected hazards are: Regulation of the chemical condition of freshwaters by living processes; Pollination (or 'gamete' dispersal in a marine context); Filtration/sequestration/storage/accumulation by micro-organisms, algae, plants, and animals; Bio-remediation by micro-organisms, algae, plants, and animals; Visual screening.

Conclusions

This is the first time that the ISO approach is combined with the human centered theoretical framework of ecosystem services to support the identification of the habitats and services impacted by climate change in ecologically valuable coastal sites in a systematic manner. This socio-ecological perspective is functional to promote the involvement of stakeholders in nature conservation and so to mobilize resources towards sustainability: ethical reasons remain crucial reasons behind nature conservation, but seeing coastal ecosystems as green infrastructures can surely promote investments in the Natura 2000 network.

The proposed approach assumes that no adaptation capacity in the local socio-economic system is actually in place, so it should be considered a worst case approach. Other limitations reside in the assumption made by assigning equal weights to each hazard. This choice was forced by lack of scientific data, a common issue in nature management and in Natura 2000 areas, but it should be noted that the proposed methodology can easily go quantitative if more information become available. Also, this approach has the merit of being quickly applicable everywhere, even in data poor areas, which is unfortunately a common situation across natura conservation sites.

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25. Una proposta metodologica per la valutazione del rischio di cambiamento climatico degli habitat costieri basata sulla valutazione dei servizi ecosistemici: lezioni apprese dal progetto Interreg ECO-SMART

Sintesi

I cambiamenti climatici stanno avendo un grave impatto sulla biodiversità degli ecosistemi costieri e sui benefici che forniscono agli esseri umani. Questo tema è particolarmente rilevante nel caso della rete Natura 2000 dell'Unione europea di aree per la protezione della natura, dove la sensibilità degli ecosistemi locali richiede un intervento per aumentare la resistenza e la resilienza ai rischi legati al clima. Dati i molteplici e complessi modi attraverso i quali i cambiamenti climatici possono influenzare le aree di importanza per la conservazione, vi è un urgente bisogno di sviluppare approcci strategici e modelli operativi generali per identificare i punti caldi per le azioni di gestione e informare le misure di adattamento e mitigazione. Qui viene presentata una nuova proposta metodologica per eseguire la valutazione del rischio climatico dei siti Natura 2000. L'approccio sistematico della ISO 14090 è combinato con il quadro teorico socio-ecologico della valutazione dei servizi ecosistemici e con la partecipazione delle parti interessate locali per identificare le questioni relative al clima per gli habitat protetti locali e affrontarle pianificando misure di conservazione e ripristino. La metodologia è stata applicata a cinque siti Natura 2000 situati lungo la costa adriatica dell'Italia e della Slovenia. I risultati mostrano che ciascuno dei siti valutati, nonostante si trovi lungo la costa dello stesso mare, è influenzato da diverse questioni legate al clima che hanno un impatto su diversi habitat e servizi ecosistemici connessi. Questa scoperta evidenzia l'importanza di progettare misure di adattamento specifiche per sito, su misura per affrontare la risposta peculiare ai cambiamenti climatici di ciascun sito di conservazione della natura in termini di habitat, specie e servizi ecosistemici forniti.

25. Metodološki predlog za oceno tveganja podnebnih sprememb obalnih habitatov na podlagi vrednotenja ekosistemskih storitev: izkušnje iz projekta Interreg ECO-SMART

Abstrakten

Podnebne spremembe resno vplivajo na biotsko raznovrstnost obalnih ekosistemov in koristi, ki jih zagotavljajo ljudem. To vprašanje je še posebej pomembno v primeru mreže območij Evropske unije Natura 2000 za varstvo narave, kjer občutljivost lokalnih ekosistemov poziva k posredovanju za povečanje odpornosti in odpornosti na podnebna tveganja. Glede na več in zapletene načine, s katerimi lahko podnebne spremembe vplivajo na območja, ki so pomembna za ohranjanje, je nujno treba razviti strateške pristope in splošne operative modele za opredelitev vročih točk za ukrepe upravljanja ter obvestiti ukrepe za prilagajanje in ublažitev. Tu je predstavljen nov metodološki predlog za izvedbo ocene podnebnega tveganja območij Natura 2000. Sistematični pristop ISO 14090 je združen s socio-ekološkim teoretično okvirjem ocene ekosistemskih storitev in z udeležbo lokalnih zainteresiranih strani za opredelitev vprašanj, povezanih s podnebjem za lokalne zaščitene habitate, in jih obravnava z načrtnimi ukrepi ohranjanja in omejevanja. Metodologija je bila uporabljena za pet območij Natura 2000, ki se nahajajo ob obali Jadranskega morja Italije in Slovenije. Rezultati kažejo, da na vsako od ocenjenih območij kljub temu, da so ob obali istega morja, vplivajo različna vprašanja, povezana s podnebjem, ki vplivajo na različne habitate in povezane ekosistemske storitve. Ta ugotovitev poudarja pomen oblikovanja prilagoditvenih ukrepov za posamezne lokacije, prilagojenih za obravnavo posebnega odziva na podnebne spremembe vsakega območja ohranjanja narave v ročnem obdobju habitatov, vrst in zagotavljanja ekosistemskih storitev.