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European Biodiversity Partnership

BiodivRestore projects presentations

Session #1

Moderated by Ester Serrão (RestoreSEAS project)

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#1. What biological and biophysical processes drive conservation and restoration, and how do they interact?

Exploring ecological dimensions, functional biodiversity, and restoration trajectories

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BioReset

Biodiversity restoration and conservation of inland water ecosystems for environmental and human well-being

By: Hendrikus Nouws (REQUIMTE/LAQV-ISEP, Portugal) & BioReset consortium

Consortium: Águas do Centro Litoral (AdCL) (Portugal), Centro Interdisciplinar de Investigação Marinha e Ambiental (CIIMAR, Portugal), Institute for Energy Technology (IFE, Norway), Swedish University of Agricultural Sciences (SLU, Sweden), Universidad de Oviedo (UNIOVI, Spain), Universidade de Vigo (UVigo, Spain)

www2.isep.ipp.pt/bioreset

Contaminant Monitoring / Analysis

Pharmaceuticals & metabolites

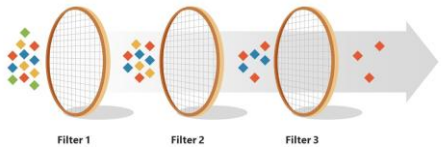
Up to **97** pharmaceuticals from multiple therapeutic classes and caffeine.

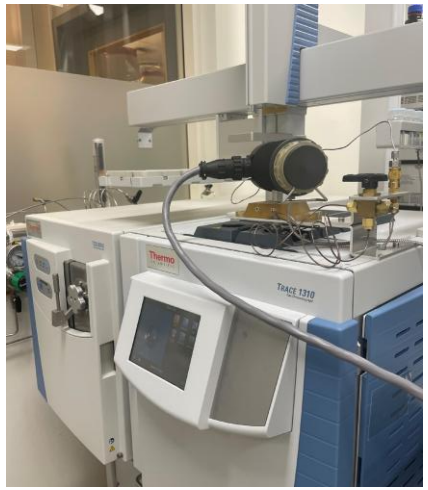
163 samples (WWTP influents and effluents, rivers, streams, and ocean).

Key findings

- Most frequently detected: NSAIDs/analgesic, antibiotic, psychiatric drugs, and caffeine.
- Increasing total pharmaceutical levels over time

Reports elaborated directly with WWTPs and APA (Portuguese Environment Agency)





Microplastics

7 microplastics (PE, PP, PET, PS, PU, N6, N66).

Samples from WWTP effluents, river, leadfill leachate, tap water).

Key findings

- 1 microplastic found (PP, in landfill leachate).
- Low analysis repeatability.

More robust monitoring methods for microplastics are needed .

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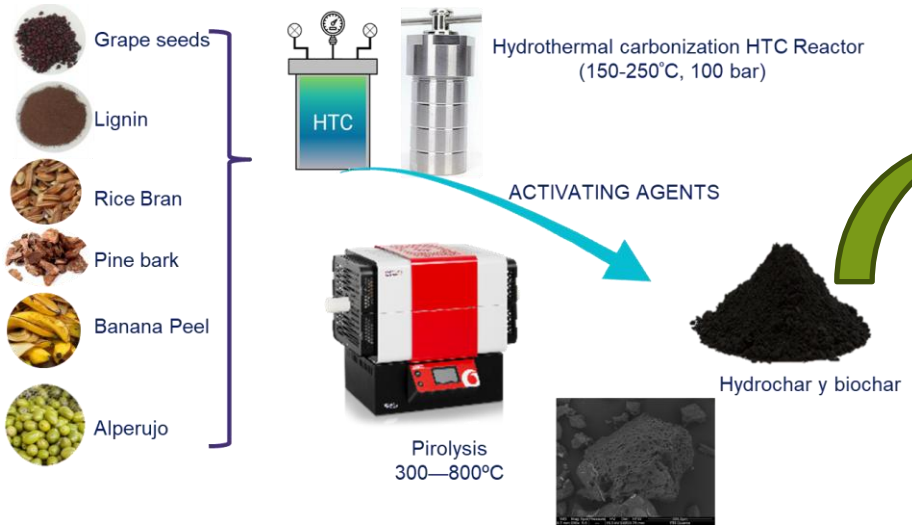
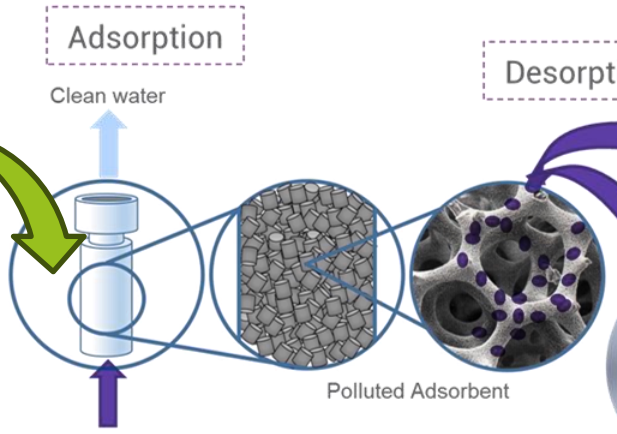
Contaminant Removal

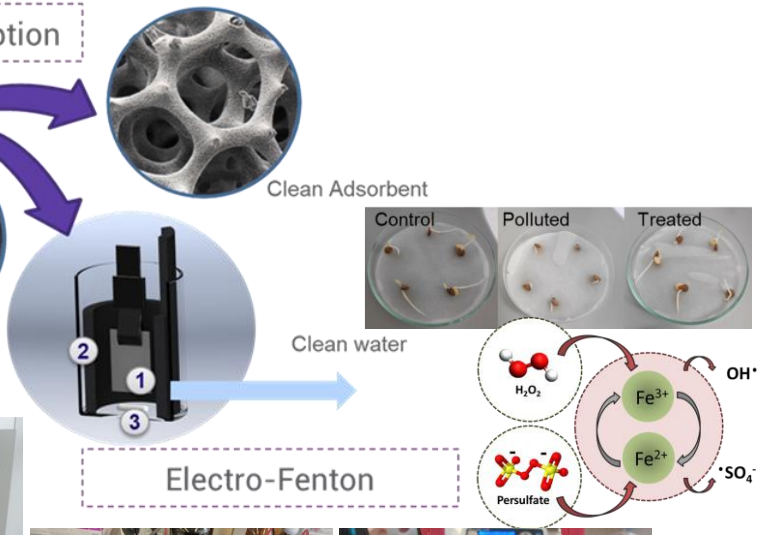
Biosorbent Synthesis

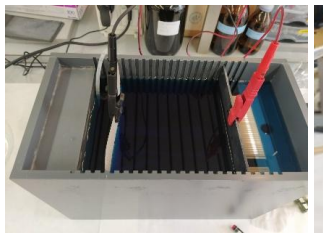


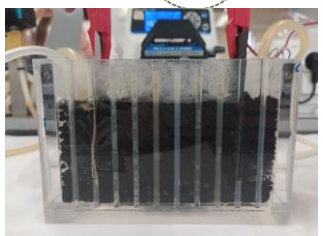
Adsorption & Electrosorption



Regeneration







Key findings

- Engineered biosorbents with enhanced adsorption capacity.
- Effective removal of pharmaceuticals from wastewater.
- Regeneration via advanced oxidation processes.
- Scalable and sustainable treatment strategies.

Identify the most appropriate quaternary treatments.

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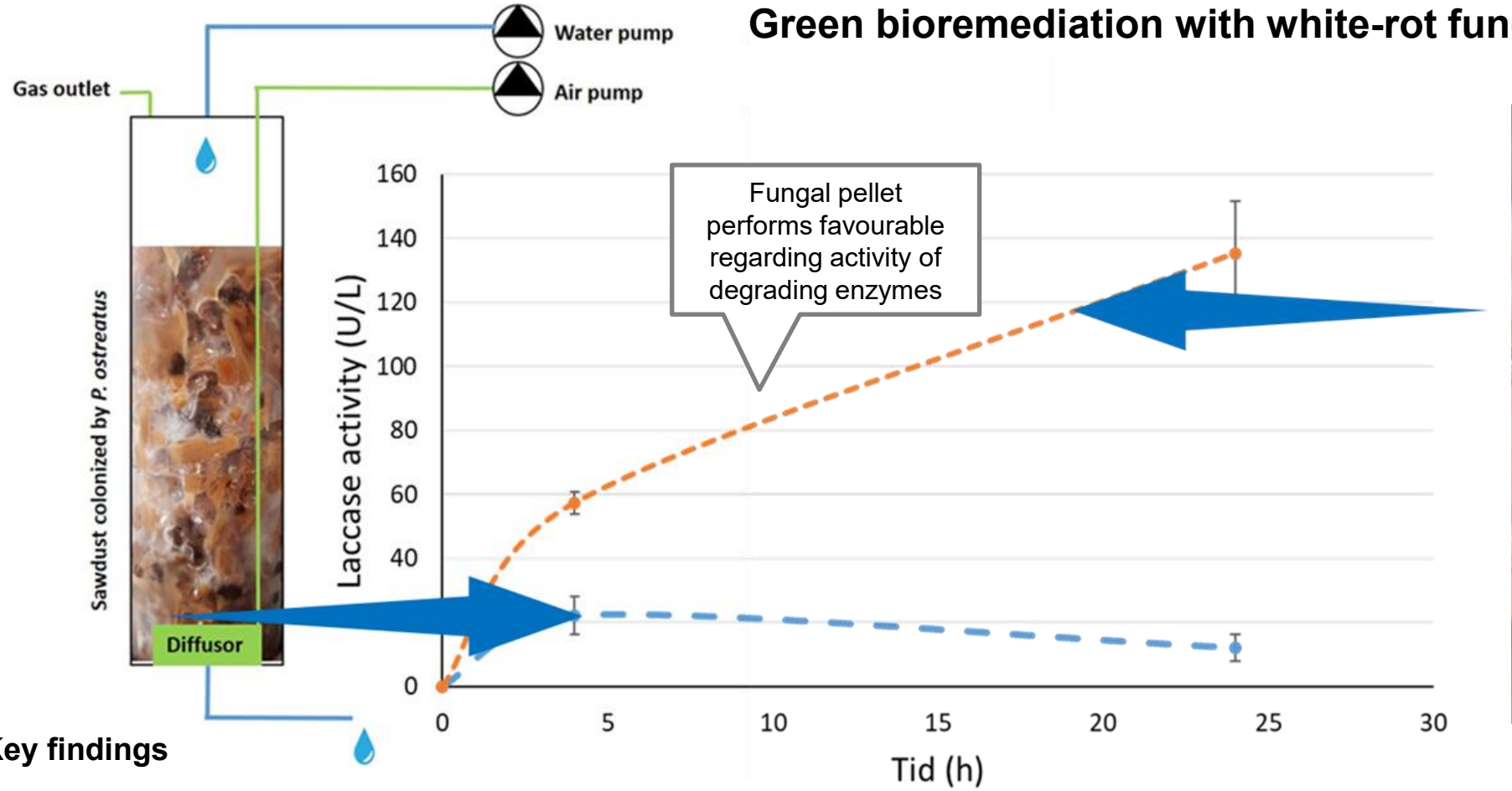
Contaminant Removal

Green bioremediation with white-rot fungi



Key findings

- Fungal pellet with high production of degrading enzymes.
- Low amount of transformation products after treatment.

Identify the most appropriate quaternary treatments.

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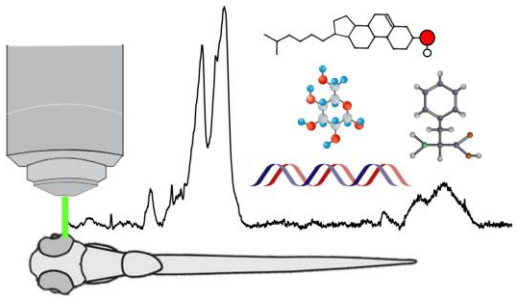
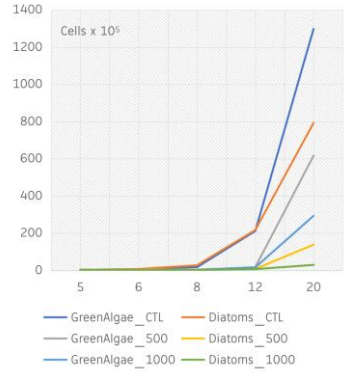
Evaluation of ecosystem conservation and restoration

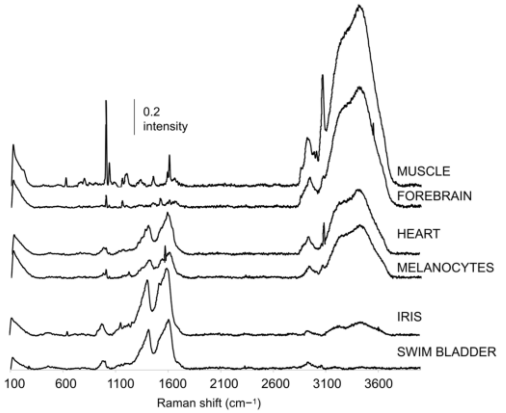
Lab experiments

Effects of **legacy** and **emergent contaminants** on **diatom biofilms** and their resilience.

Raman spectroscopy (RS) for use in **zebrafish embryo**.







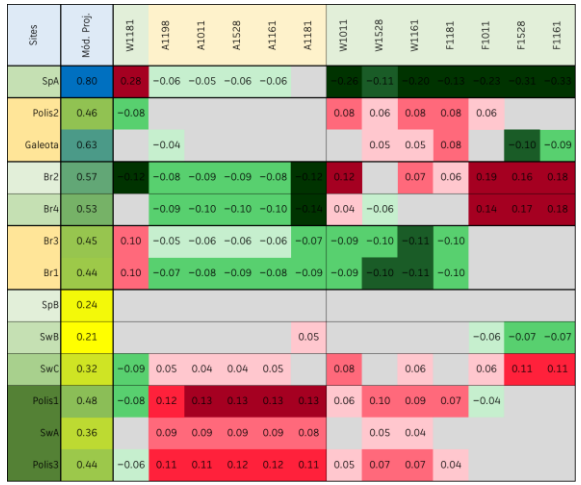
Key findings

- RS assays for rapid cost-effective quality surveys.

Diatom sampling

Characterisation of **diatom diversity** and **abundance,** and **ecosystem quality** of **eight systems** in Portugal.

Development of a **diatom Raman spectroscopy** approach (draft index) to characterise water quality in Portugal, Spain, Sweden and Brasil,



Key findings

- Clear discrimination (heatmap) between water qualities based on RS data and chemometric analysis

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Conclusion

- Pharmaceutical monitoring: a growing number of WWTPs are requesting our support in implementing emerging pollutant control.
- Microplastic analysis: more robust methods are needed.
- Pharmaceutical removal: promising quaternary wastewater treatment processes were identified.
- Raman spectroscopy combined with diatoms can indicate water and ecosystem quality.

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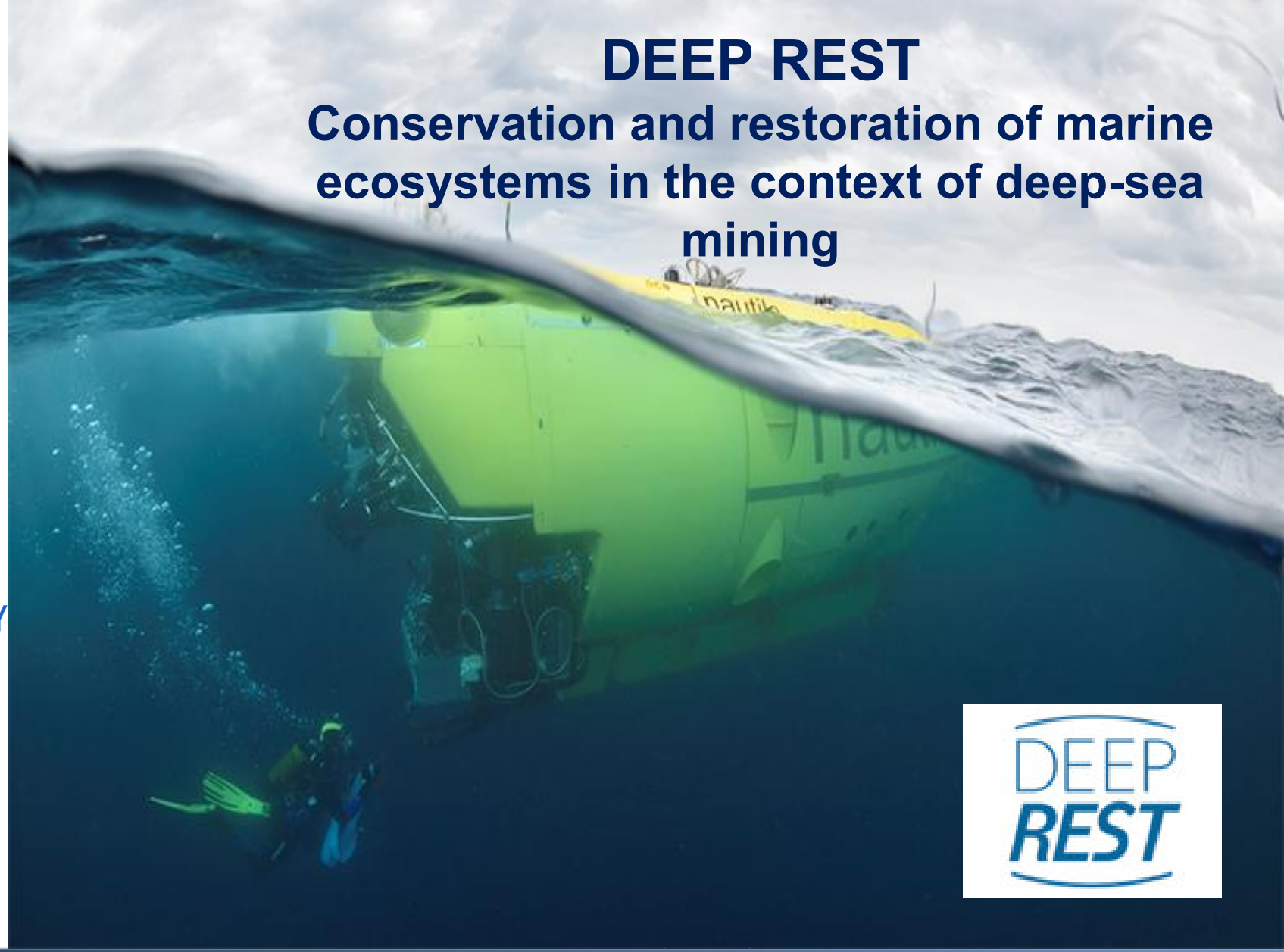
DEEP REST

Conservation and restoration of marine ecosystems in the context of deep-sea mining

PI Jozée Sarrazin - Ifremer
15 partners from 8 countries

01.04.2022 – 31.12.2025

Ifremer · SENCKENBERG world of biodiversity · NIOZ · GHENT UNIVERSITY · GEOMAR · AMURE · AWI · CIMA · UAlg Universidade do Algarve · OKEANOS · Universidad de Sevilla · Universitas Bergensis · NUI Galway OÉ Gaillimh · universidade de aveiro · theoria poiesis praxis · cnrs



DEEP REST

www.biodiversa.eu

United Nations Decade of Ocean Science 2021-2030

Challenger 150

BiodivRestore ERA-NET COFUND
Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

Context of the project

- **Deep ocean : high biodiversity, unique habitats**
- **Increasing demand** for **mineral resources worldwide**
- **Potential source of strategic metals in the deep-sea**
- **Mining has not started in international waters !**
- **Regulations (exploitation) under development at the International Seabed Authority (ISA) for ABNJ**
- **Clock is ticking: fundamental knowledge urgently needed to inform decision-making**

Study areas

Areas Beyond National Jurisdiction (ABNJ)

Major positive outcomes

10 science-based recommendations on conservation, restoration & governance

Sarrazin J. and the DEEP REST consortium (2025). Conservation and restoration in the context of deep-sea bed mining. DOI: 10.13155/107360.

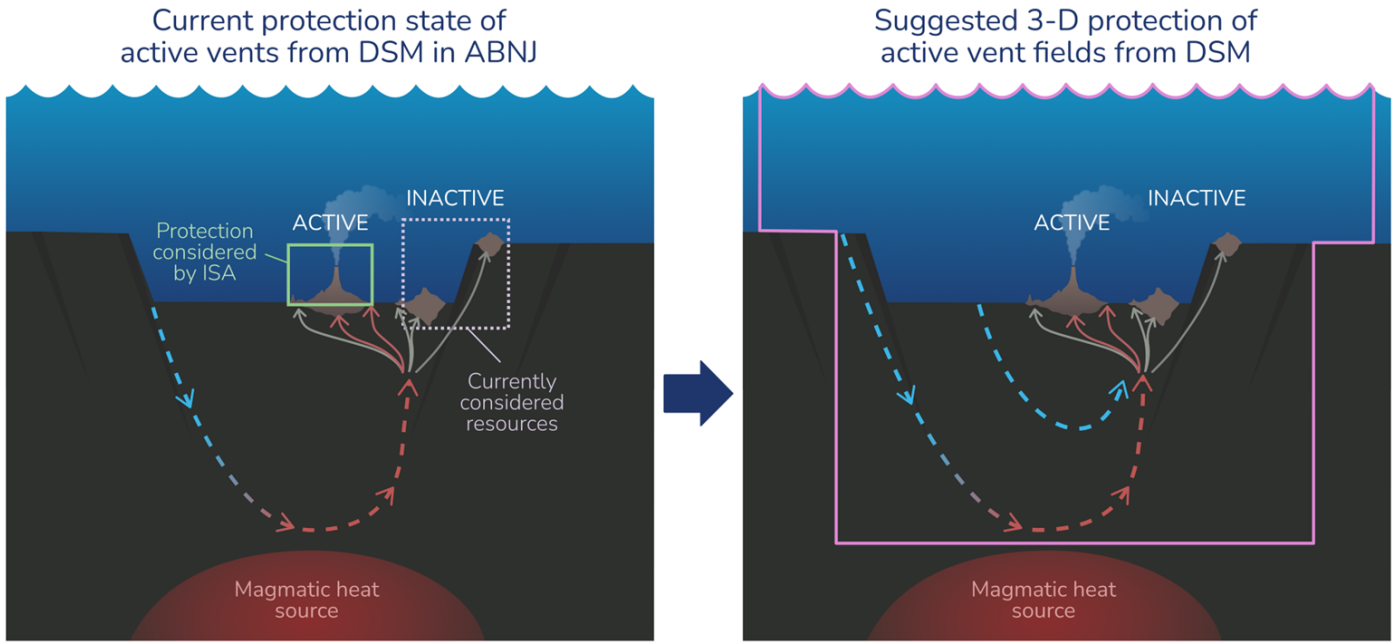
Recommendations for Conservation

Sarrazin J. and the DEEP REST consortium (2025). Conservation and restoration in the context of deep-sea bed mining.
DOI: 10.13155/107360.

GEOMAR

Protection must be three-dimensional, from the subseafloor to the water column, and must include multiple species and areas

The maintenance of ecological processes that connect the subseafloor, seafloor and water column is essential to maintain biodiversity and ecosystem functions at active vents.

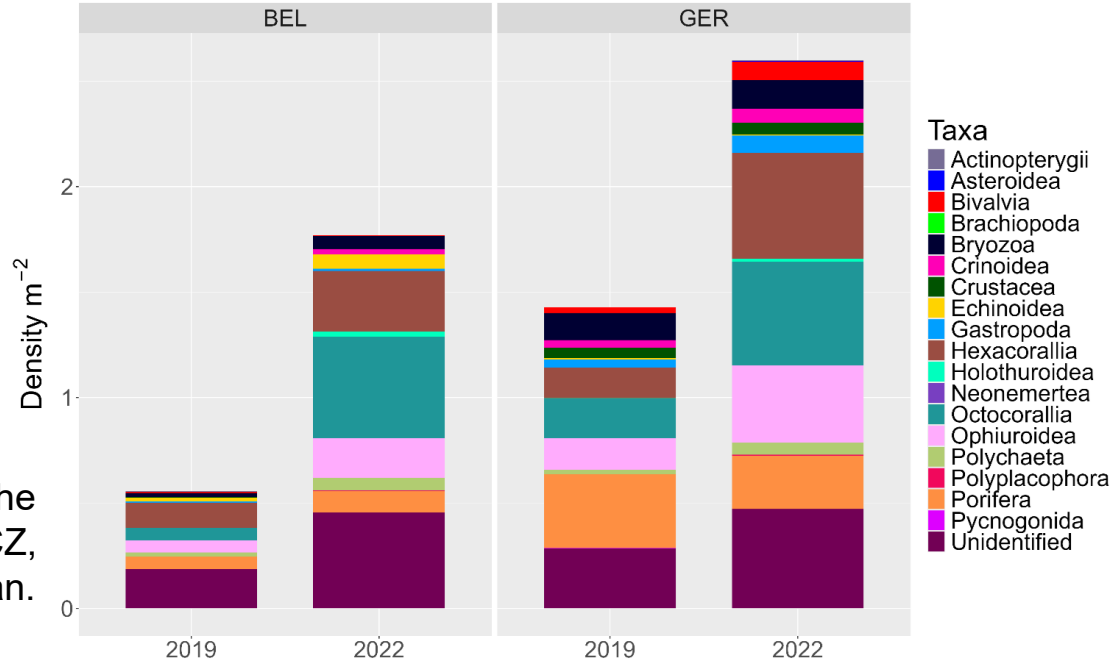


Gollner et al. Marine Policy, in revision.

Observations and sampling must be enhanced to capture temporal and spatial variability to allow for robust environmental impact assessment

Natural variability in megafauna in the CCZ

Density differences in megafauna between sites and years. GER license area is more productive. Higher productivity during La Nina period (2020-2022) would explain temporal variability.

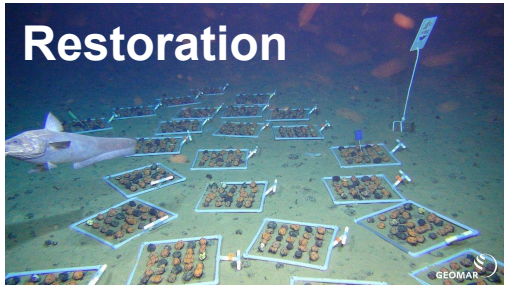


Density (individuals m^{-2}) of benthic megafauna in the Belgian and German license area within the CCZ, Pacific Ocean.

Macheriotou et al. Frontiers in Marine Science. 2025.

Recommendations for Restoration

Sarrazin J. and the DEEP REST consortium (2025). Conservation and restoration in the context of deep-sea bed mining.
DOI: 10.13155/107360.



Regulations must consider that full recovery through passive restoration is not possible if habitat and ecosystem functions are lost, even if connectivity is ensured

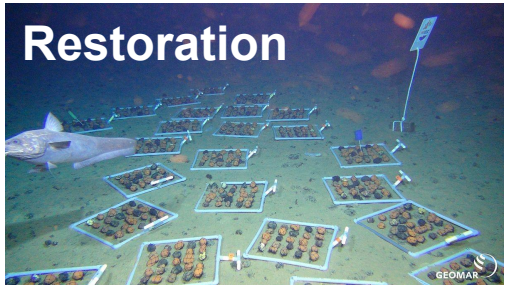
Effectiveness of passive restoration on the recovery of vent communities on the MAR

Small-scale faunal removal experiments showed only partial community recovery through migration and recruitment despite the presence of abundant neighbouring mussel communities

Before

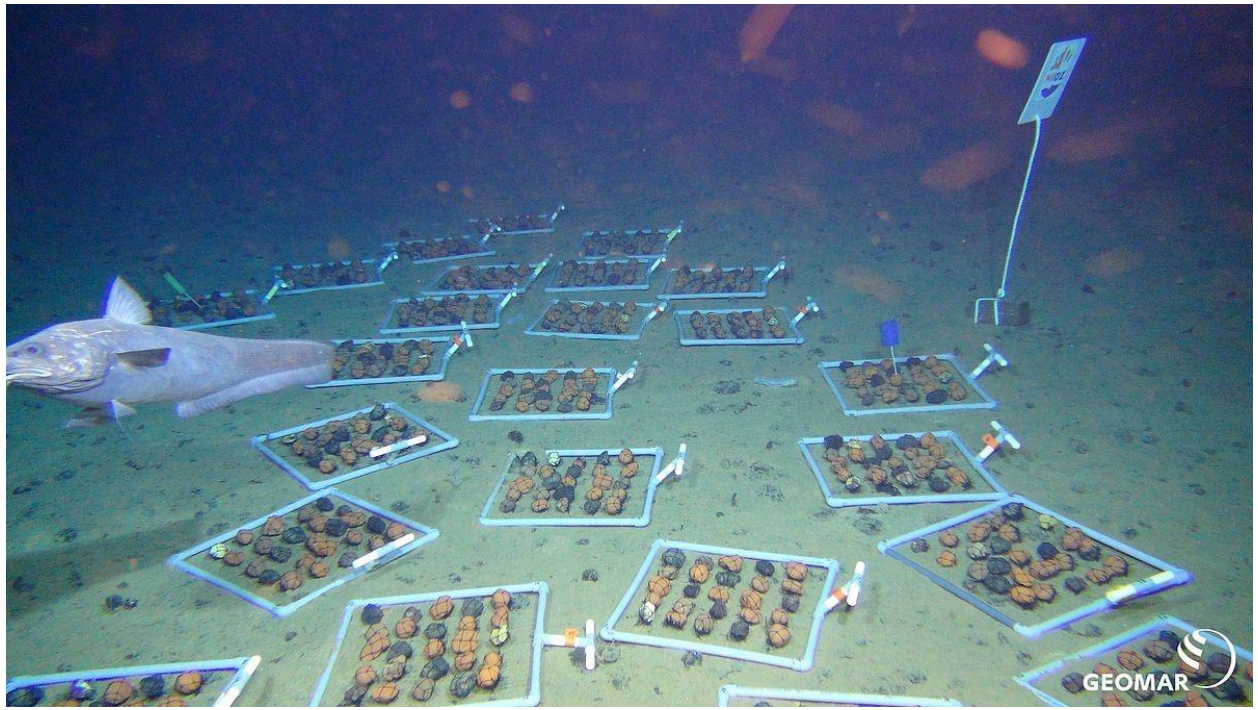
After

Da Silva et al. in preparation.



Effectiveness of restoration actions must be evaluated over decadal time spans

Active restoration after simulated mining disturbance is currently being tested in the CCZ. Thousands of artificial nodules have been deployed and a subset was recovered after 2 years, showing very slow colonization.



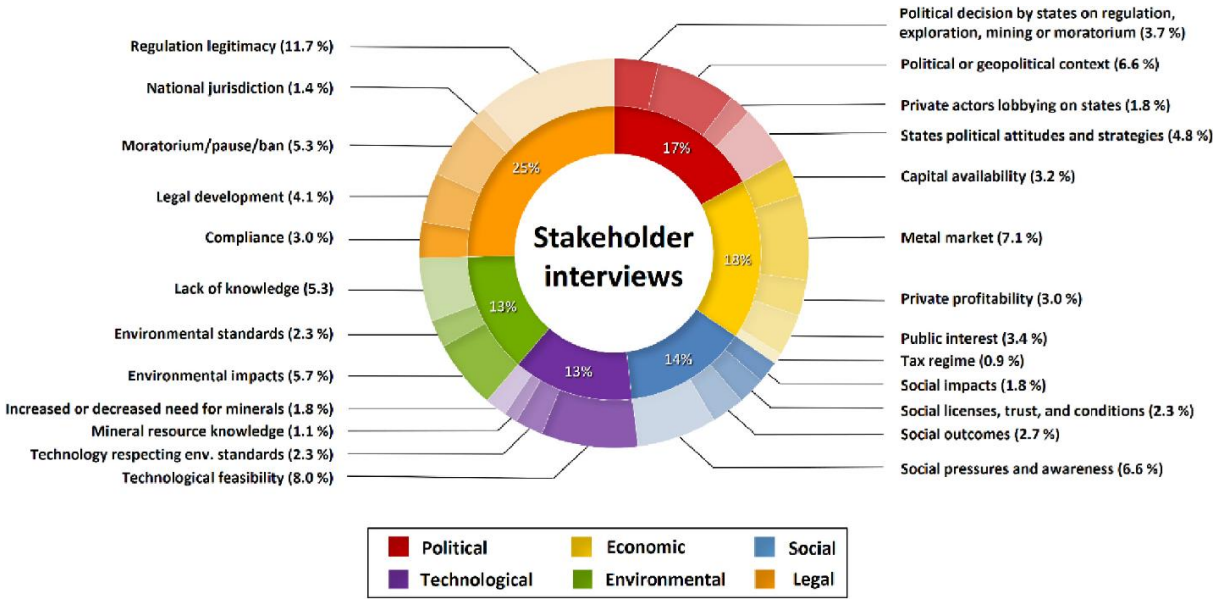
Gollner et al. in preparation.

Recommendations for Governance and Literacy

Sarrazin J. and the DEEP REST consortium (2025). Conservation and restoration in the context of deep-sea bed mining.
DOI: 10.13155/107360.

In addition to ecological aspects, decision making must also incorporate geopolitical, socio-economic, technological and legal considerations

Emerging topics that are not yet studied in sufficient details in the context of seabed mining have been identified. They concern:



- ✓ Unresolved legal issues
- ✓ The urgency of material demand in light of technological innovations
- ✓ States' endeavours to secure access to resources and processing
- ✓ Strategic issues related to military defence

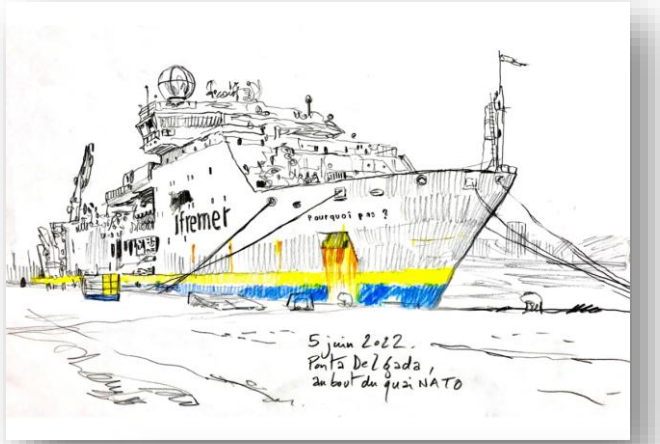
Bellanger et al. Resources Policy, 2025.

Deep-sea literacy on the environment, policy and governance are needed for a better informed public debate

Board-game: Blue DiplomaSEA

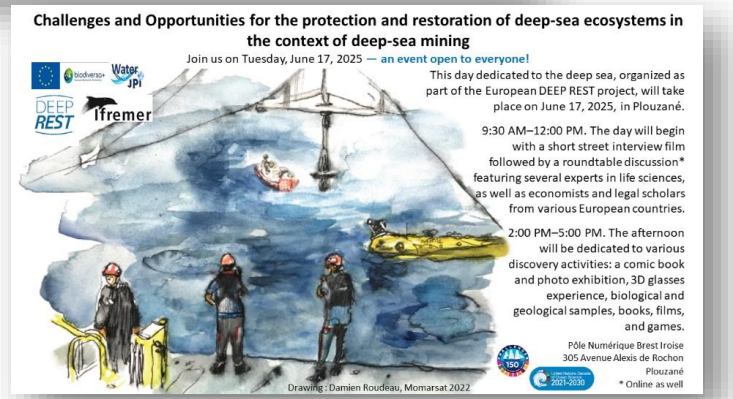
Street-interviews

Art & Science



Conferences

A day dedicated to stakeholders



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BiodivRestore ERA-NET COFUND
Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

Water JPI

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Major challenges, failures, or hurdles

- Project duration very short for its ambitions: integration between ecosystems started only at the end, interactions between natural & social scientists takes time and effort and would have benefited additional time;
- Coordinating and standardizing data across diverse teams was more complex than expected;
- Inputs from our advisory board very constructive. However, lack of budget to finance their in-person participation to annual meetings;
- Difficulties to involve non-funded partners.

Acknowledgements













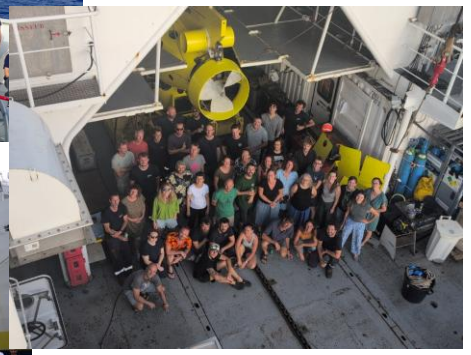



This research is part of the DEEP REST project that was funded through the 2020-2021 Biodiversa and Water JPI joint call for research projects, under the BiodivRestore ERA-NET Cofund (GA N°101003777), with the EU.

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Water JPI

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Key messages

Sarrazin J. and the DEEP REST consortium (2025). Conservation and restoration in the context of deep-sea bed mining.
DOI: 10.13155/107360.

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FishME

Social and ecological effects of **Fish** removal in **M**ountain **E**cosystems

By Dirk S. Schmeller

GLOBAL MOUNTAIN BIODIVERSITY ASSESSMENT

UNIVERSITÀ DI PAVIA

CSIC
Consejo Superior de Investigaciones Científicas

CREAF

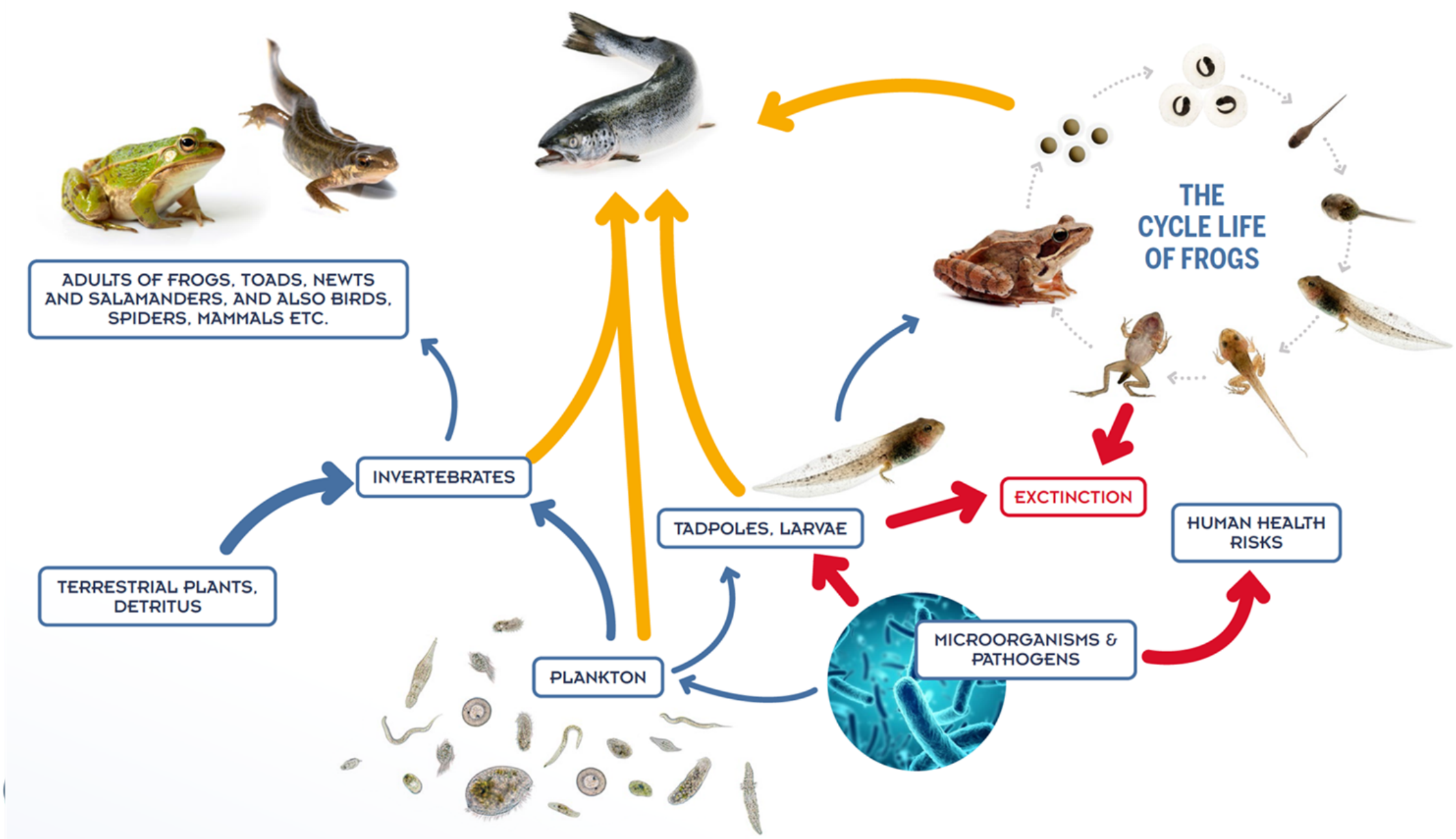
Laboratoire écologie fonctionnelle et environnement

CEBE

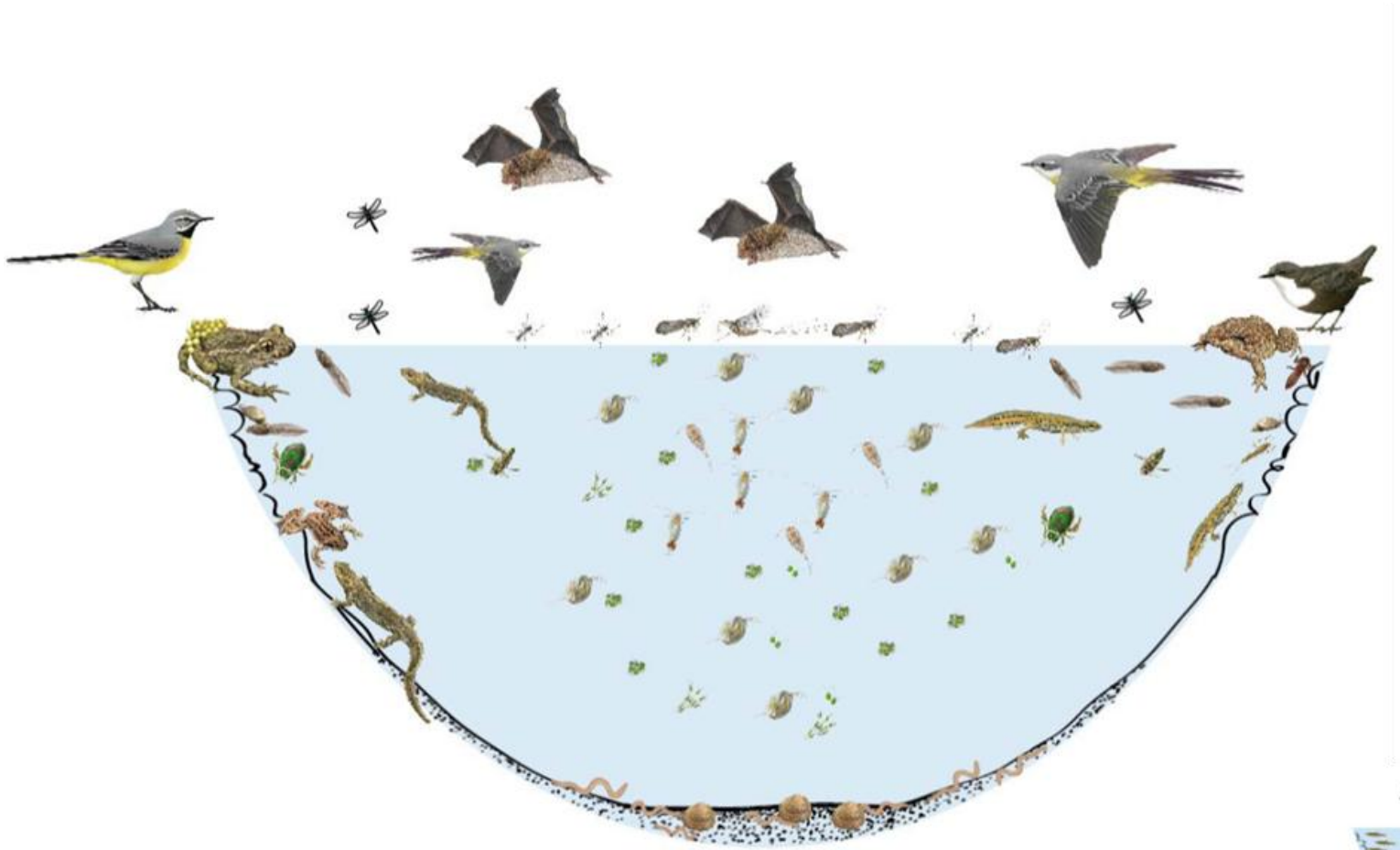
universität innsbruck

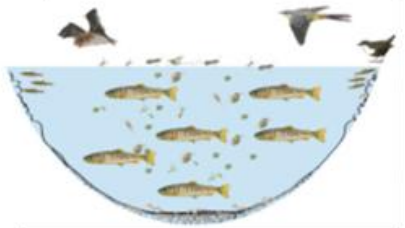
BiodivRestore ERA-NET COFUND
Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

The problem

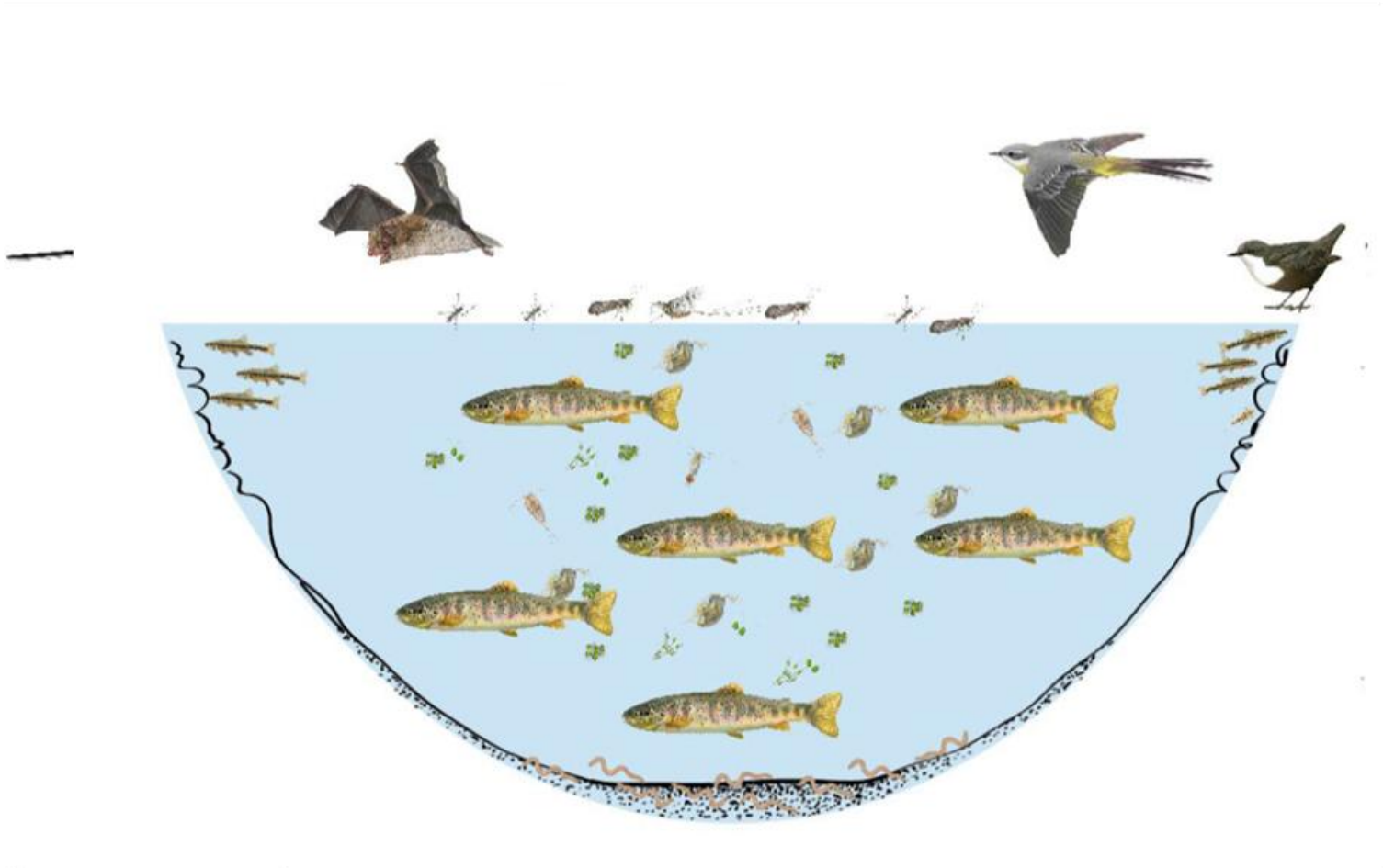

ADULTS OF FROGS, TOADS, NEWTS AND SALAMANDERS, AND ALSO BIRDS, SPIDERS, MAMMALS ETC.
THE CYCLE LIFE OF FROGS
INVERTEBRATES
TERRESTRIAL PLANTS, DETRITUS
TADPOLES, LARVAE
EXCTINCTION
HUMAN HEALTH RISKS
PLANKTON
MICROORGANISMS & PATHOGENS

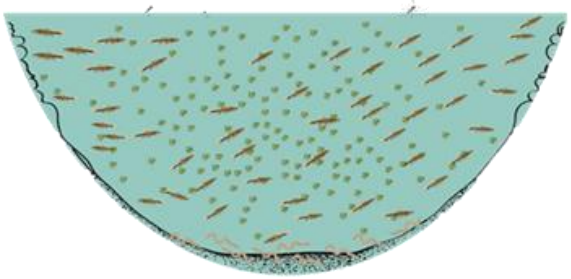
The problem





The problem





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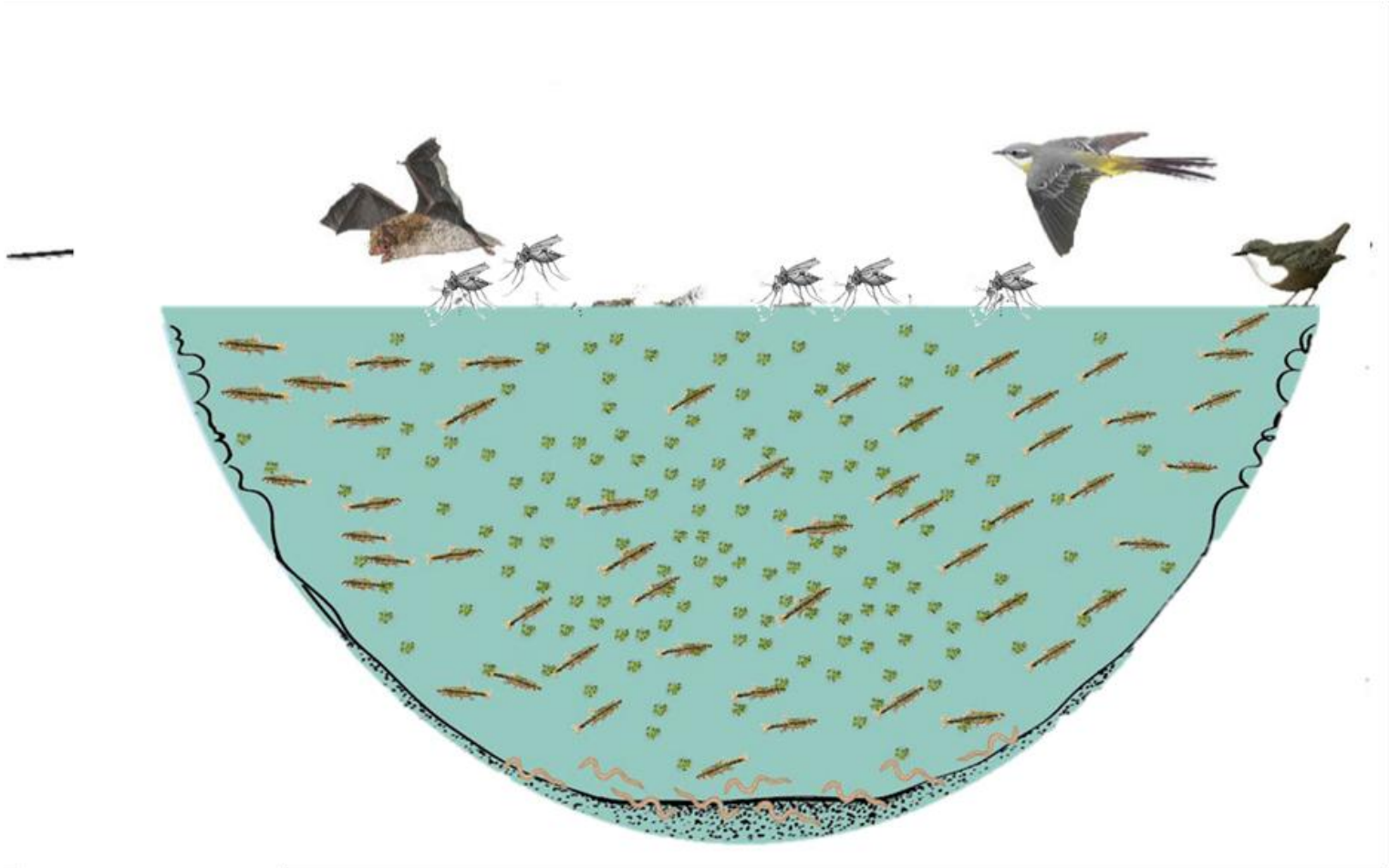
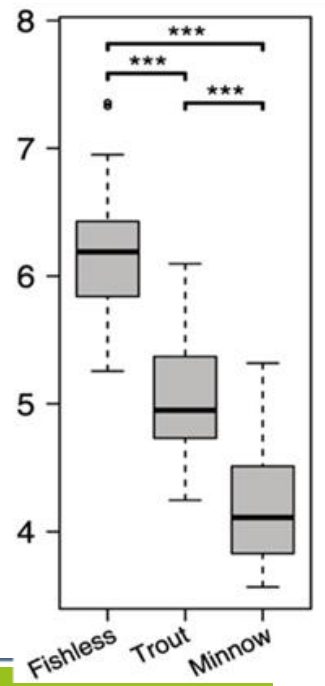
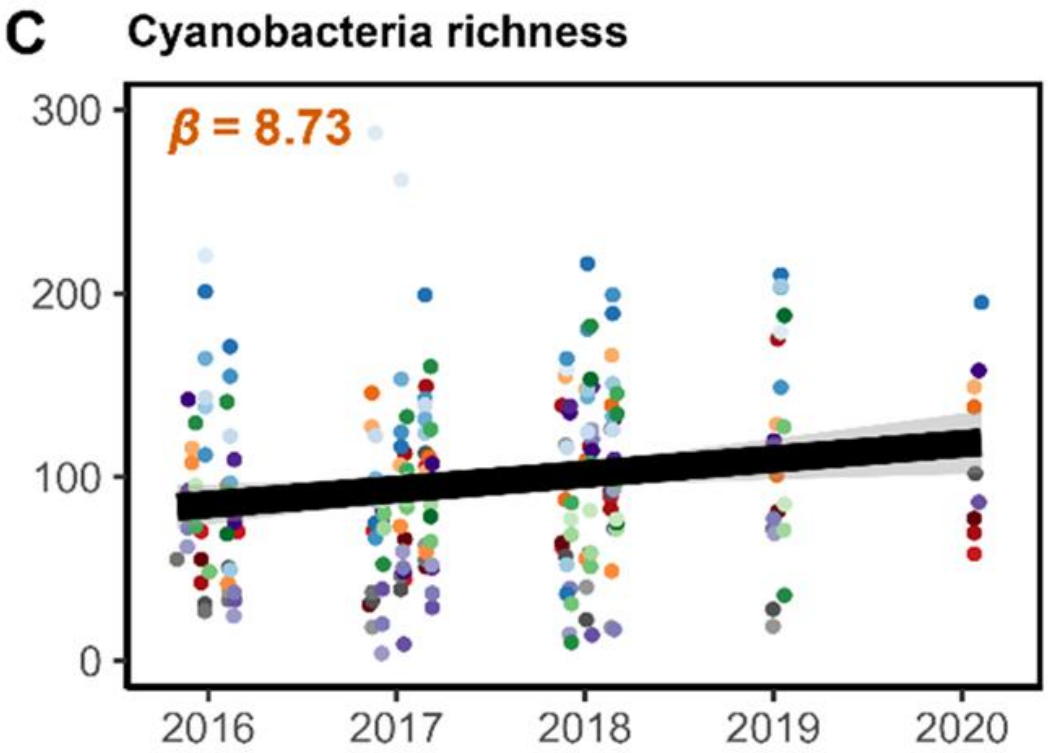
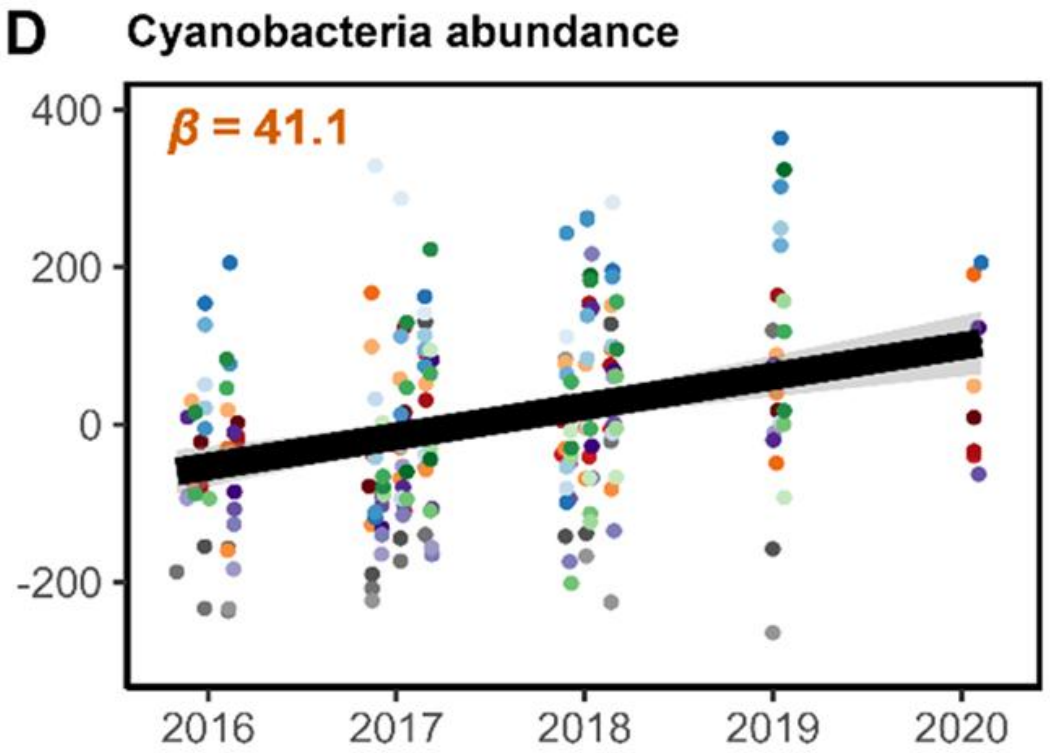




Aquatic species diversity

biodiversity, including a focus on aquatic systems

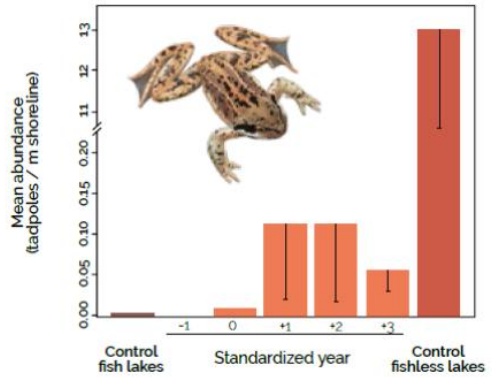




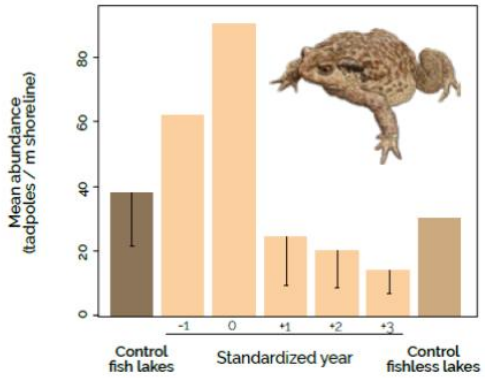
Sentenac et al. 2023

Recovery is possible

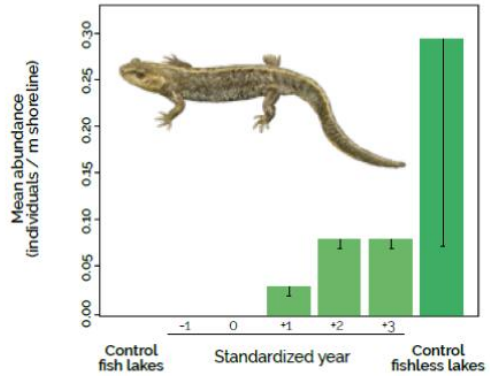
COMMON FROG



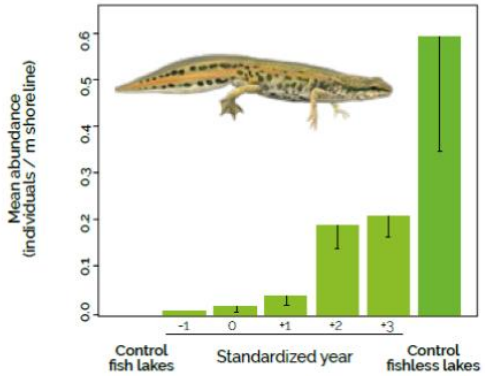
SPINY TOAD



PYRENEAN BROOK NEWT



PALMATE NEWT



Solutions


PEUT-ON RENATURER LES LACS DE MONTAGNE ?
EP #31


2014
NAORTE


2014
ROVINETS


2014
CLOSELL

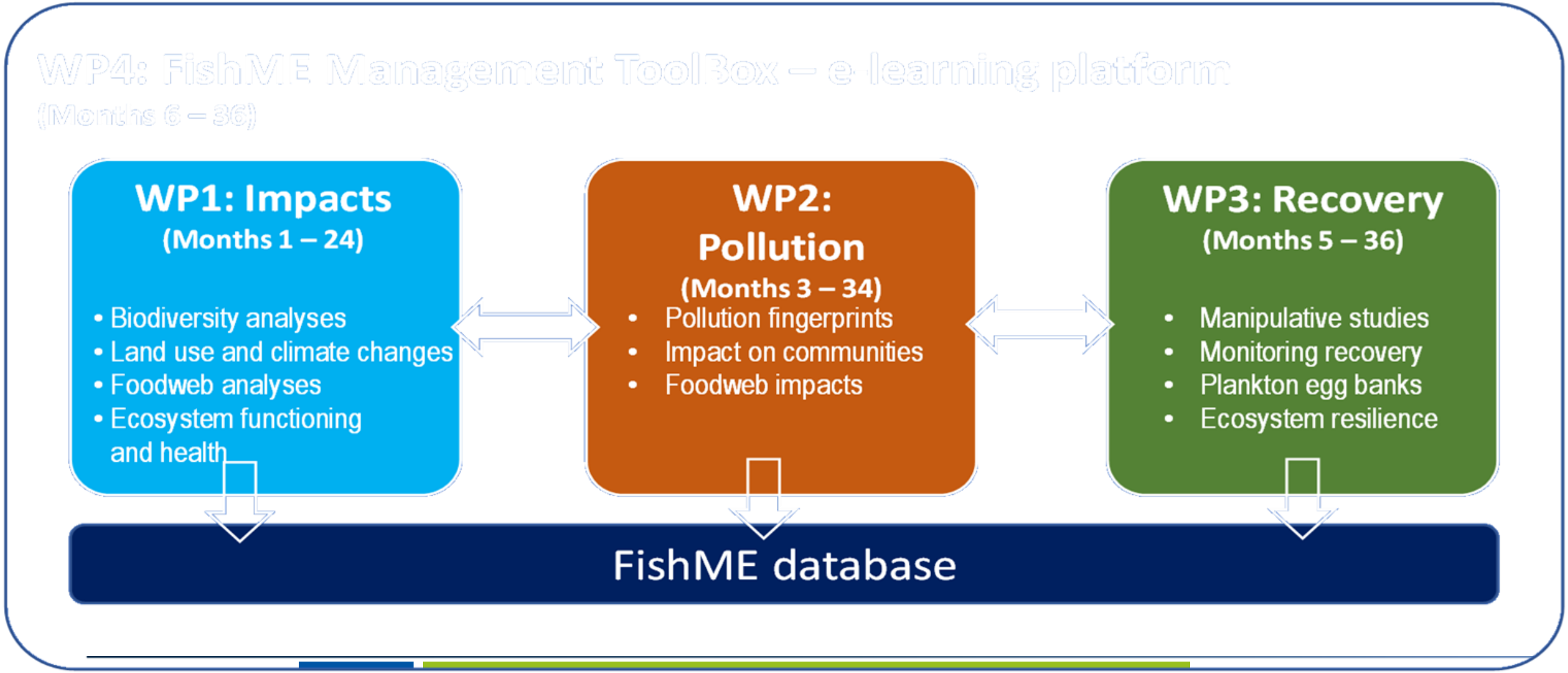

LA RENATURALISATION DES LACS DE MONTAGNE - CA MARCHE!
EP #32


2018

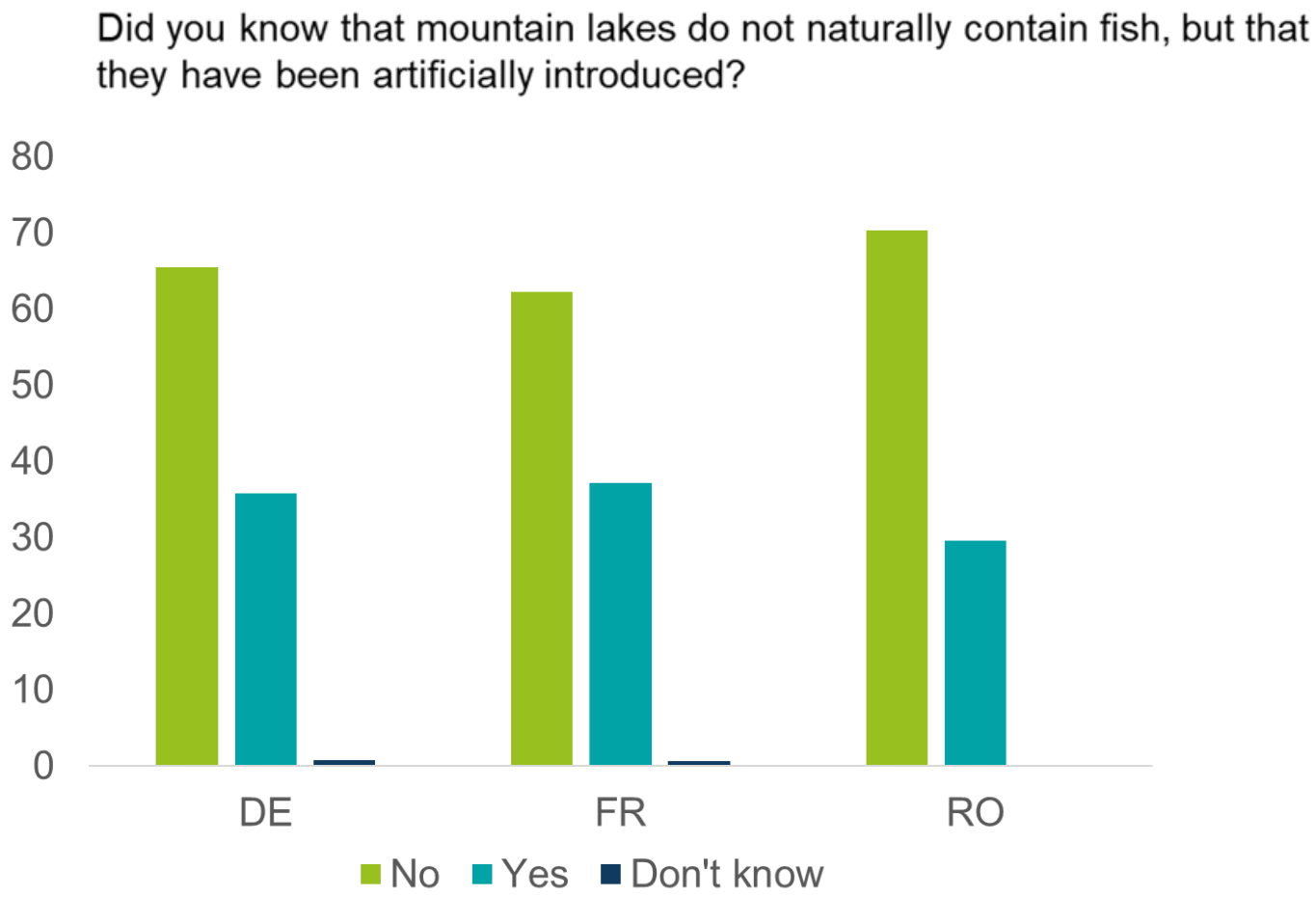

2018


2018

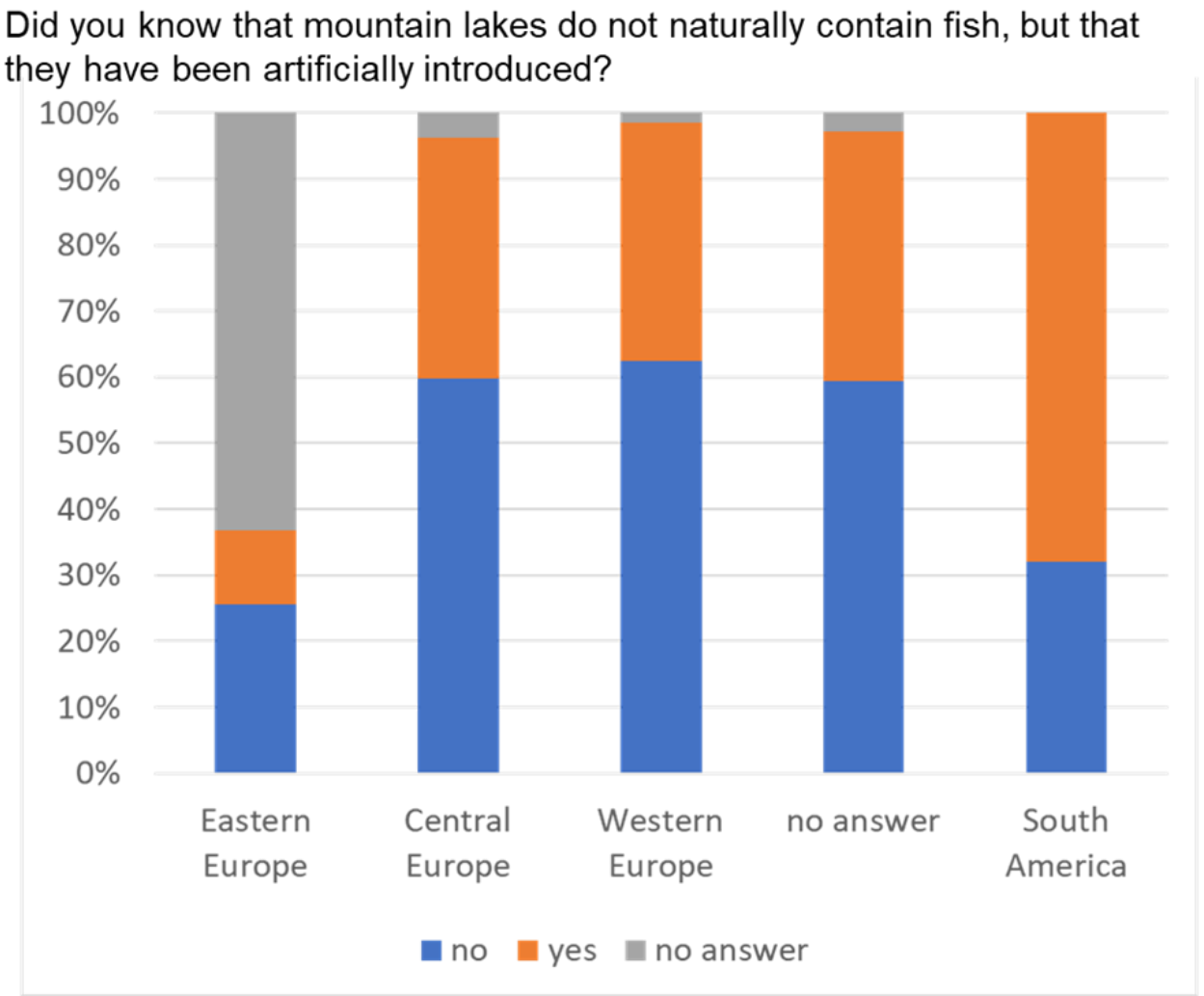
FishME Management Toolbox



Challenge: Ignorance

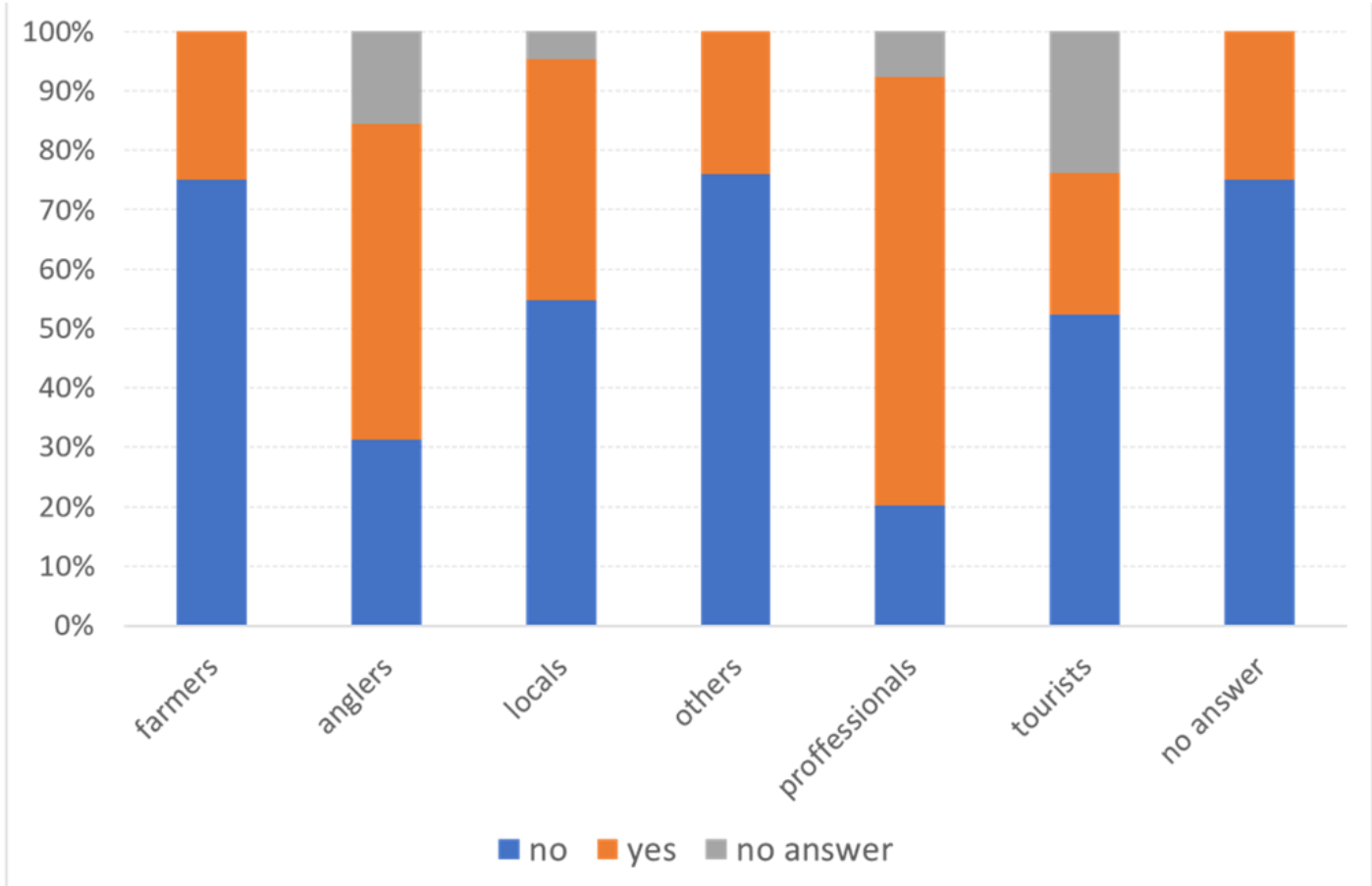


Challenge: Ignorance



Challenge: Ignorance

Did you know that mountain lakes do not naturally contain fish, but that they have been artificially introduced?



Challenge 2: Lobbyism

Une émission d'Hugo Clément dénonce les alevinages en truites : une manipulation et du grand guignol !

A program by Hugo Clément condemns trout stocking: manipulation and melodrama!

→ Maintenance of ignorance

Challenge 3: Country specifics

Spain/Catalonia
Austria

Romania

France

Policy impacts

France:
1) Question of the National Assembly on fish introductions
2) Report of a regional expert committee for the protection of wildlife and nature
3) Considerations to strongly limit fish introductions

Austria
1) Local major explores the possibility to eradicate fish in the Piburgersee

Italy
1) Awareness of local decision makers has increased and discussions are starting

We expect that the FishME Management Toolbox will further this impact and future projects will benefit from this

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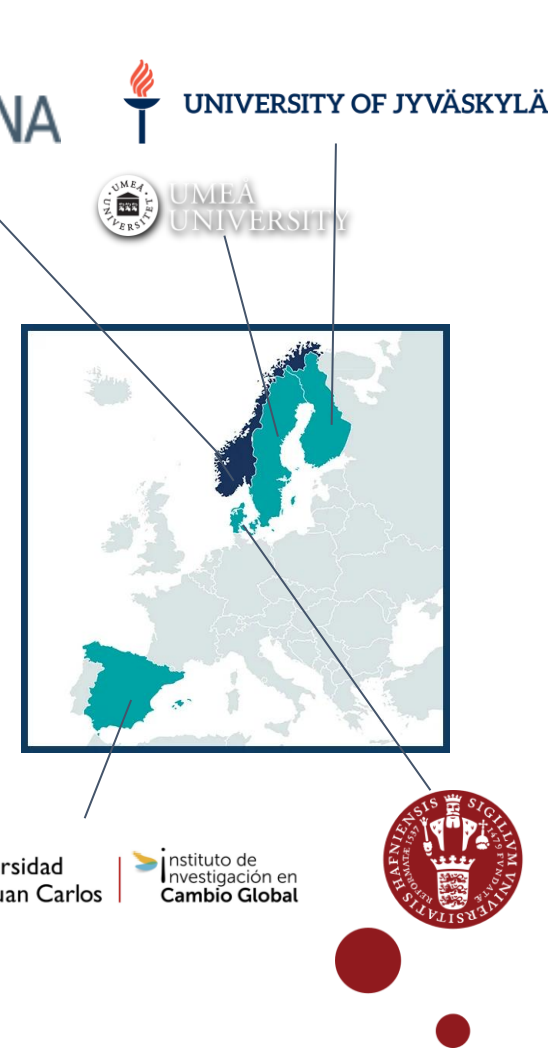
FreshRestore



Consortium members

<u>Kim Magnus Bærum (PI)</u>
Javier Sánchez-Hernández (WP leader)
Ignasi Arranz Urgell (Postdoc)
Dunja Lukic (Postdoc)
Carlos Jiménez Corbacho (Technician)
Antti Eloranta (WP leader)
Matthew Cobain (Postdoc)
Ossi Keva (Postdoc)
Berit Hasler (WP leader)
Raphael Filippelli (Postdoc)
Casper Thon Hoffmann (Research assistant)
Pär Byström (WP leader)
Wojciech Uszko (Postdoc)
Jenny Hansen (Researcher)
Kwaku Perprah Adjei (Researcher)

Modeling ecosystem drivers and functional changes under human pressures

Exploring the ecological and socio-economic impacts of environmental drivers and cumulative human stressors

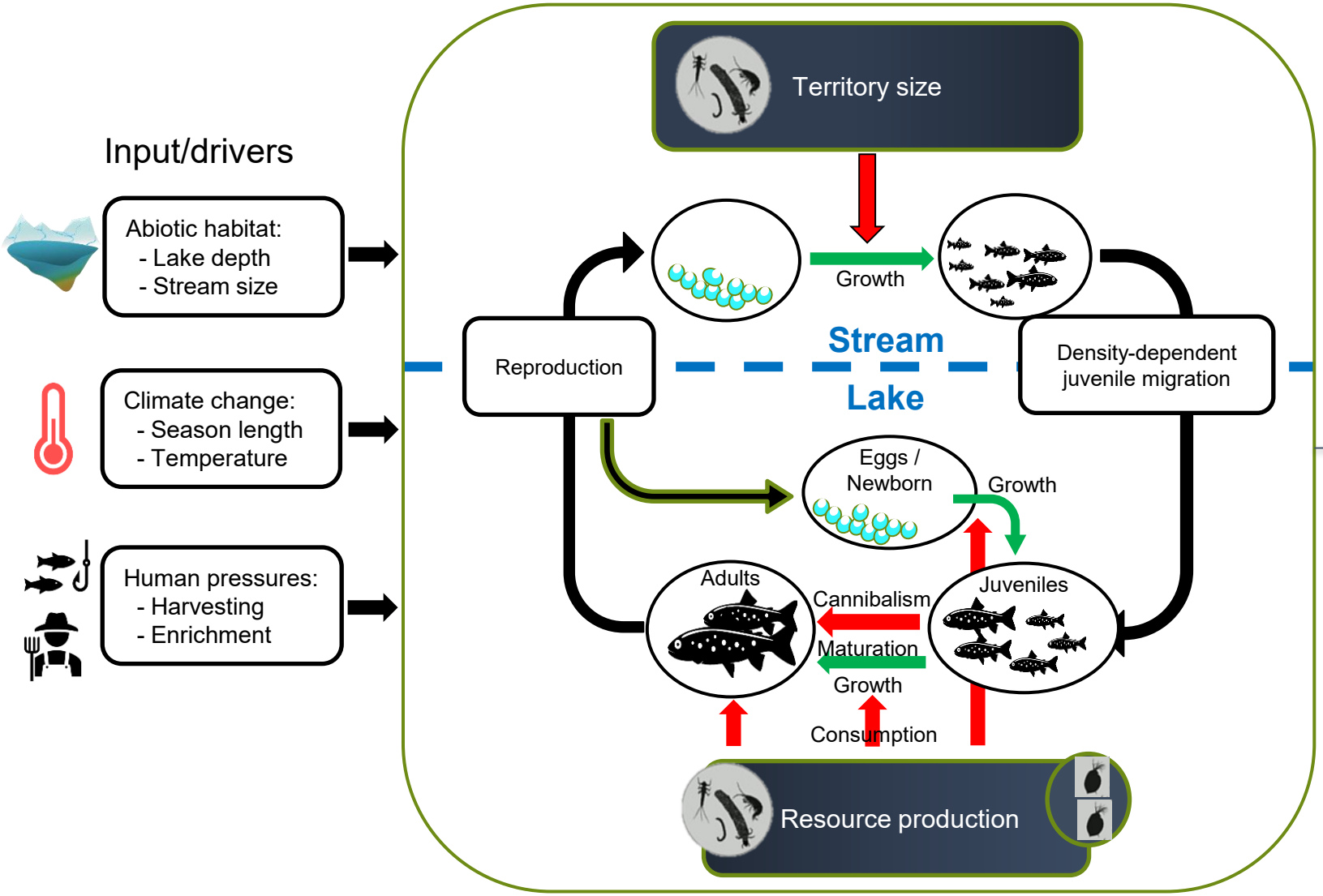
Example: Effect of river restoration in multi stressed environment

Input/drivers

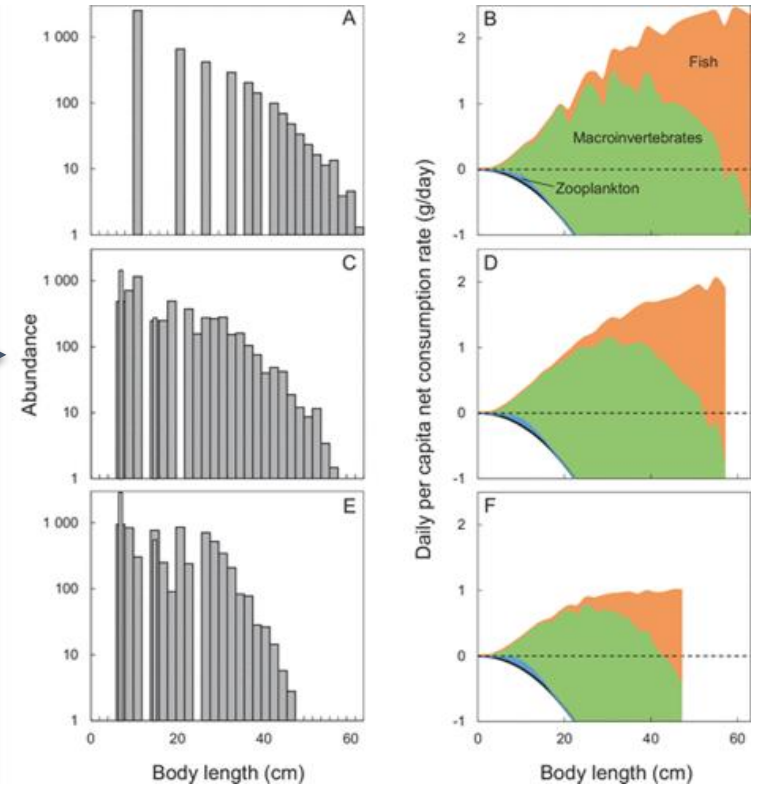
Abiotic habitat:
- Lake depth
- Stream size

Climate change:
- Season length
- Temperature

Human pressures:
- Harvesting
- Enrichment

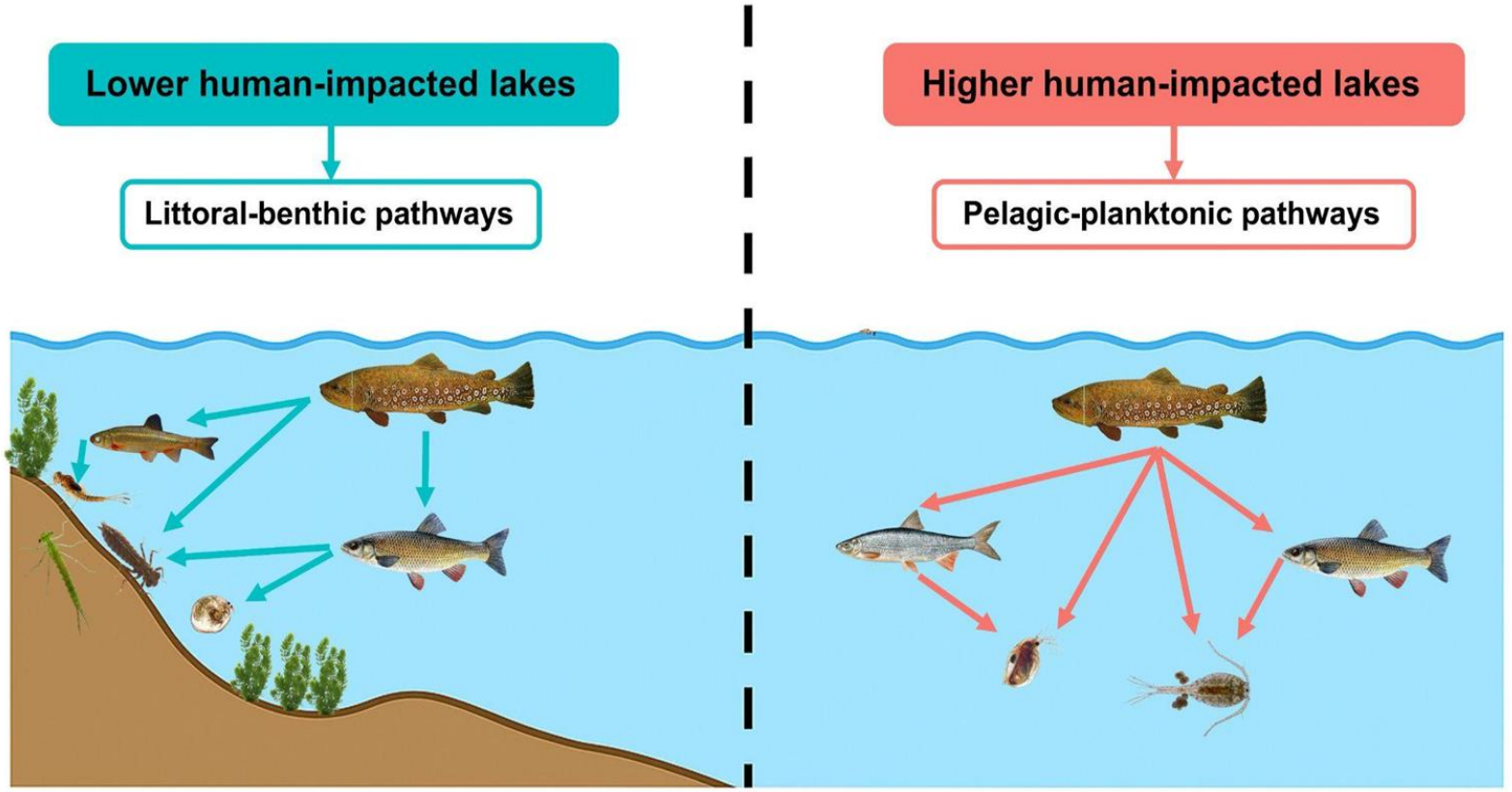


Varying ecosystem responses to different restoration alternatives

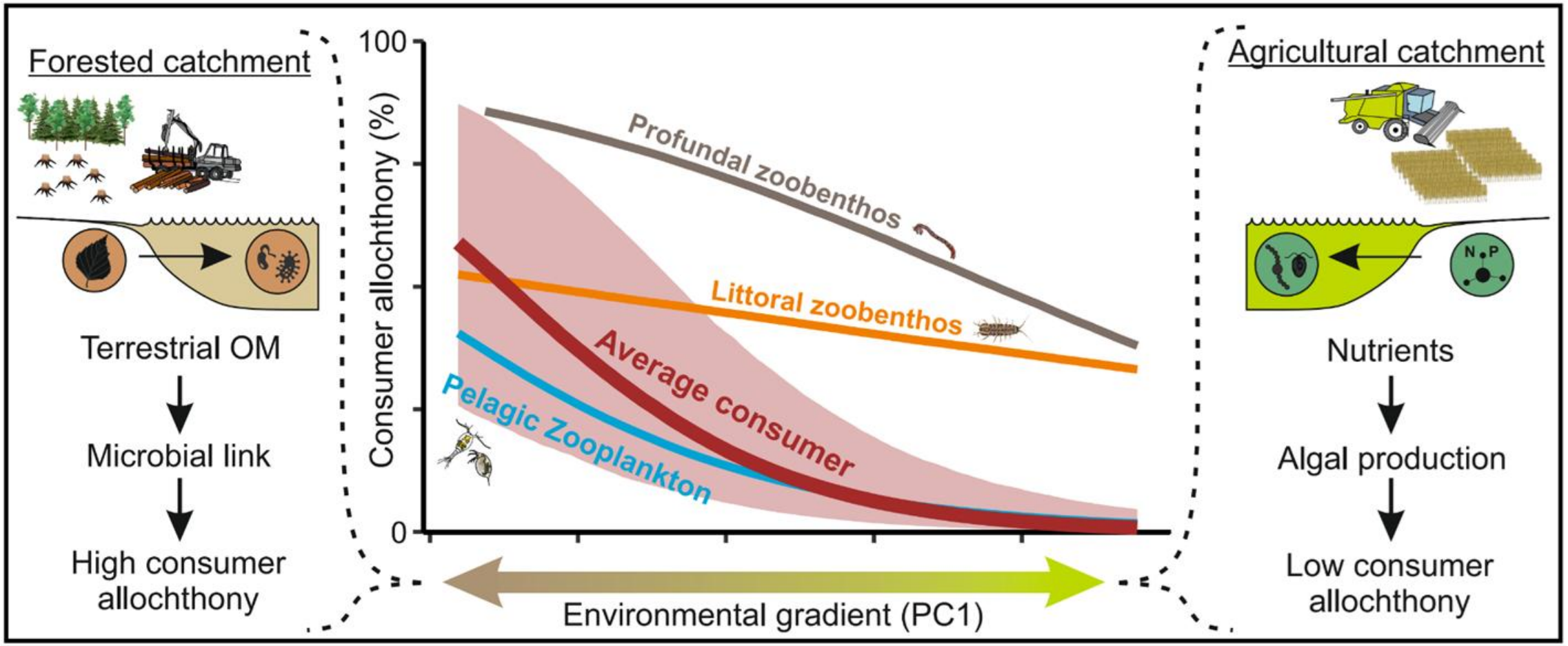


Uszko et al, The American Naturalist 2025 205:4, 371-387

Example: Effects of local and global human stressors on food chains and behaviour.



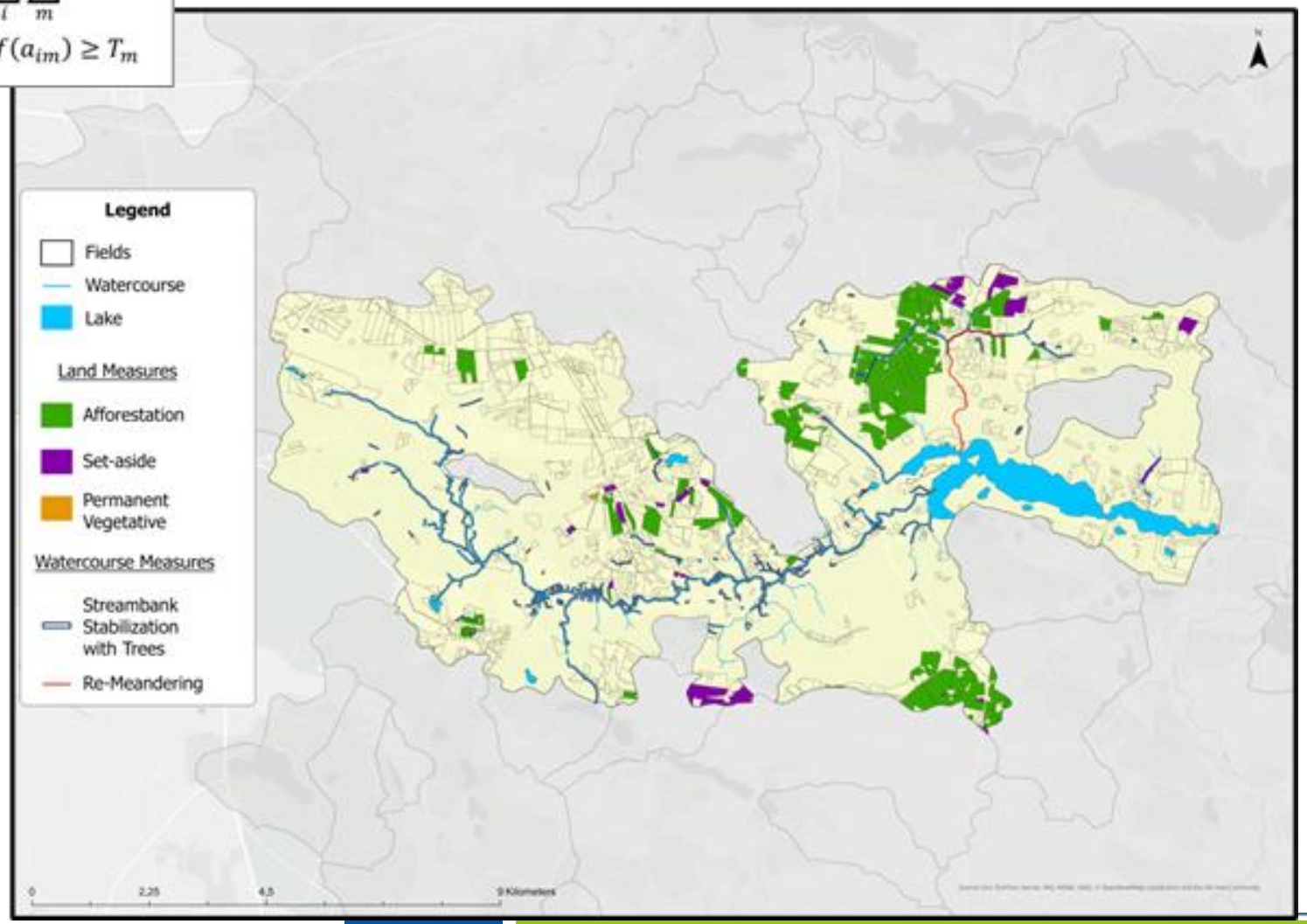
Example: Type of catchment changes energy flows in the ecosystem → Impacts on resilience



Keva et al. 2025. **The role of land use in terrestrial support of boreal lake food webs**. *Nature Communications* 16: 3572. https://doi.org/10.1038/s41467-025-58505-y

Example: What is the socio economic value of forestation and permanent set aside of areas? And will the implementation of these measures improve biodiversity?

$$\min \sum_i \sum_m C_i(a_{im})$$
$$s.t.\, f(a_{im}) \geq T_m$$



Achievements and Challenges

- Modular adaptive management tools to predict holistic effects of different restoration efforts 🏆
- Successful cross-disciplinary collaborations 🏆
- Knowledge and data transfer across borders 🏆
- Strong scientific output 🏆

- Cross-disciplinary collaboration takes time — different scientific languages and approaches 🤔
- Difficult to define concrete aims and get feedback from both local and national stakeholders 🤔
- Generality only goes so far — case-specific adaptations are still needed 🤔

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Interactive effects of local and landscape scale restoration of semi-natural grasslands and agricultural fields on species interactions and ecosystem functions in different social-ecological systems

InterRest

Annika Hass, Catrin Westphal, Örjan Bodin, David Giralt, Aveliina Helm, Hans Jacquemyn, David Kleijn, Juan Traba
Jordi Artola, Gerard Bota, Xabier Cabodevilla, Jelle Devalez, Philipp Gorris, Ira Hannappel, Alexander Keller, Felipe Librán Embid, Elisabeth Prangel, Triin Reitalu, Evan Sloan, Tanel Vahter, Elena Velado Alonso, Julia Zurdo

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BiodivRestore ERA-NET COFUND
Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

Calcareous grasslands as biodiversity hotspots across Europe

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Water JPI

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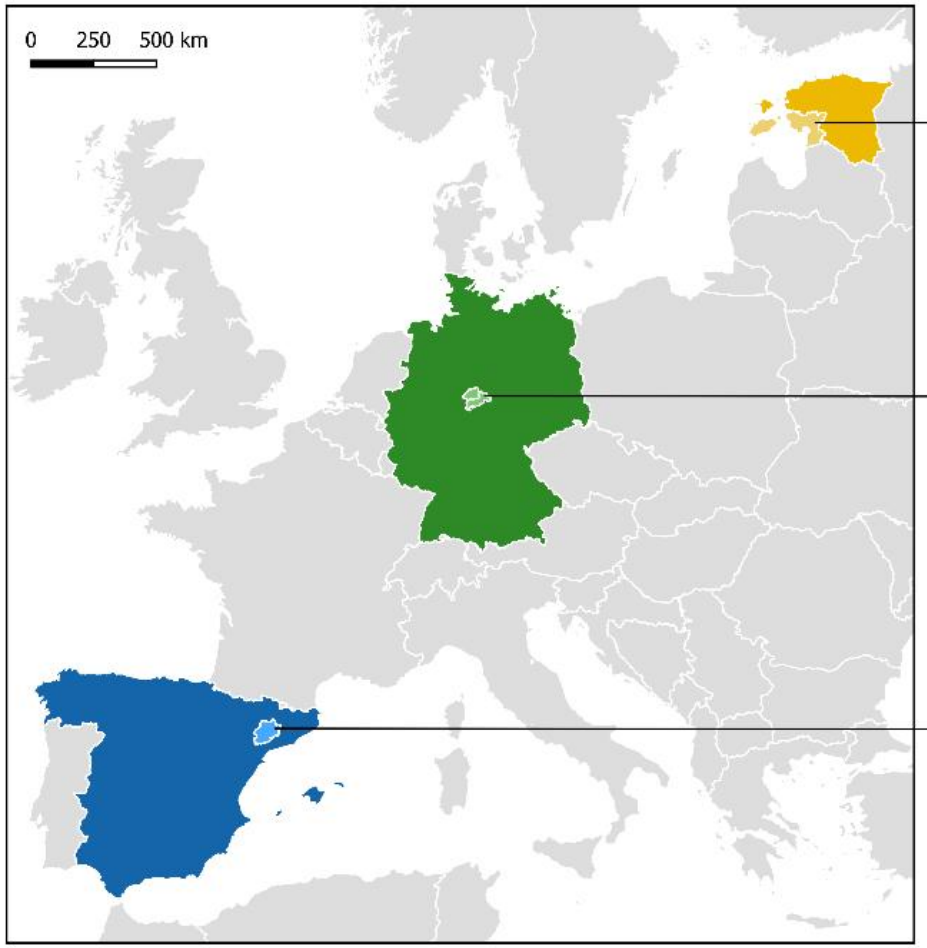
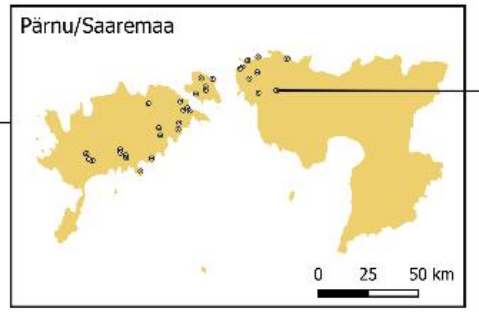
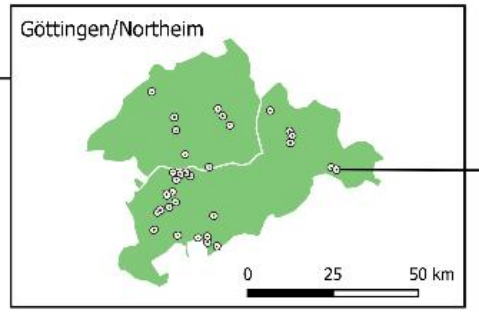
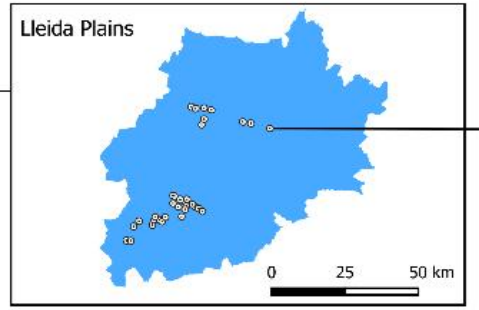
Study sites

96 calcareous grasslands









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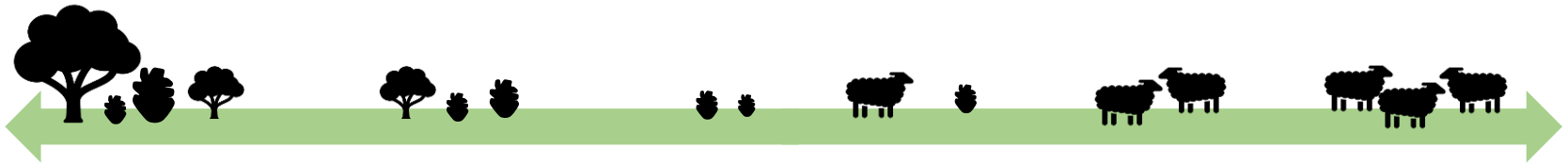
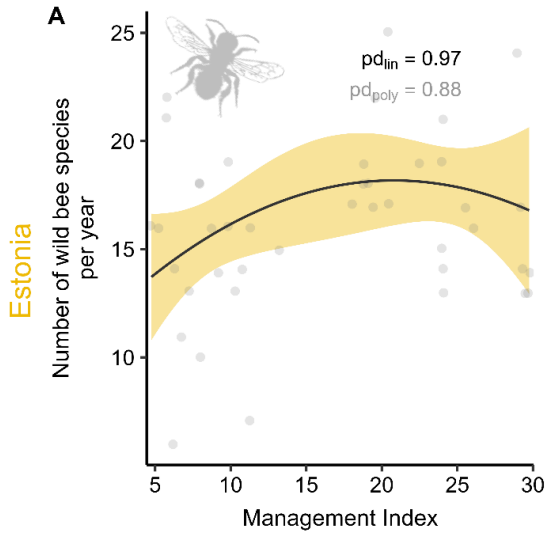
Local restoration

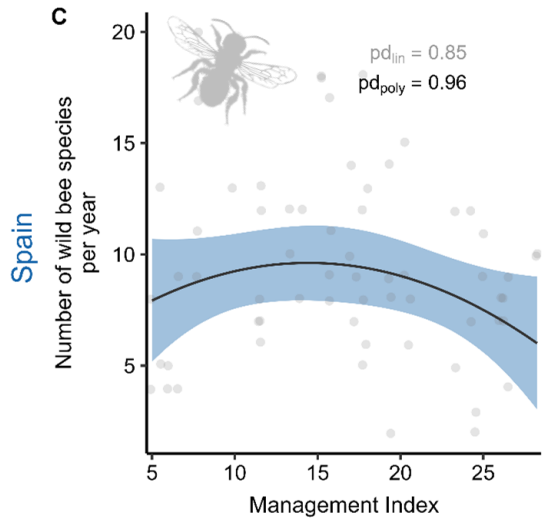
Indication for long-term abandonment

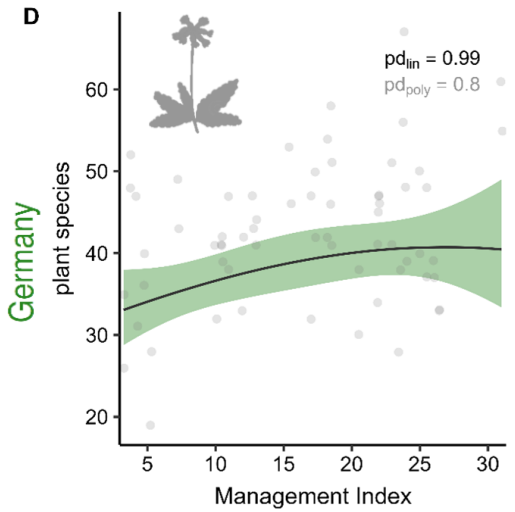
Indication for more intensive management activities



Management index







High woody cover:

- Less shared plant-pollinator interactions across sites in a region

No effects on

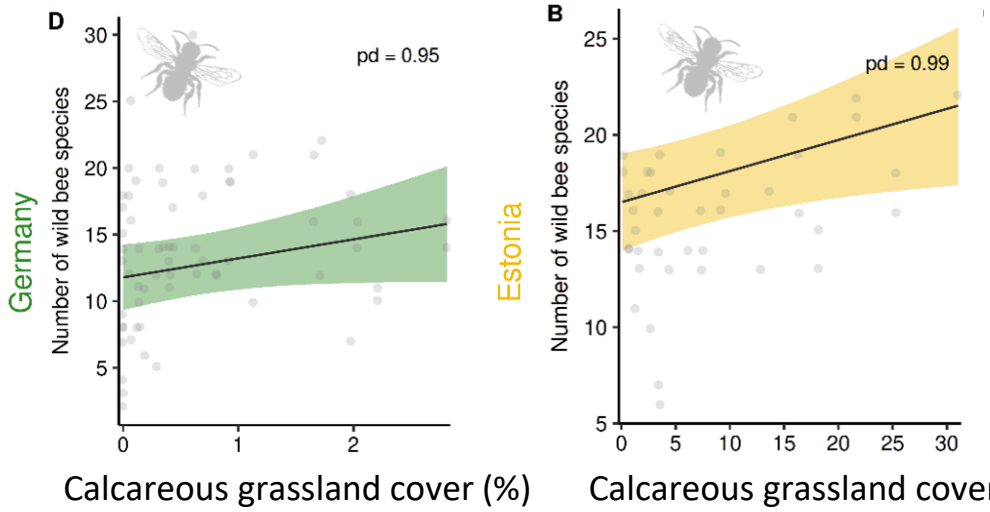
- Multifunctionality

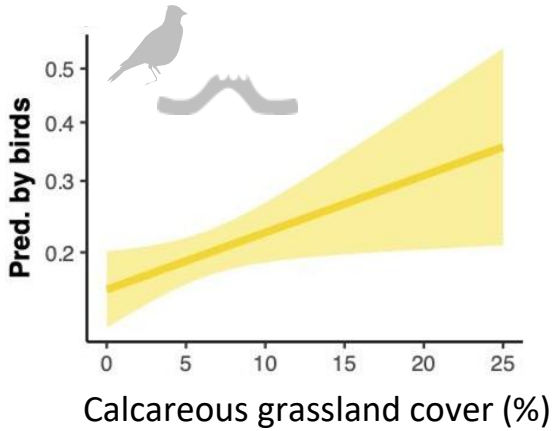
Long-term abandonment and intensive management decrease biodiversity

Hannappel et al. *submitted*, Velado-Alonso et al. *submitted*, Cabodevilla et al. *in revision*, Sloan et al. 2025 Biol. Cons.

Landscape restoration

Calcareous grasslands (%) in the surrounding landscape





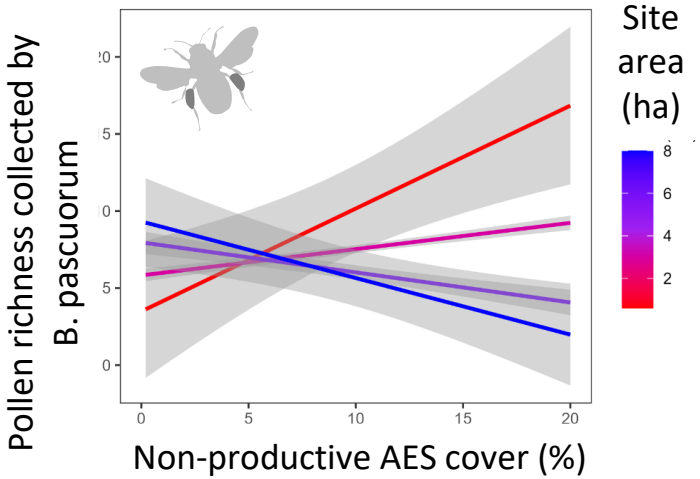
Positive for:

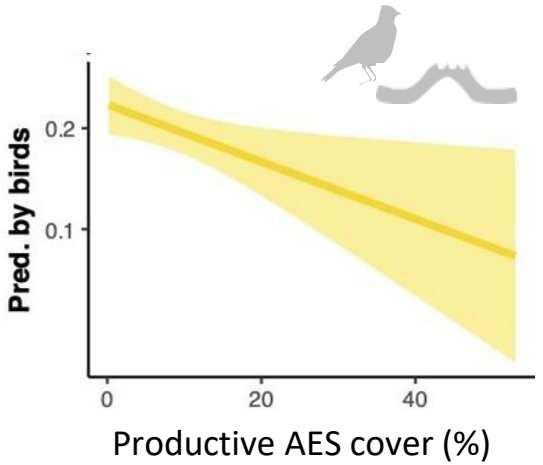
- Bee diversity
- Predation function

No effects on:

- Metacommunities of plant-pollinator interactions
- multifunctionality

Agri-environment schemes AES (%) in the surrounding landscape





Mixed results

- Important food resources for pollinators
- Increase shared plant-pollinator interactions across sites
- Negative for predation functions

Hannappel et al. *submitted*, Velado-Alonso et al. *submitted*, Cabodevilla et al. *in revision*, Sloan et al. 2025 Biol. Cons.

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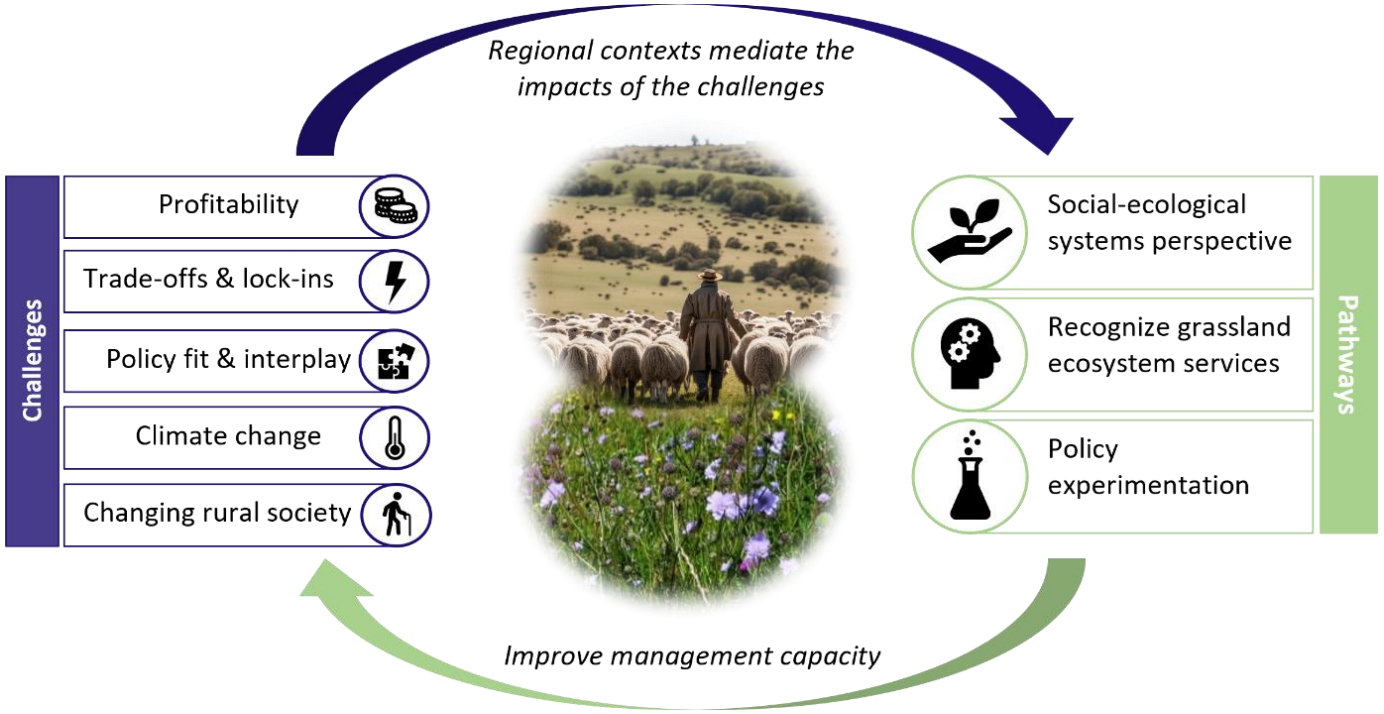
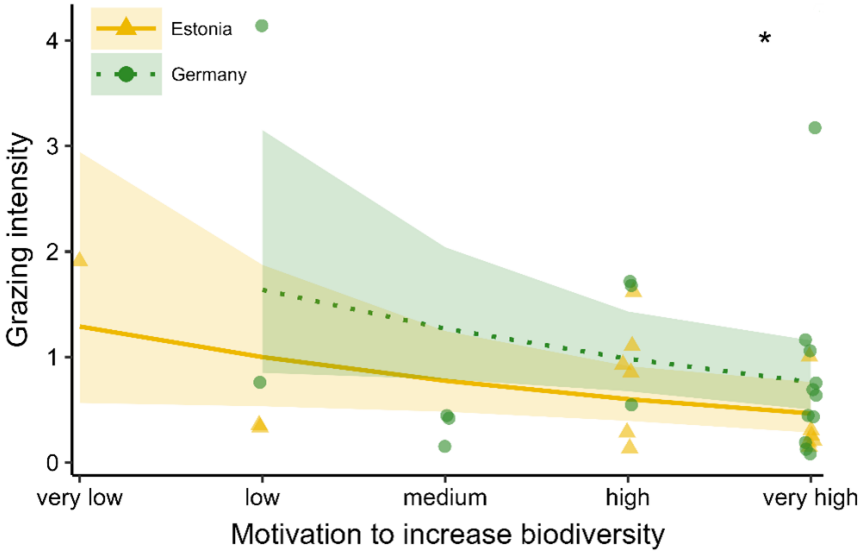
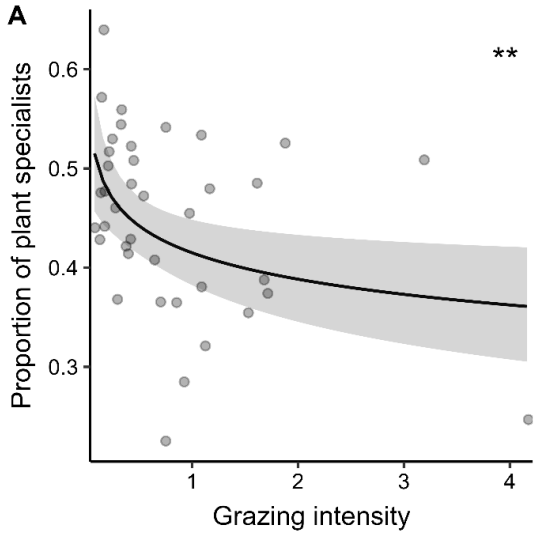
Calcareous grasslands as social-ecological systems







Farmer motivation improves management

Challenge: Identify farmers in Spain

Gorris et al. 2025 Biol. Cons., Hannappel et al. *in prep.*

Conclusions InterRest project

Social ecological system

Local management **Landscape management**

Calcareous grasslands

Agri-environment schemes (AES)

Challenges:

- Understand connectivity effects at landscape/regional scale
- Multifunctionality
- Reach also farmers in regions with herds moving across landscapes

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Quantifying restoration success across biomes by linking biodiversity, multifunctionality and hydromorph-ological heterogeneity (RESTOLINK)

RPTU

UFSJ Universidade Federal de São João del-Rei

UFZ HELMHOLTZ Centre for Environmental Research

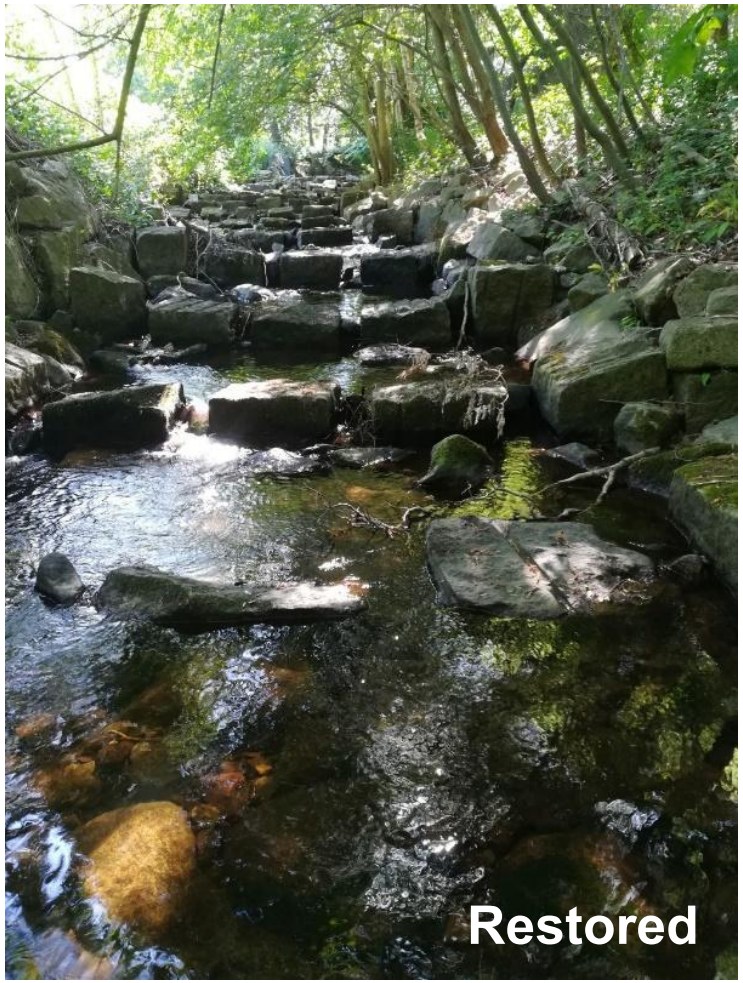
Universidade de São Paulo

Umeå Universitet

Universitat de Barcelona

How would you rate the success of this restoration measure for biodiversity?

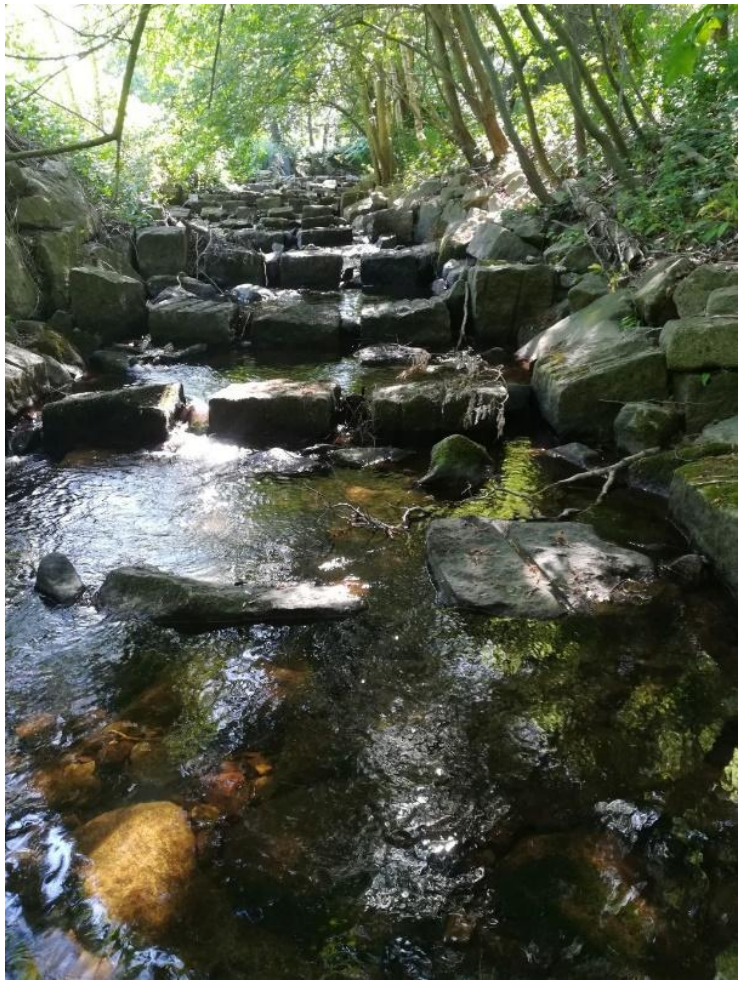
A) Biodiversity is restored B) Biodiversity is not restored



How would you rate restoration success in terms of ecosystem functioning?

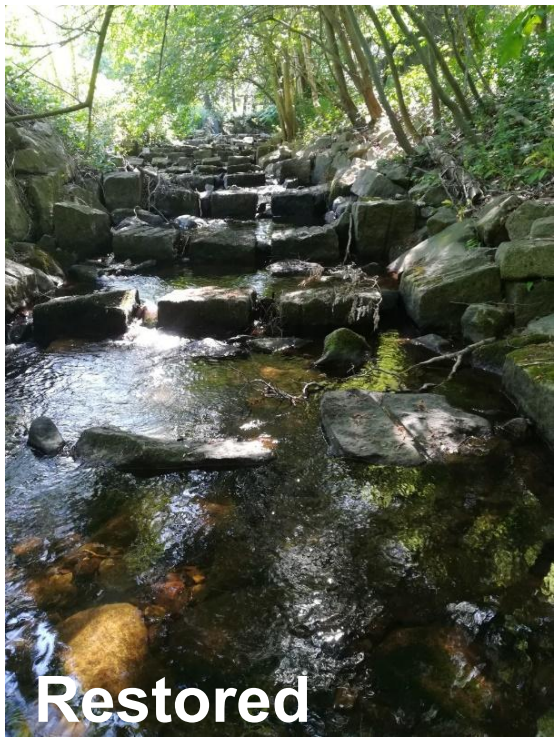
A) Ecosystem functioning is restored

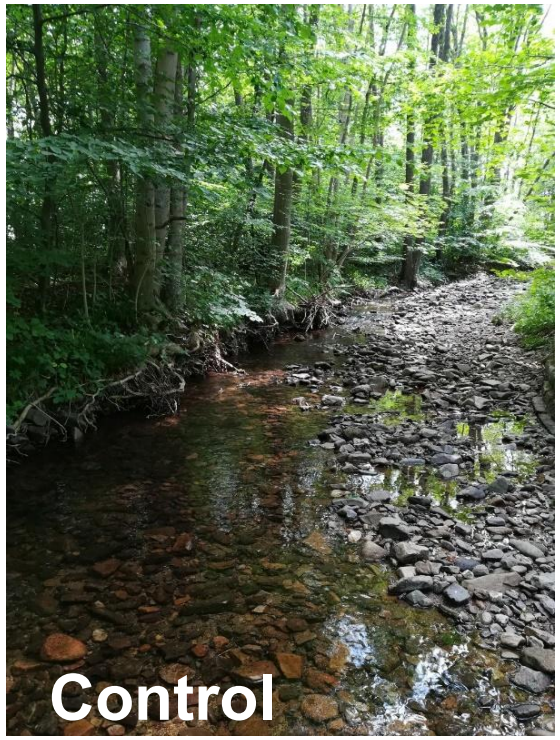
B) Ecosystem functioning is not restored



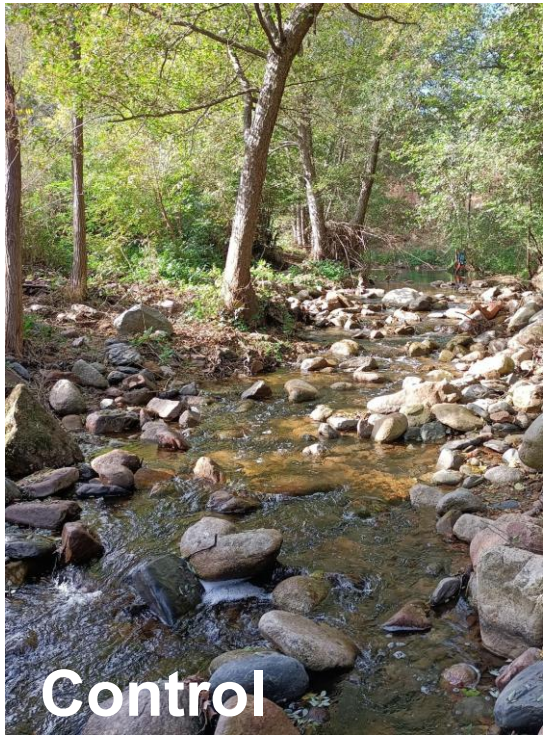
Would you expect country-specific differences in restoration success?

A) Yes, that's quite obvious. B) No.





Germany



Spain

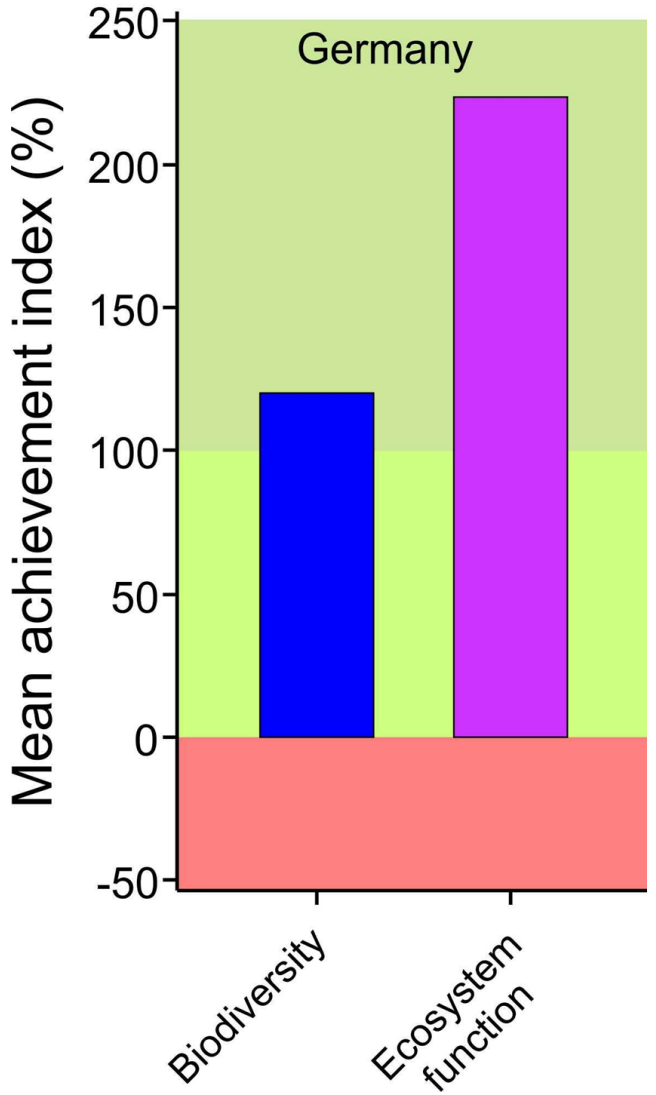
Quantify restoration success of richness and function

- Sampling for macroinvertebrates and their food resources at 3 sites in 3 streams in 2 countries
- Calculate species richness and matter fluxes from terrestrial resources to consumers

[1] Marchand et al. (2021): *Ecol. Ind.*

Preliminary results

- Improving connectivity successfully restored macroinvertebrate biodiversity and function in German streams



[1] Marchand et al. (2021): *Ecol. Ind.*

Conclusions

Outcomes and policy implications

- Restoring connectivity of streams and rivers also improves macroinvertebrate biodiversity Supports NRL target
- Ecosystem functioning can be restored and is a sensitive and complementary indicator Scientific foundation to implement GBF goal B and target 2
- Current European restoration targets (restoring connectivity) do not match the Brazilian requirements (restore drinking water quality)

Challenges

- Restoration affected by climate change (low discharges, drought)
- Different regional funding schemes delayed project start

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Restoring peatlands of the nemoral zone under conditions of varying water supply and quality

REVERSAL

By:

Klaus-Holger Knorr & Stephan Glatzel

Consortium:

Klaus-Holger Knorr, Hanna Meyer, Bjorn Robroek, Christian Fritz, Stephan Glatzel, Mariusz, Lamentowicz, Mariusz Gałka

FWF Der Wissenschaftsfonds.

DFG Deutsche Forschungsgemeinschaft German Research Foundation

National Science Centre Poland

Ministry of Agriculture, Nature and Food Quality of the Netherlands

ReVersal: On peat bog restoration

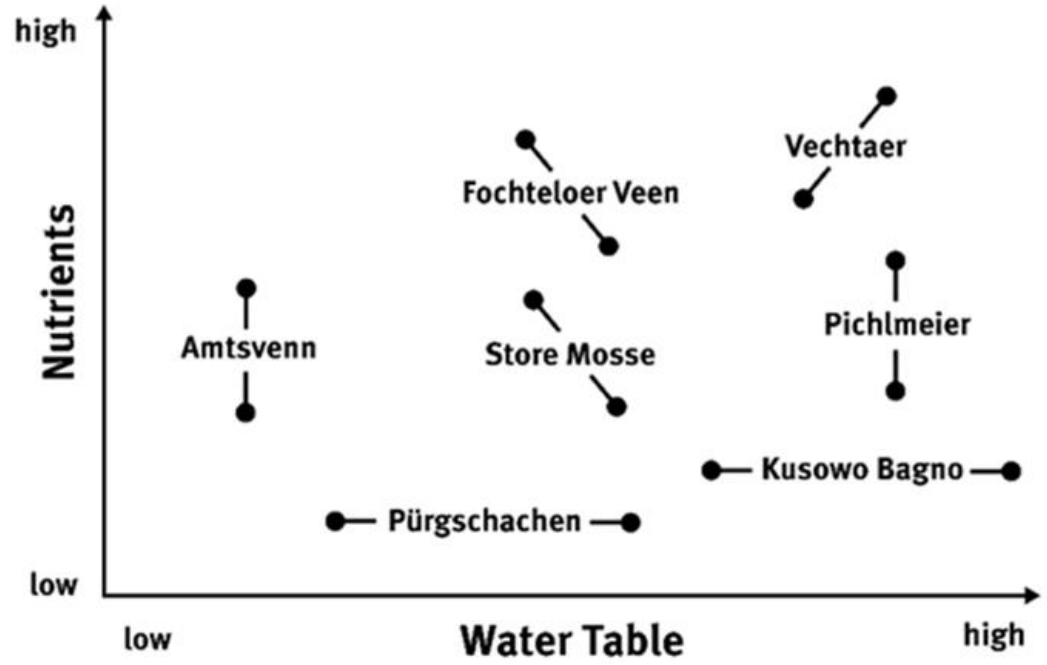
Research Questions

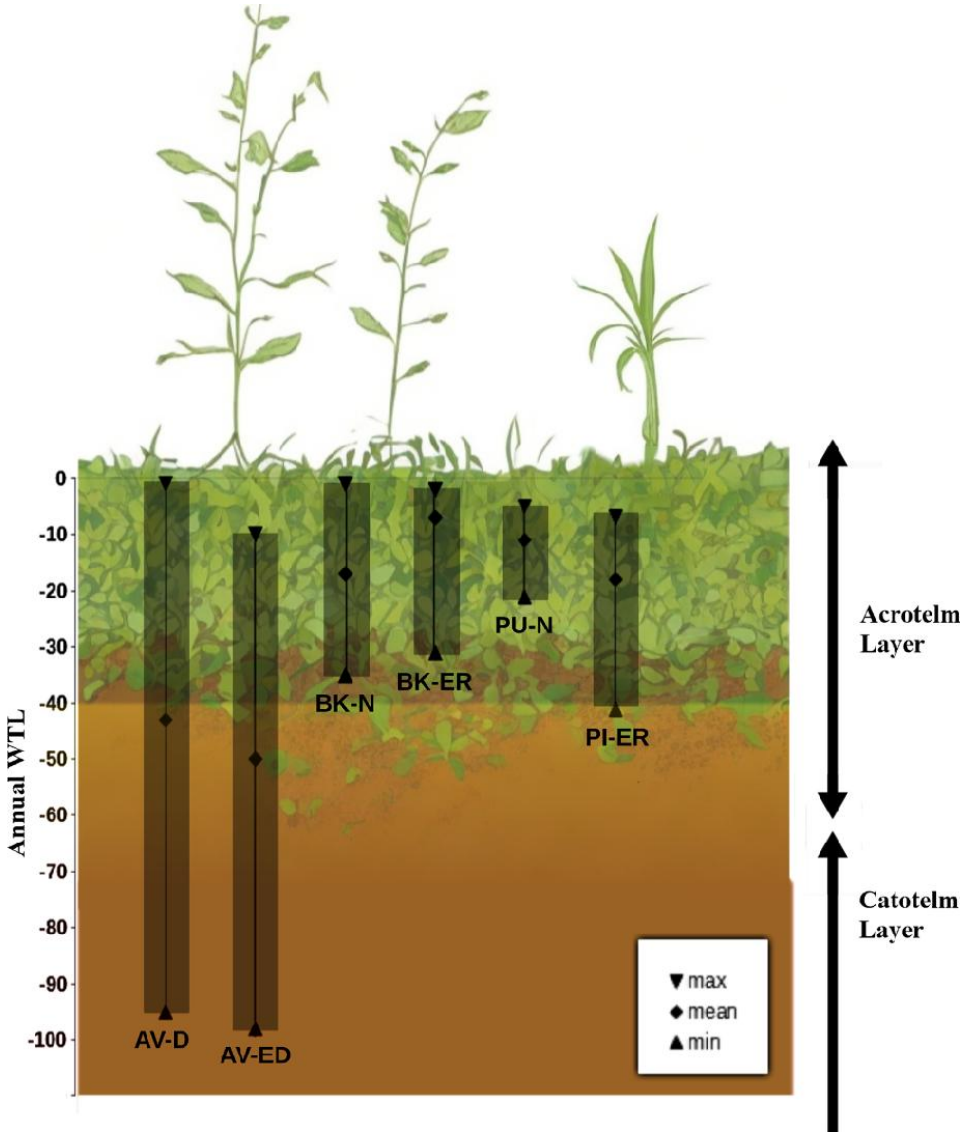
- What pristine communities occurred prior to human influence and what history of the site can be deduced from that (hydrology/drainage, fires, accumulation of pollutants)?
- To which extent has the peat been degraded compared to typical ranges of peat quality in the site history and how does this affect restoration efforts
- Have any of the studied peat bogs retained their original/pristine plant populations (were they resilient?) despite the experienced disturbance and what is the recent effect of restoration?
- What is the hydrological baseline of raised bogs - can it be achieved through restoration?

- How can the different, possibly antagonistic goals of bog restoration be weighed and a “best practice” suited to local conditions and expected future climate be suggested?

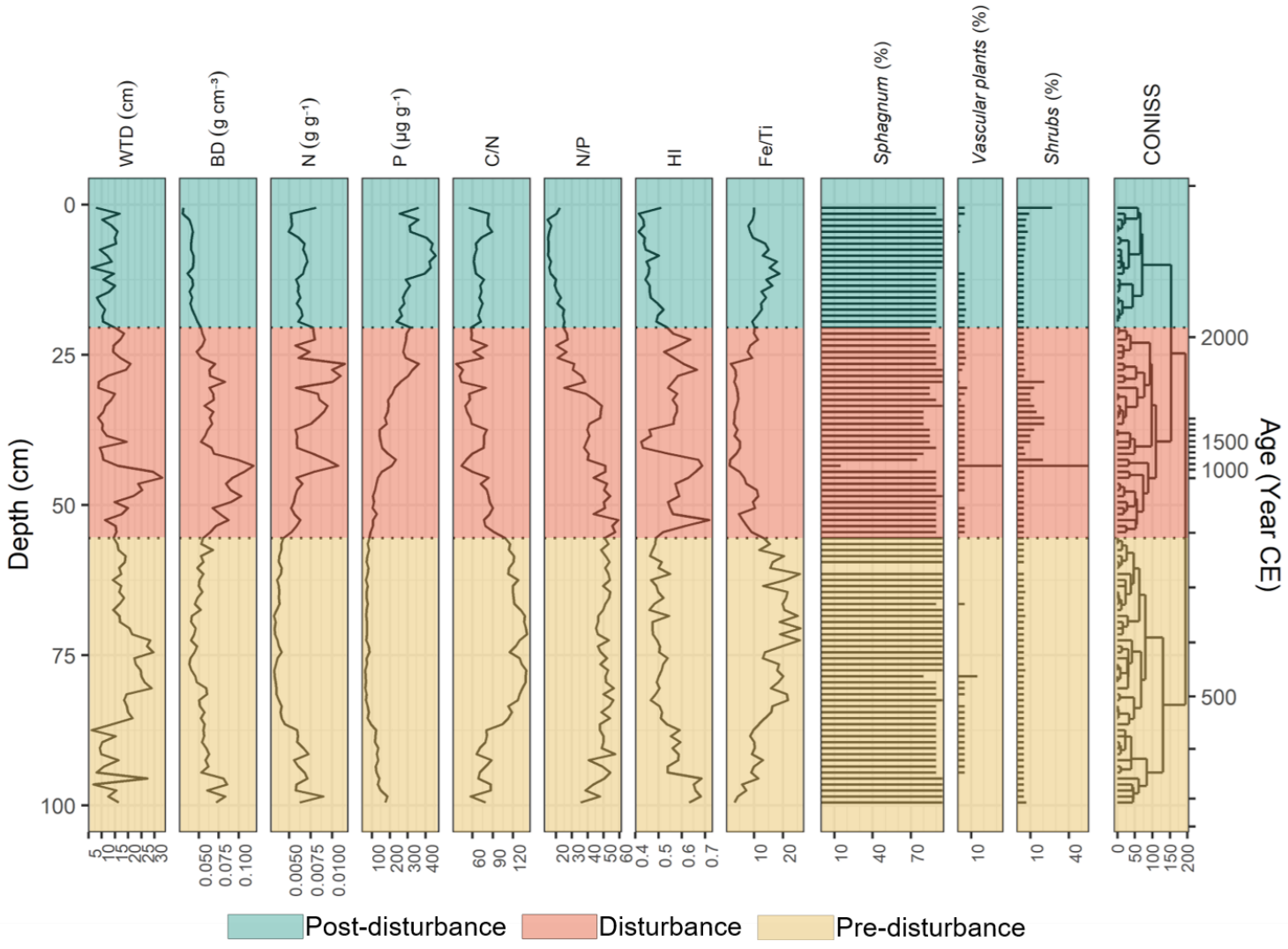
Sites:

Store Mosse (SWE)
Amtsvenn, Vechtaer Moor (DE)
Fochteloer Veen (NL)
Pürgschachen Moor, Pichlmeier Moor (AT)





Role of disturbance on Geochemistry and Vegetation Kusowo Bagno Site, Poland

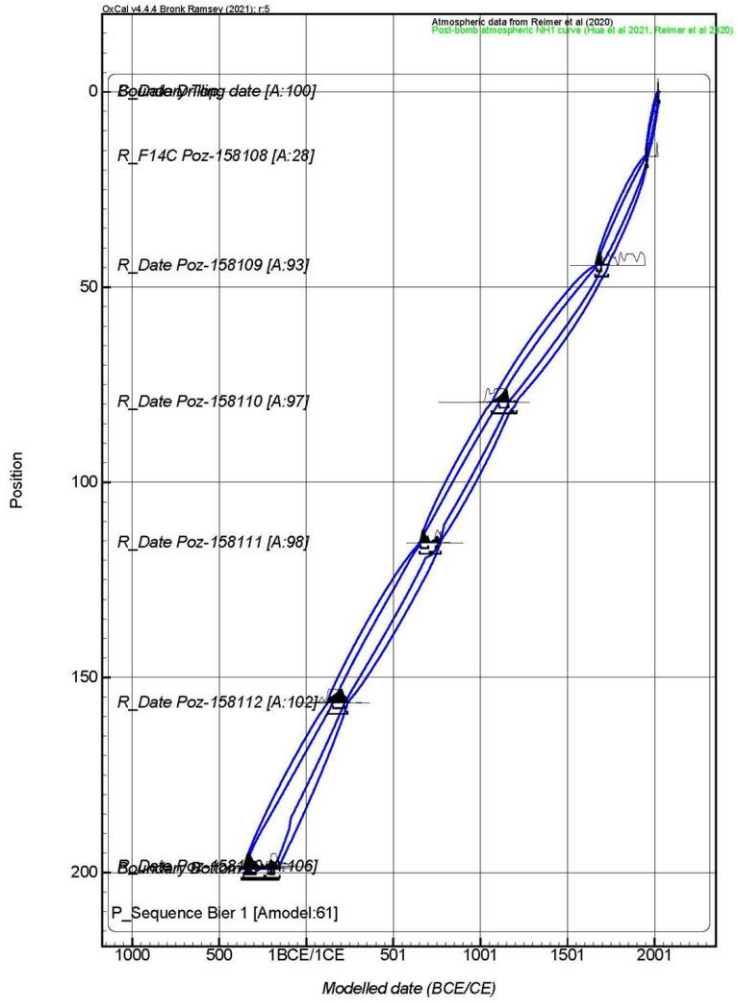


At all sites, phases with characteristic geochemical indicators and plants could be identified

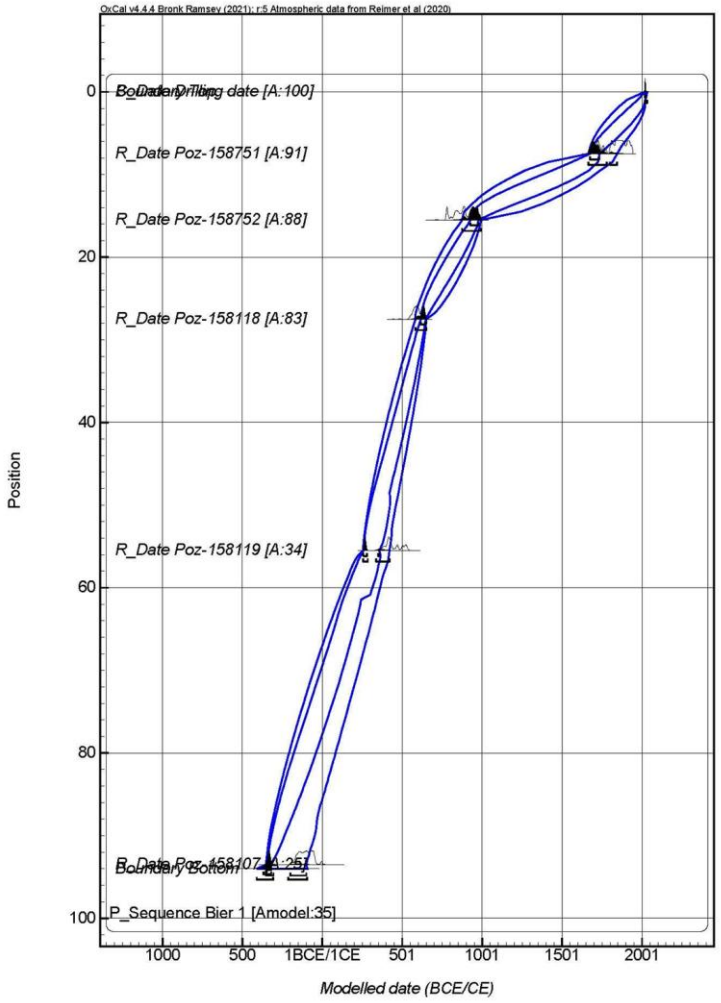
- Peat degradation is expressed in different dimensions
- Degraded vs. (near) natural is rather a continuum than either/or

Long term carbon accumulation rates:

Pürgschachen Moor, Austria



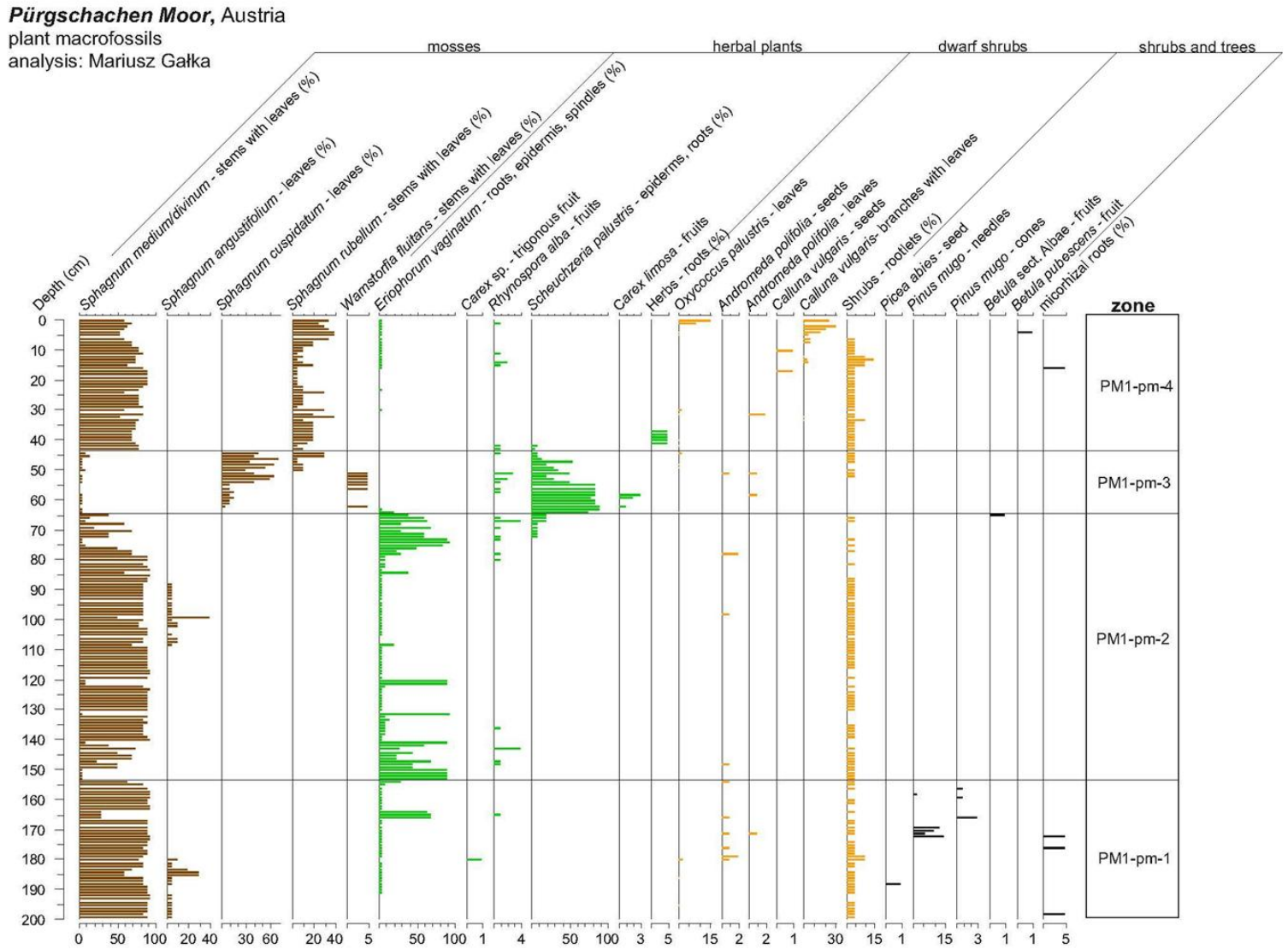
Amtsvenn, Germany



The rate of carbon accumulation was determined

Identification of peat degradation and hiatuses

Identification of peat formation



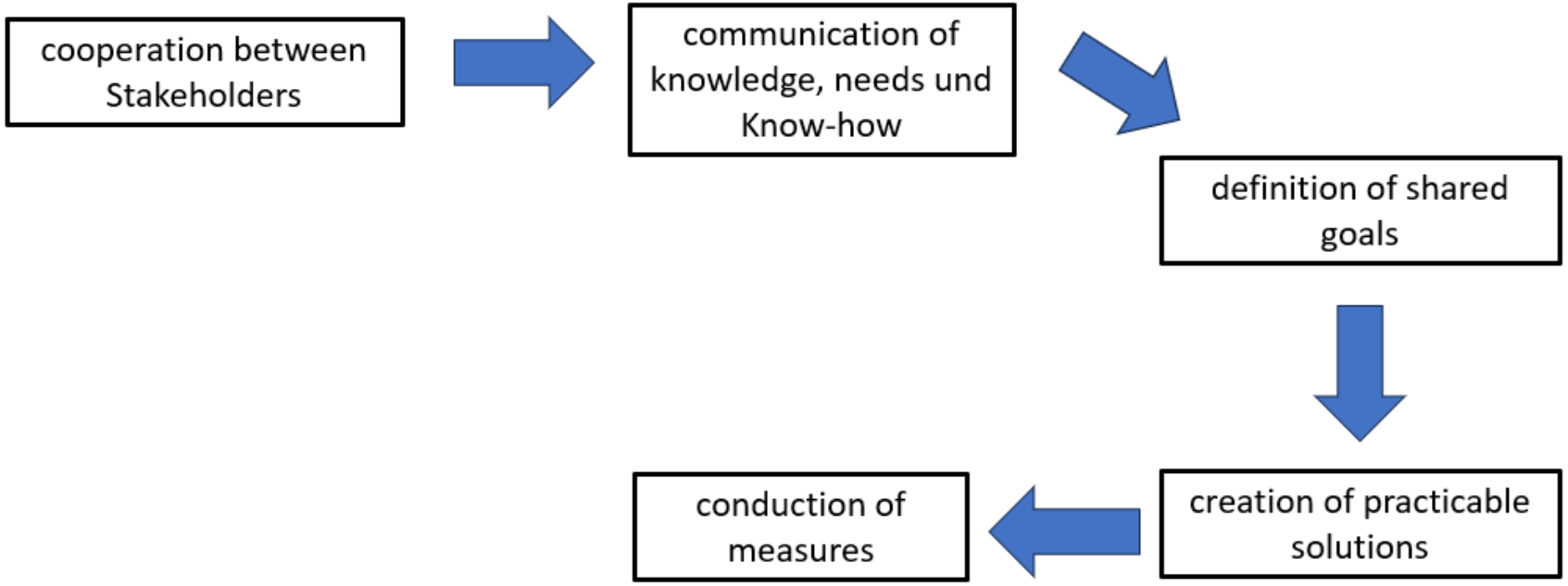
Macrofossils (vegetation history) Pürgschachen Moor, Austria

The detailed plant species which grew over the two past millenia were identified

Stability and resilience of the systems was assessed

Thresholds for vegetation changes were determined

Proper Management



This enabled us to design a scheme for adapted processes to implement informed, targeted restoration procedures

Considering the dimensions of disturbance

Considering the pre-disturbance baseline vs. achievable targets

Conclusion

- Characteristic trajectories of peatland development and restoration were detected
- Contrary to our ideas, nutrient saturation was not the most important control
- …but rather the scale of extraction and the stability of hydological conditions
- Stakeholder dialogue was more difficult and time consuming than expected
- Our research co-triggered very large LIFE projects in DE, AT

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COAST

COAST Project

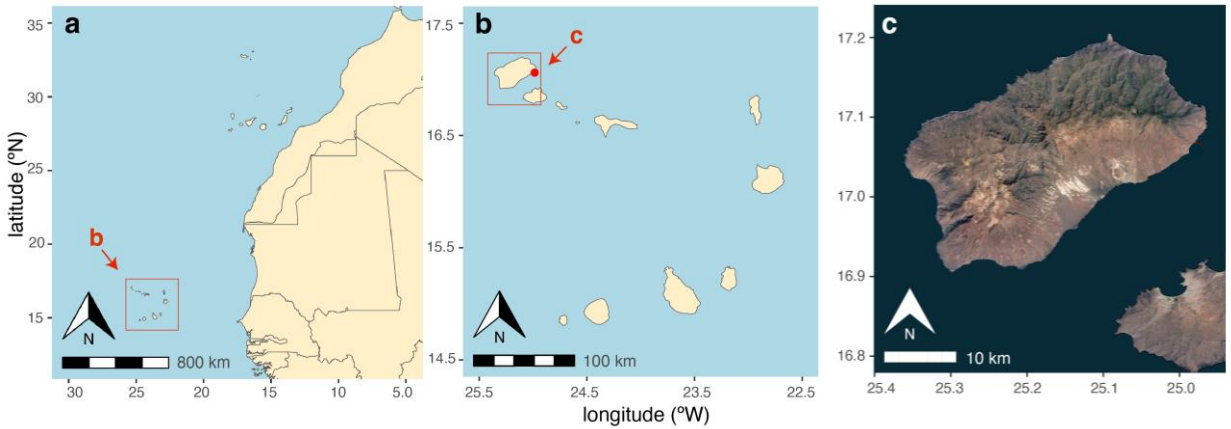
COnservation of mArine ecosystems around Santo AnTão, Cabo Verde: implications for policy and society

10 partners, 4 countries,
Teresa Amaro (coordinator, CESAM & University of Aveiro, Portugal)
2022-2025

BiodivRestore ERA-NET COFUND
Conservation and restoration of degraded
their biodiversity, including a focus on aquatic

Cabo Verde is a country where **Blue Growth** can help to contribute with solutions for high poverty rates, while building on the long tradition of local economical use of the marine environment. However, no valuable baseline knowledge on the environmental status of their marine ecosystems is available, hampering the development of measures, ensuring their sustainable use, management, conservation and restoration.

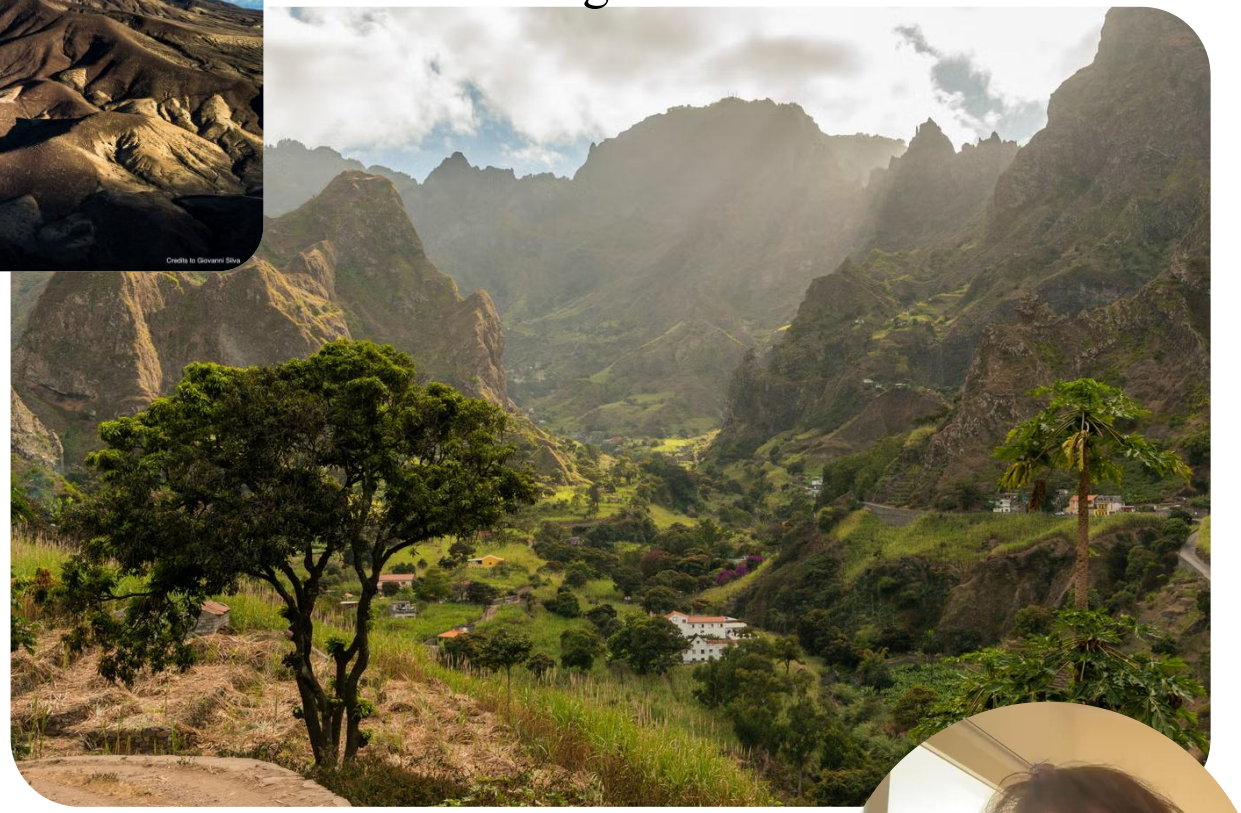
COAST will provide multidisciplinary understanding about the **biodiversity** and **ecosystem functioning**, as well as **suitable indicators of recovery**, which is the crucial basis to establish sound conservation or restoration measures. This will allow the implementation of **integrated environmental management** actions based on the best scientific knowledge.



Santo Antão

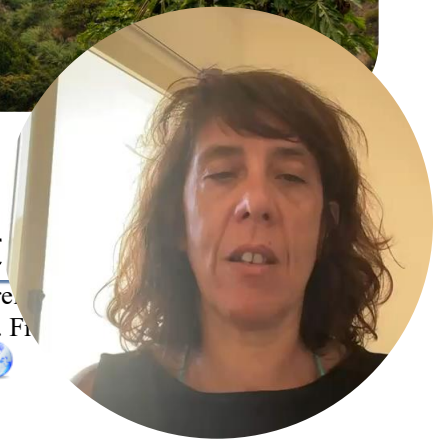
Local communities highly dependent on marine resources and agriculture

COAST



As outlined in the **Blue Growth Chart** (Cape Verdean Govermental Resolution there is an urgent need to **collect baseline data on its marine ecosyst**

Figure 1 -courtesy of R. Fre
Figure 1 -courtesy of R. Fr



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Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

Water JPI

Main objectives

1. To characterise and map pelagic and benthic habitats, as well as anthropogenic pressures of Santo Antão,

2. To estimate patterns of diversity in marine communities in relation to habitat features,

3. To assess the vulnerability of the studied communities to both environmental and anthropogenic pressures, through the application of risk assessment models,

4. To implement conservation and restoration actions for selected habitats/ecosystems based on the results of the first three objectives,

5. To provide baseline data to inform policymakers, authorities, institutions and practiti ds effective marine conservation and restoration in these habitats and demonstrate the the approach in other regions.

Project structure

WP6. Coordination & data management (UA/GEOMAR)

WP1. Baseline data collection (GEOMAR/CSIC)

WP2 (UA, UB)
Ecosystem functioning of SA habitats

WP3 (UBO,CIIMAR)
Environmental assessment of SA ecosystems and potential restoration actions

WP 4 (ADPM/AIRCENTRE)
Socio- economics and policy for conservation and restoration

WP 5 (CIIMAR/UE)
Communication, training and outreach

Key stakeholders involved:

Local community members (*fishermen*), NGOs (*Biosfera, Project biodiversity*)
Local environmental authorities (*Port Maritime Agency, Porto Novo City hall)*
Public agencies (*ADPM, Biosfera, Project biodiversity, New Blue, Green Turlte Divinf centre*),
Universities and research institutions (*UTA, IMAR).*

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Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems

Water JPI

Fishers

Ary da Cruz
Tarrafal e Monte Trigo

Sergio Medina
Tarrafal e Monte Trigo

Nuno Baptista
Cruzinha

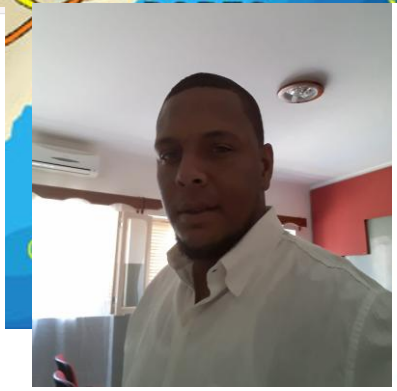
Gabi fernandes
Cruzinha

Djassa Fernandes
Janela

Didi
Tarrafal

Rafael dos Santos Alves
Porto Novo

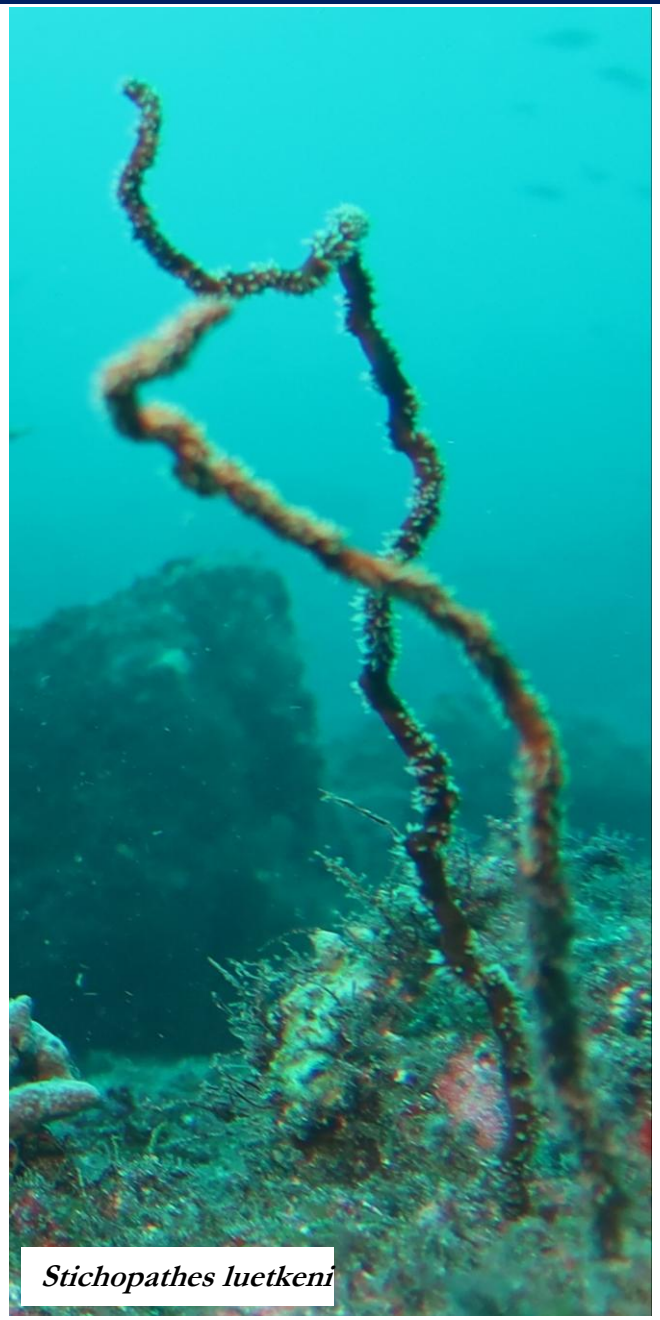
Fretson dos Santos Alves
Porto Novo

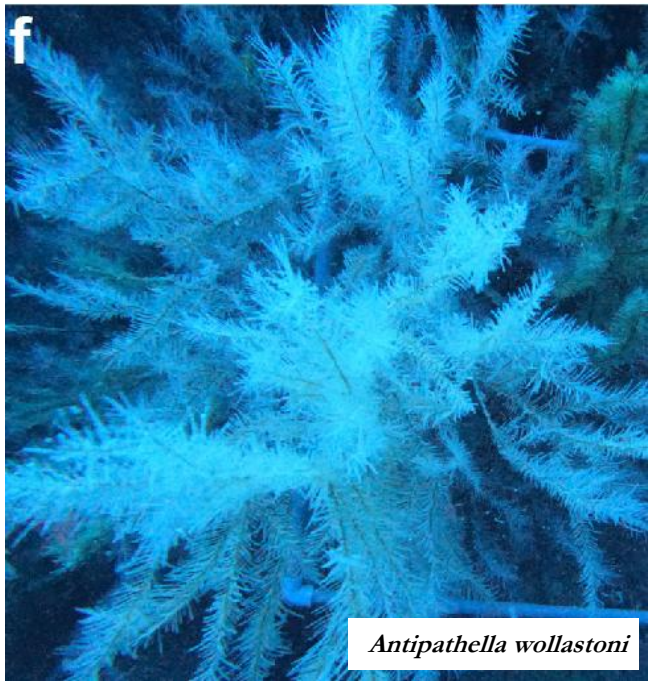


Djesone Lopes
Porto Novo

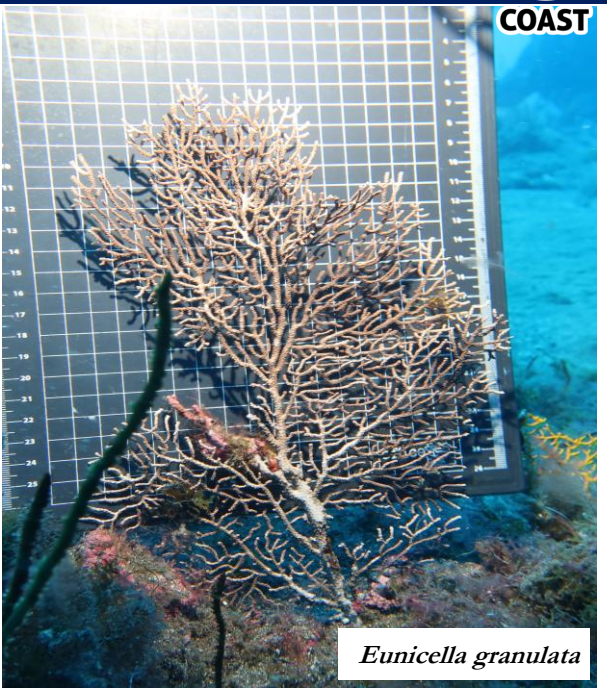
Jair Andrade
Porto Novo

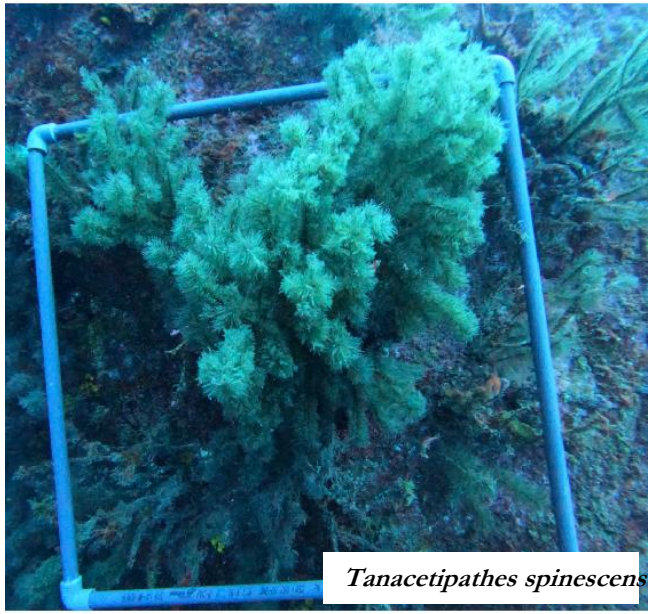
Results: 11 species of black corals and/or gorgonians found

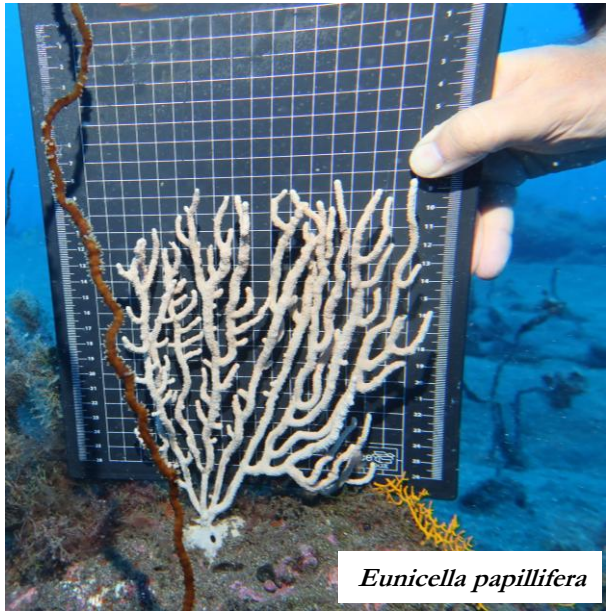

Stichopathes luetkeni

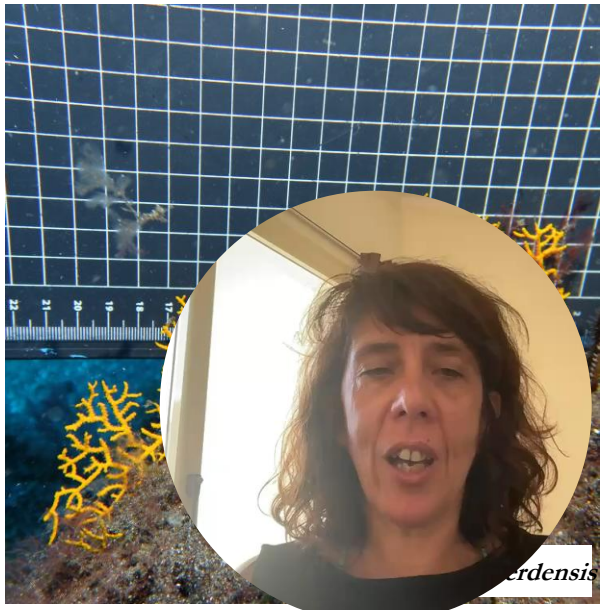

Antipathella wollastoni


Leptogorgia gaini


Eunicella granulata


Tanacetipathes spinescens

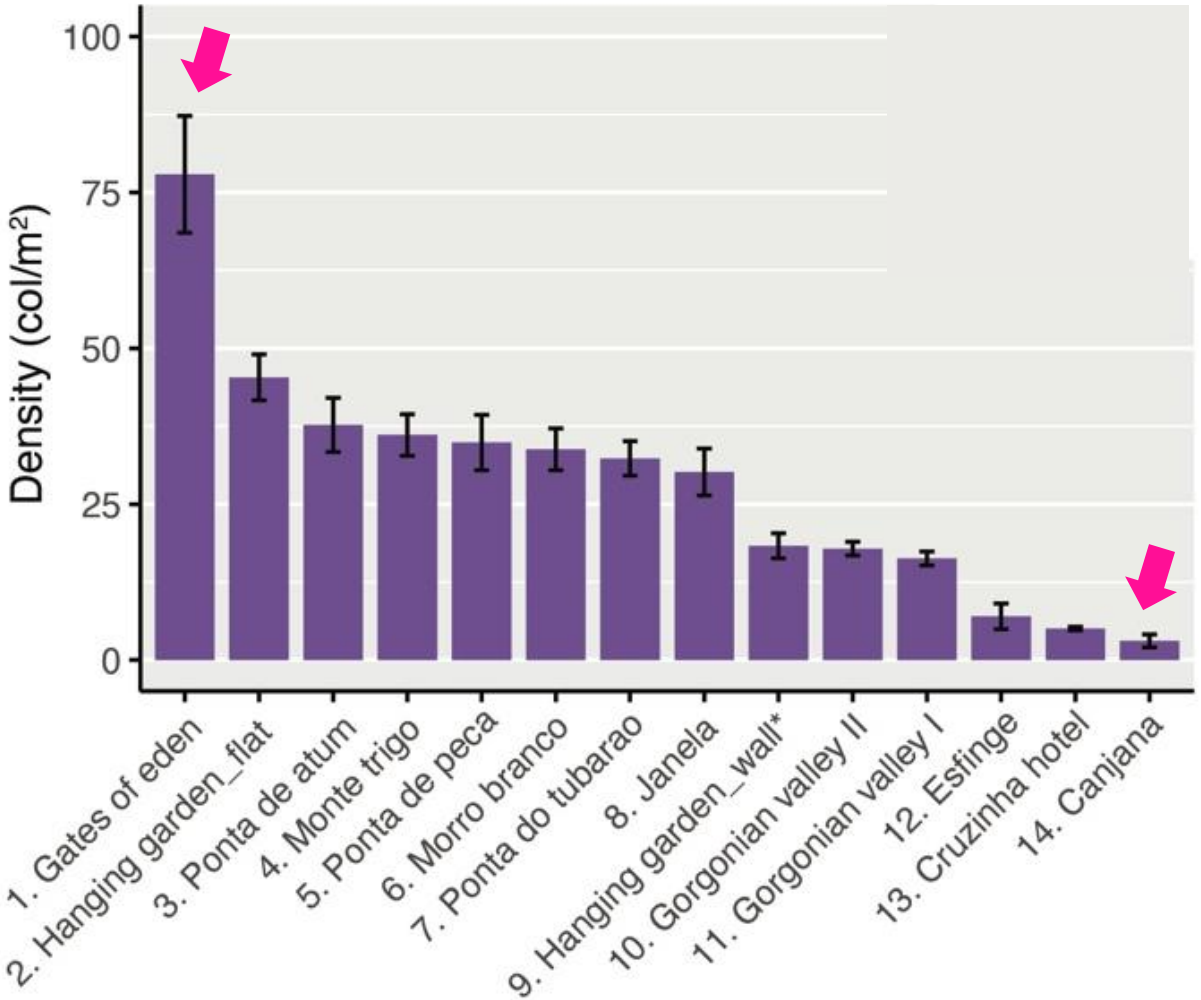

Eunicella papillifera

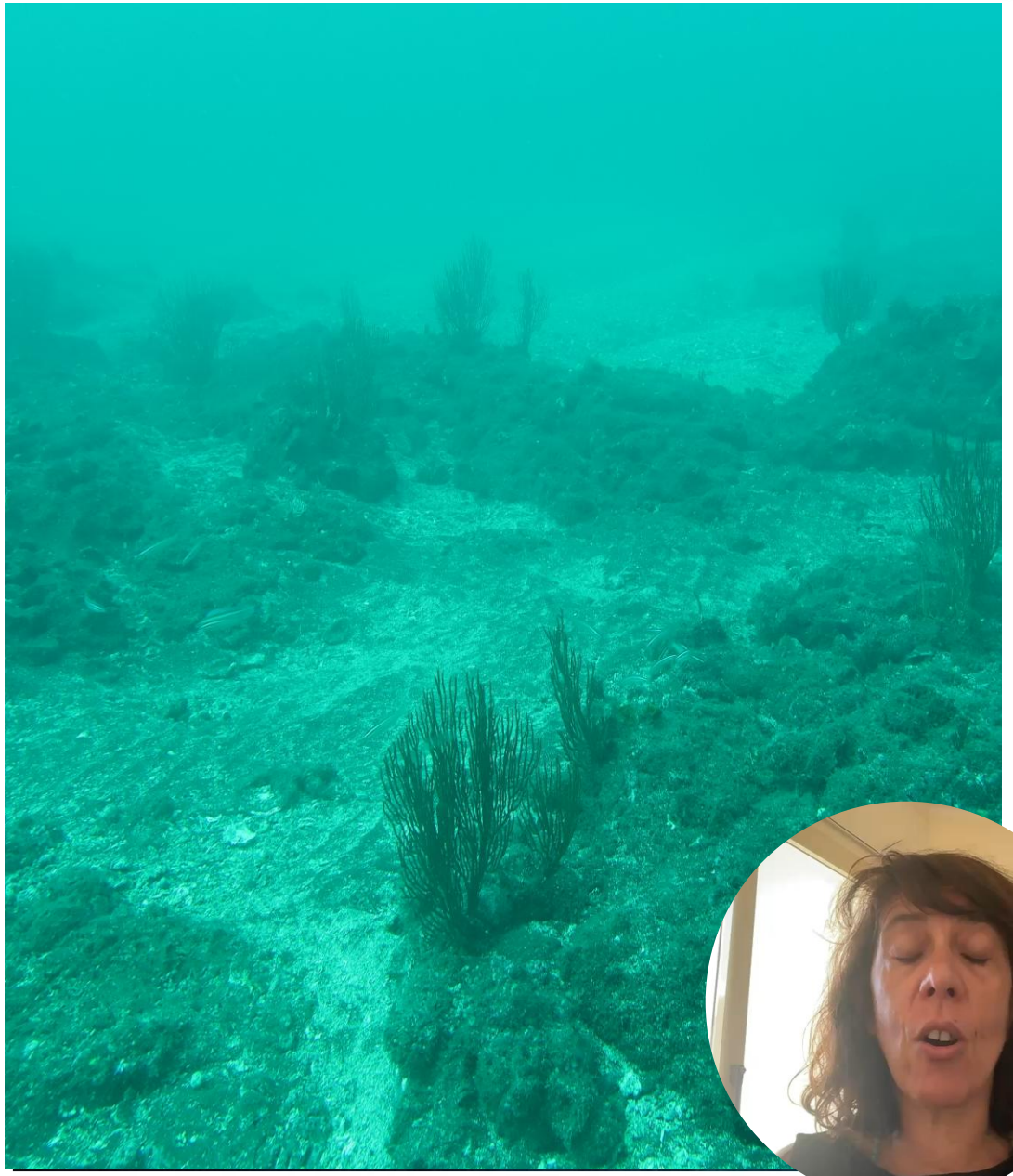

rdensis

Results

COAST

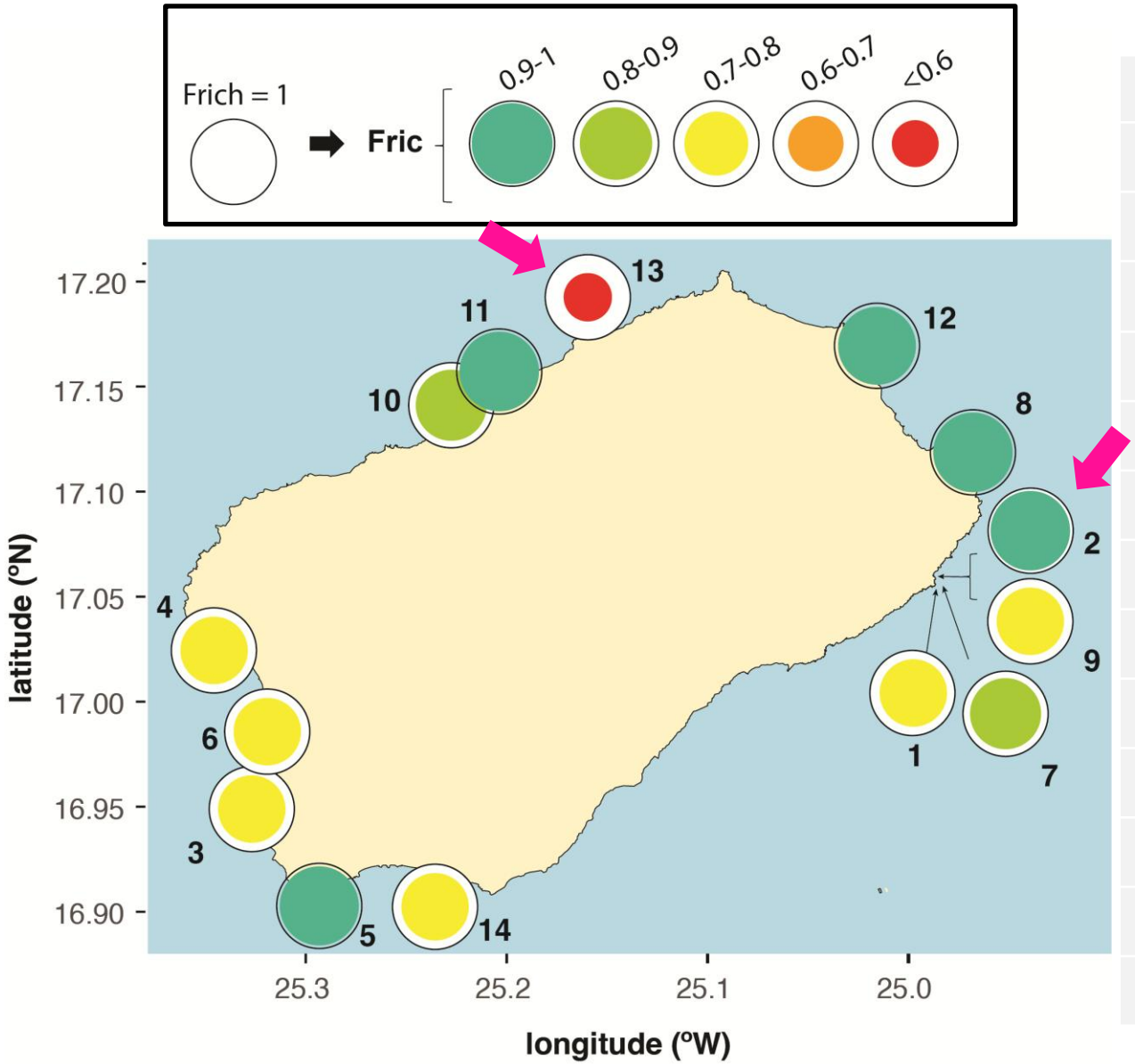
Density





Results

Functional Richness (Fric)



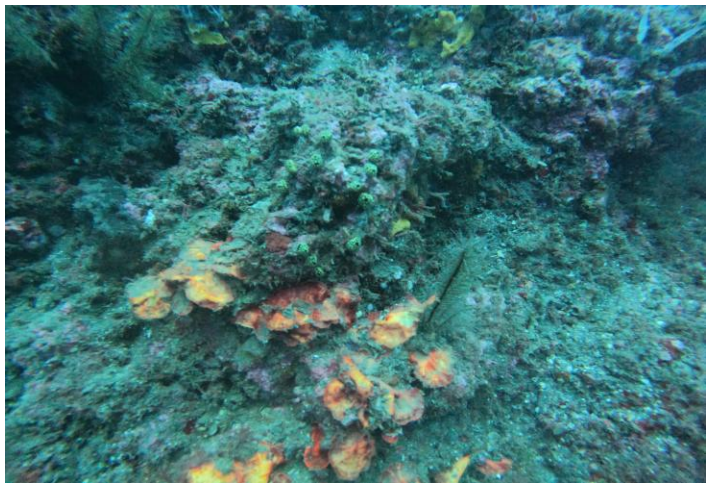
1. Gates of Eden
2. Hanging Garden (flat)
3. Ponta de Atum
4. Monte Trigo
5. Ponta de Peca
6. Morro Branco
7. Ponta do Tubarao
8. Janela
9. Hanging Garden (wall)
10. Gorgonian valley II
11. Gorgonian valley I
12. Esfinge
13. Cruzinha
14. Canjana

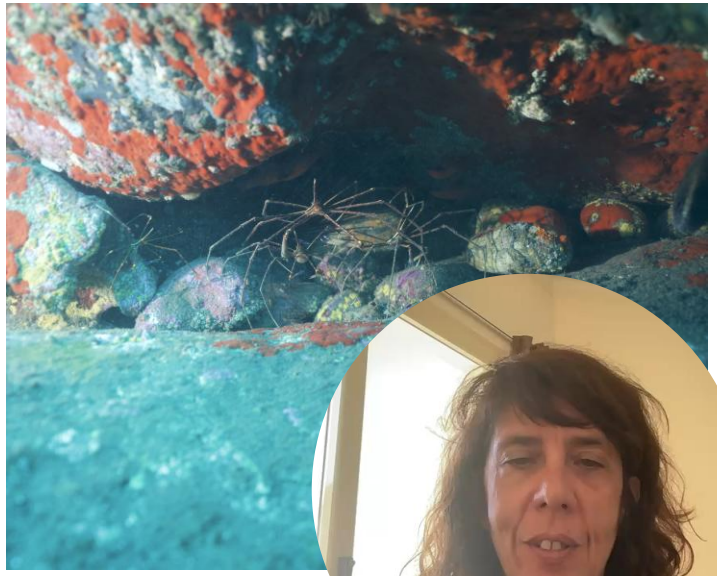
Hanging Garden (flat)

Cruzinha

Benthic community (30-70 m) : 6791 organisms, 42 taxa

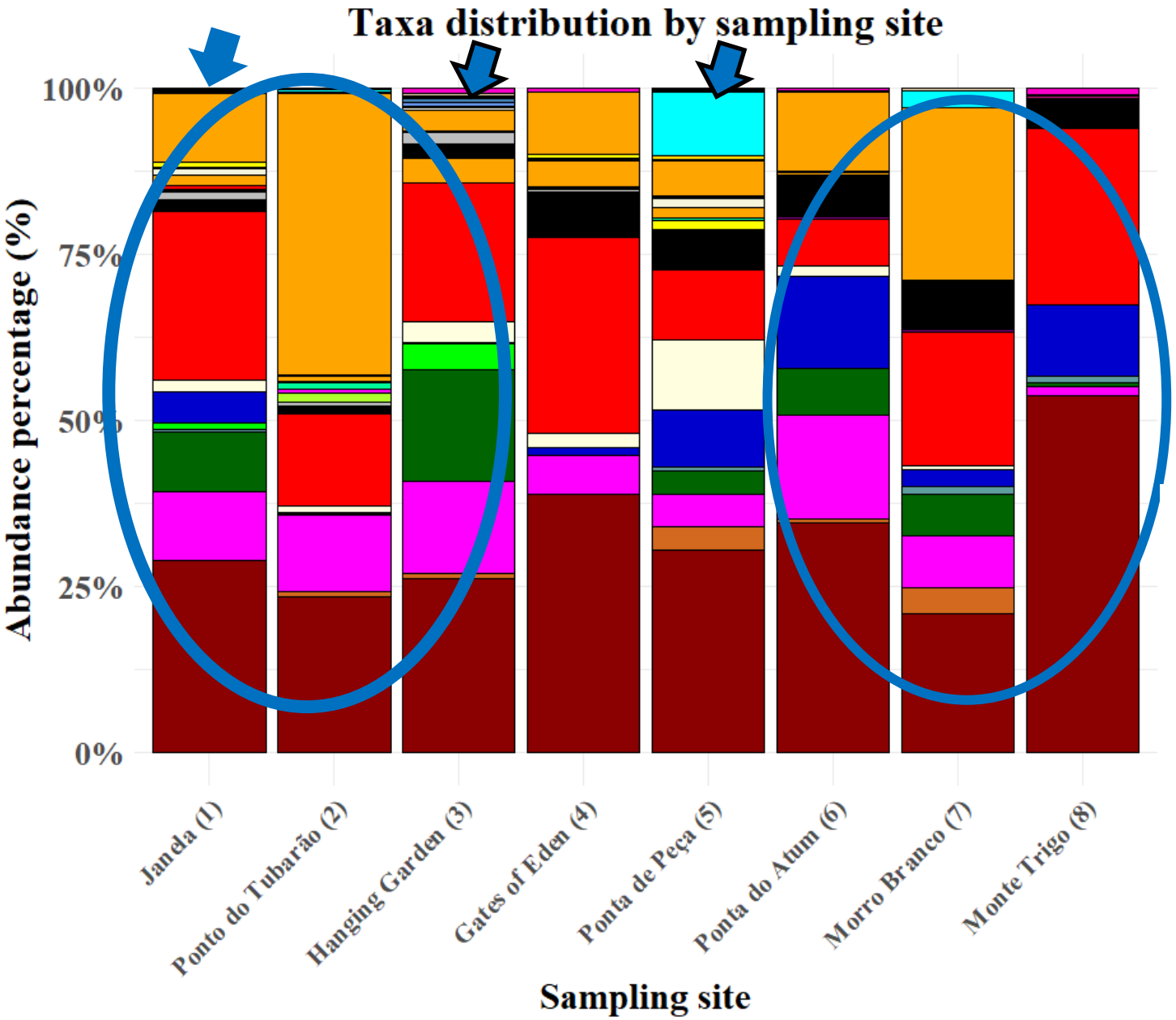


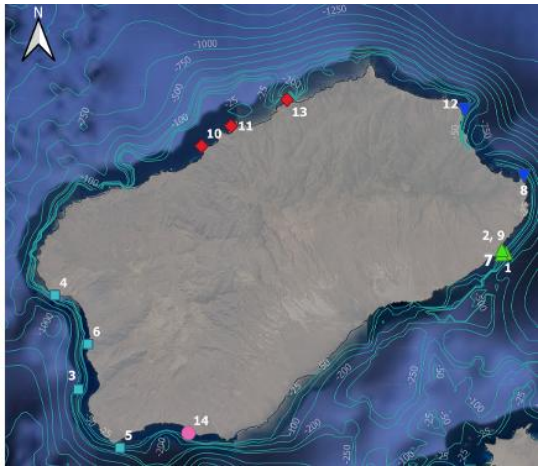


Endemic species: *Leptogorgia capverdensis* & *Atlantia caboverdiana*

Benthic community (30-70 m) : 6791 organisms, 42 taxa





Taxon

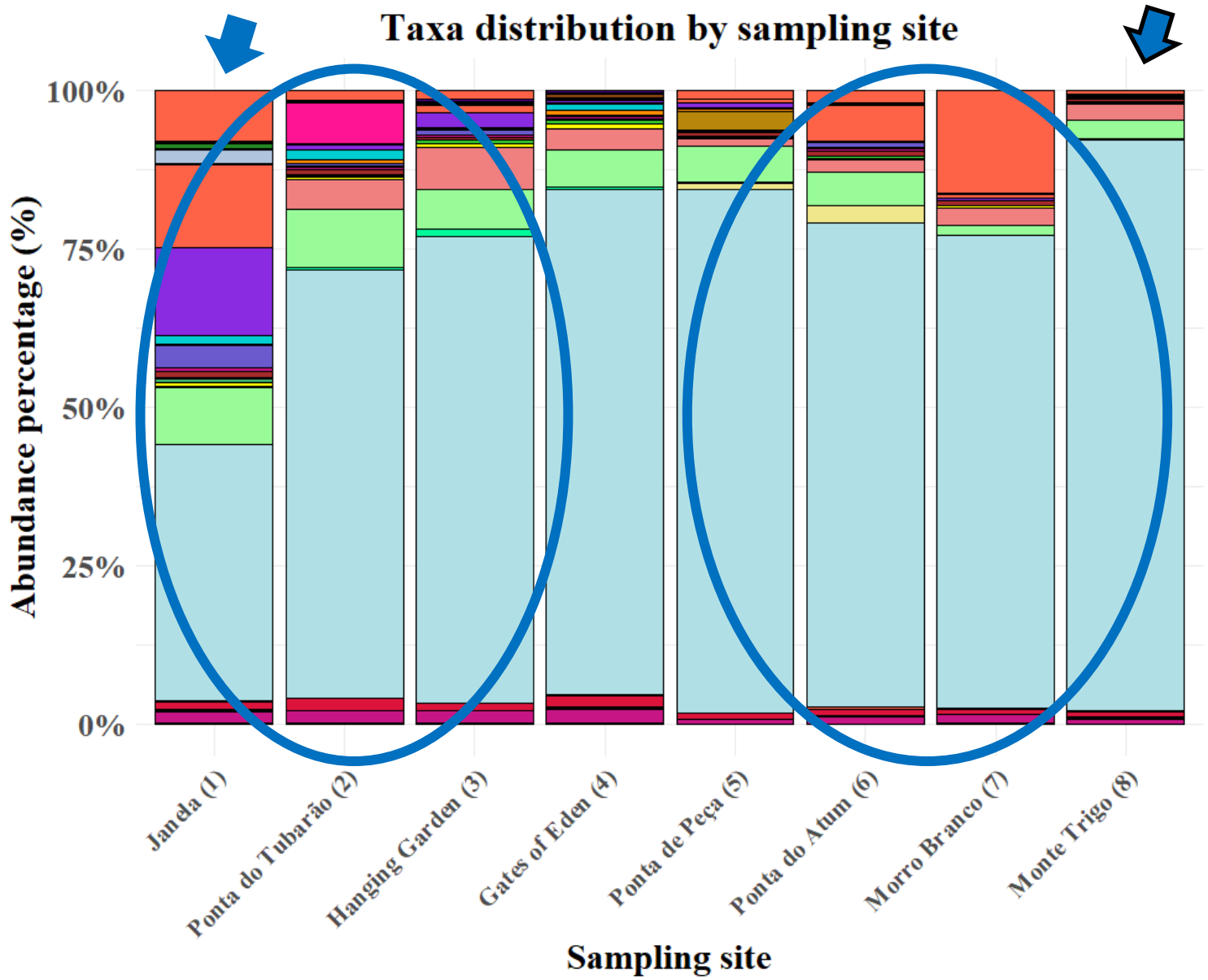
- Hermodice caranculata
- Polychaeta sp.
- Bryozoa sp.
- Centrostephanus longispinus
- Diadema africanum
- Eucidaris tribuloides
- Asteroidea sp.
- Coscinasterias tenuispina
- Linckia guildingi
- Tunicata sp.
- Mollusca spp.
- Stenorhynchus lanceolatus
- Favia fragum
- Palythoa canariensis
- Porites astreoides
- Siderastrea radians
- Tubastraea aurea
- Zoanthus aff. pulchellus
- Hydrozoa sp.
- Millepora alcicornis
- Eunicella granulata
- Eunicella papillifera
- Leptogorgia capverdensis
- Leptogorgia gaini
- Porifera spp.
- Crustlike Porifera spp.
- Chondrosia reniformis
- Ircinia sp.
- Ciocalypta penicillus
- Black encrusting sponge
- Orange encrusting sponge
- Purple encrusting sponge
- Red encrusti
- Yellow
- Al
- Pe
- Rhodo

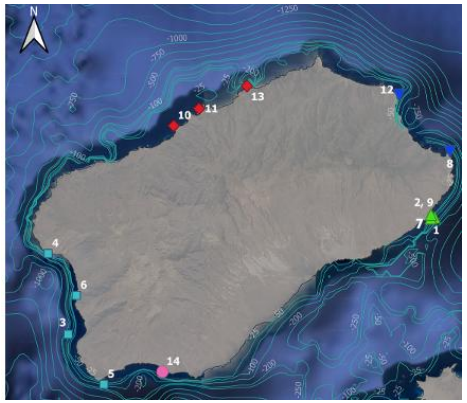
Fish community: 26763 fish, 58 taxa

Endemic species: *Chromis lubbocki*, *Myripristis jacobus*, *Acanthurus monroviae*, *Chromis lubbocki* e *Mulloidichthys martinicus*

Few *Seriola rivoliana* sharks

Fish community: 26763 fish, 58 taxa

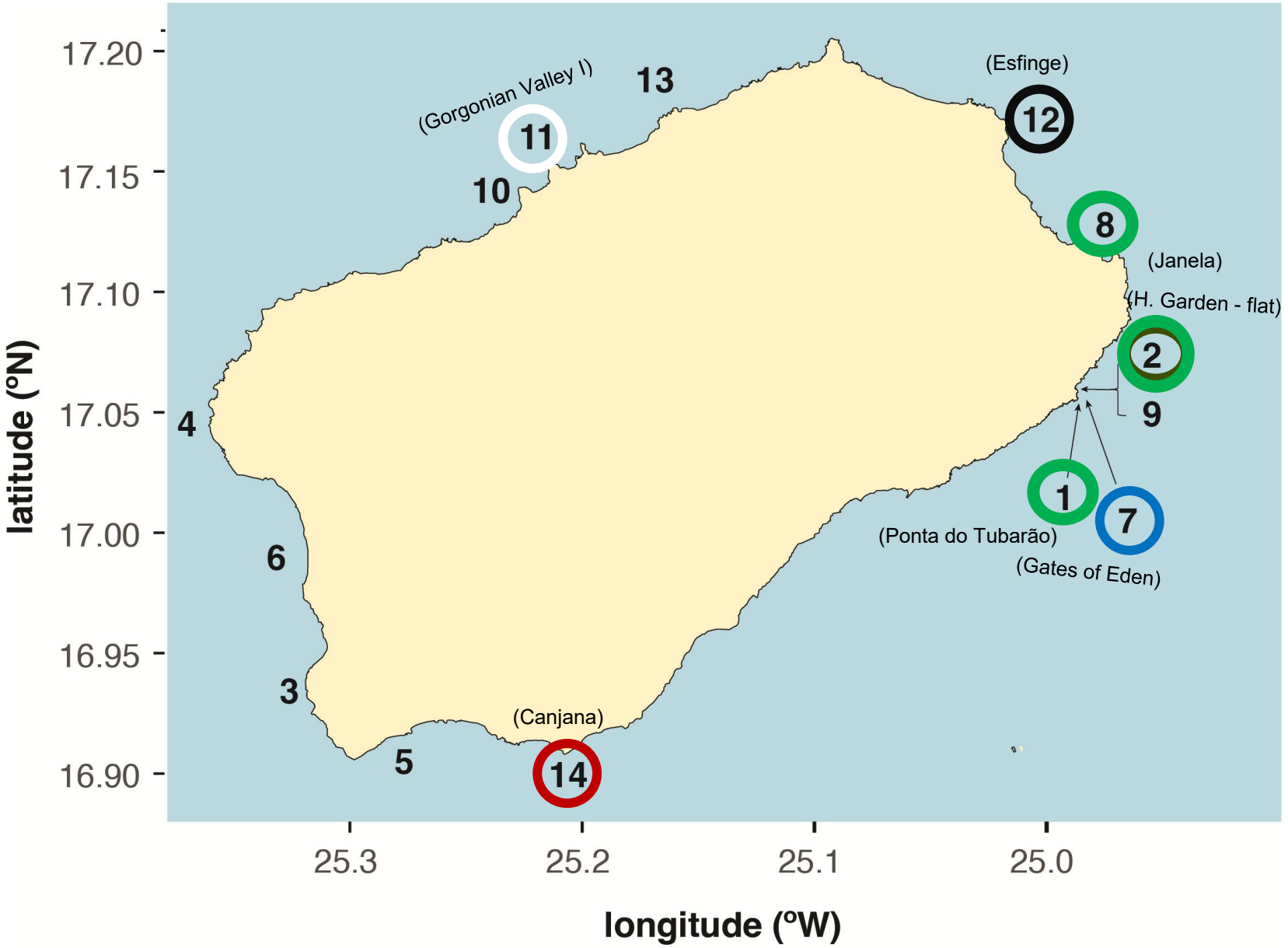




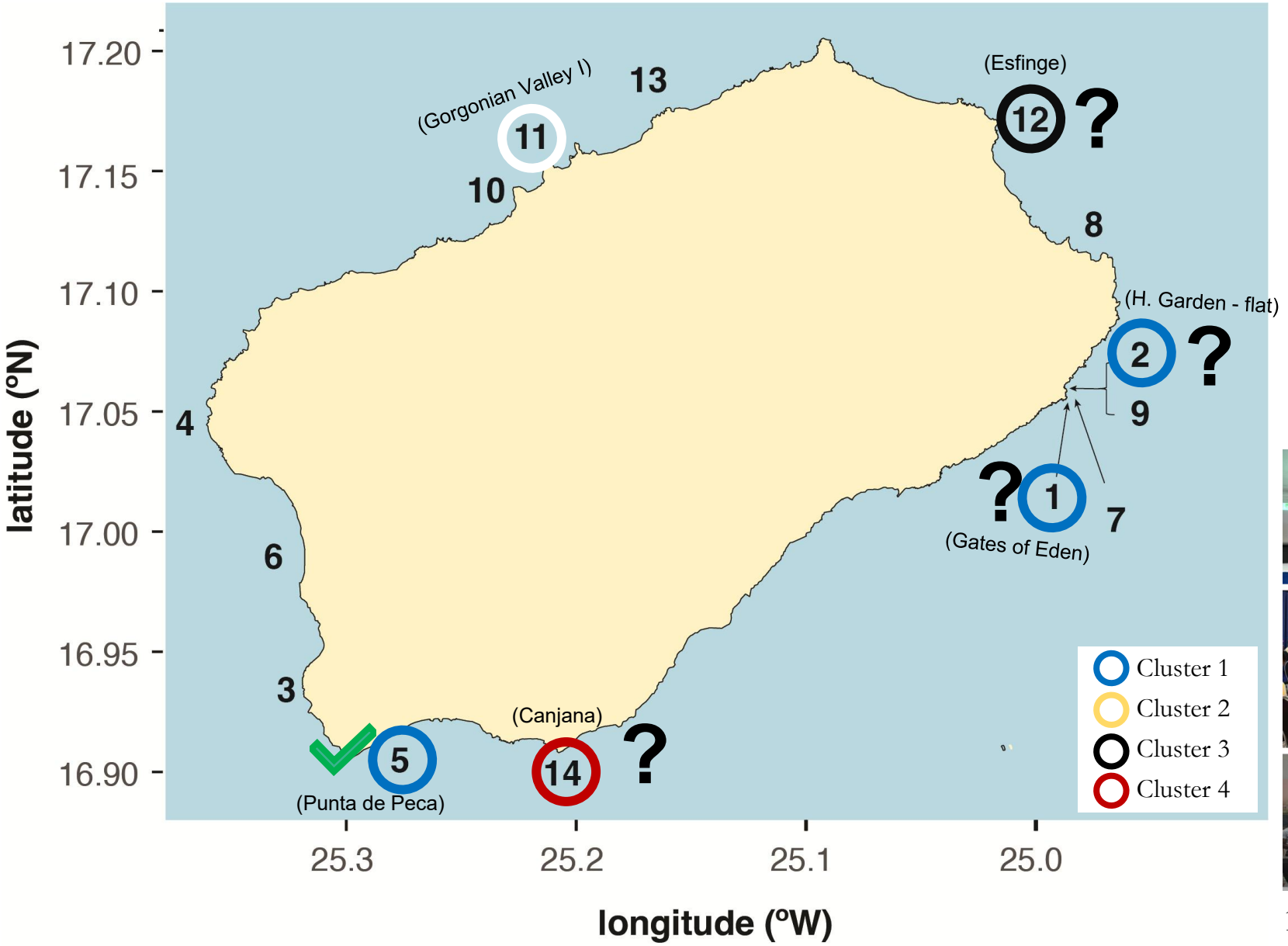
Taxa

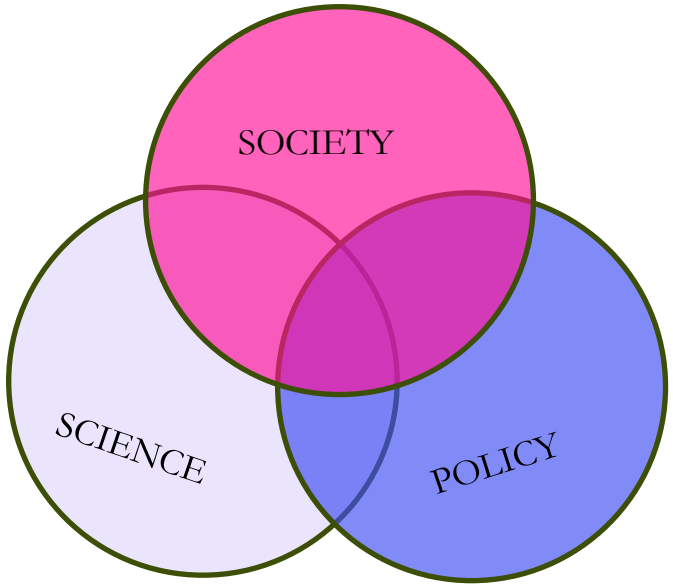
A. fuscus	*E. bipinnulata*	*P. octolineatum*
A. monroviae	*F. tabacaria*	*P. pravensis*
A. multilineata	*G. cirratum*	*R. saponaceus*
A. strigosus	*G. stuebeli*	*S. choati*
Aluterus spp.	*G. tetrophthalmus*	*S. cretense*
B. barbata	*G. vicinus*	*S. frondosum*
B. capriscus	*H. africanus*	*S. hastatum*
B. podas	*H. fulgens*	*S. hermani*
B. speciosus	*Kyphosus sp.*	*S. heterurus*
C. atlantica	*L. atlanticus*	*S. hoefleri*
C. capistrata	*Lutjanus spp.*	*S. marmoratus*
C. hippos	*M. fusca*	*S. rivoliana*
C. lubbocki	*M. jacobus*	*S. viridensis*
C. lugubris	*M. martinicus*	*Scaridae spp.*
C. robustus	*M. melanotis*	*Syngnathiform*
C. sufflamen	*M. tarapacana*	*T. grabatus*
C. taeniops	*P. arenatus*	*T. pavo*
Canthigaster spp.	*P. dentex*	*V. acromegalus*
D. fasciatus	*P. humile*	
D. pravensis	*P. marcellae*	

Conservation: Benthos and fish



Conservation in Santo Antão: implications for society and policy

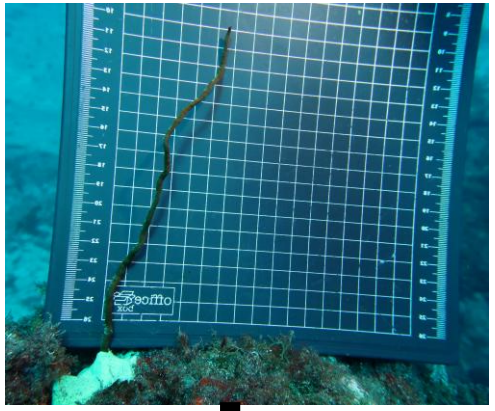




1st workshop with Santo Antão s

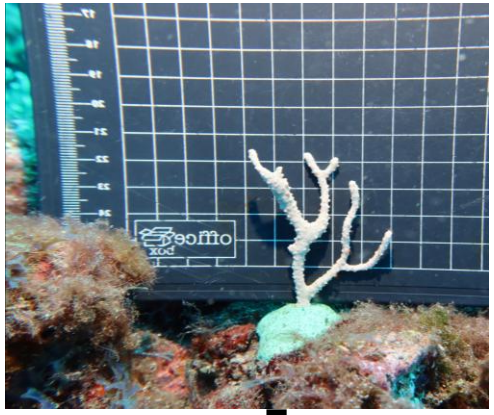
Development of first restoration actions for three benthic species in Santo Antão reefs (October 2023-?):

Stichopathes sp., Tanacetopathes spinescens and Eunicella papilifera



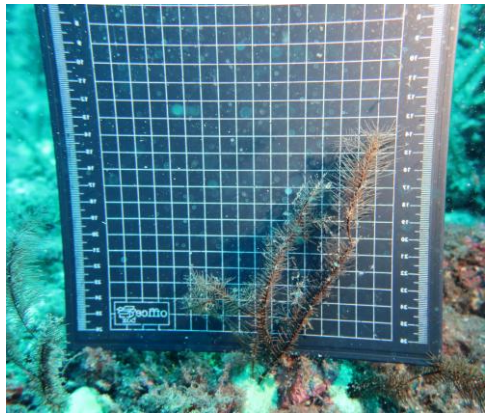
- **93% survived**
- **0%** of them with **mortality**
- The **mean growth rate** in height was **0.9 (±1,5) cm/y**

VIABLE



- **85% survived**
- **4.5%** of them with **necrosis**
- The **mean growth rate** in total length was **2.9 (±4,6) cm/y**

VIABLE



- **But 100%** of the… …tial (50%) or total …

NOT VI…

Conservation in Santo Antão: implications for society and policy

Conservation in Santo Antão: implications for society and police

"Ciência Encontra a Sociedade – Exemplos de cooperação internacional atendendo às necessidades locais / Resultados das Expedições Científicas (2025)"

Moderadora: Professora Vera Alfama- UNICV

- **Uma perspetiva geológica sobre os 15 anos de exploração oceânica em Cabo Verde** - Professor Ricardo Ramalho, Faculdade de Ciências da Uni idade de Lisboa
- **"COAST – "A Conservação dos ecossistemas marinhos Antão, Cabo Verde: implicações para políticas e socie** Universidade de Aveiro

Aknowledgemnts


Nune Rafael Baptista
Cruzinha


Djassa Fernandes
Janela


Djesone Lopes
Porto Novo


Rafael dos Santos Alves
Porto Novo


Fretson dos Santos Alves
Porto Novo


Ary da Cruz
Tarrafal e Monte Trigo


Sergio Medina
Tarrafal e Monte Trigo


Jair Andrade
Porto Novo


Marcelino Fortes
Porto Novo


Danilson Carvalho
Tarrafal


Gabriel Fernandes
Cruzinha

Website: www.coastcaboverde.eu

COAST Cabo Verde

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biodiversa+
European Biodiversity Partnership

Roundtable discussion with the project coordinators

Moderated by Ester Serrão (RestoreSEAS project)

Hendrikus Nouws (BioReset), Jozée Sarrazin (DEEP REST), Dirk Schmeller (FishME), Kim Magnus Bærum (FreshRestore), Annika Louise Hass (InterRest), Mario Brauns (RESTOLINK), Stephan Glatzel (ReVersal)

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Q&A session

Dinner at Tatanegro restaurant

19:30

Be back tomorrow at 8:30