

ECOLOGICAL OBSERVING SYSTEM IN THE ADRIATIC SEA: OCEANOGRAPHIC OBSERVATIONS FOR BIODIVERSITY

PRIORITY AXIS 3: ENVIRONMENT AND CULTURAL HERITAGE

SPECIFIC OBJECTIVE 3.2: CONTRIBUTE TO PROTECT AND RESTORE BIODIVERSITY

D2.4.3 WORKSHOP FOR STAKEHOLDERS 2 REPORT

WP2 – COMMUNICATION AND CAPITALIZATION ACTIVITIES

A2.4 – MEETINGS AND WORKSHOPS

Blue World Institute

Final

Public

11th December 2020

Activity 2.4

Deliverable D2.4.3 Workshop for stakeholders 2

Report

On 3rd December 2020 BWI, in collaboration with the Lead Partner and WP3, WP4 and WP5 leaders, has hosted an online workshop entitled “Needs and challenges to build the Adriatic ecological observing system ECOAdS”. The workshop was held between 10:00 and 13:00 on Zoom platform. There were 59 participants, representing various project’s target groups: 1 governance bodies, 7 universities and institutes, and 1 NGO (Table 1).

Table 1. List of target groups

Institution	Target group
Universita Politecnica delle Marche, Ancona, Italy	University
University of Venice, Venice, Italy	University
Ca' Foscari University, Venice, Italy	University
Faculty of Science, Zagreb, Croatia	University
Faculty of Science, Split, Croatia	University
University of Primorska, Slovenia	University
Ministry of economy and sustainable development, Croatia	Governance
CIM Rovinj, Croatia	Institute
20000 Milja	NGO

The workshop started with welcome speech followed by presentation of the ECOSSE project, with emphasis on ECOAdS, and the aims of the workshop. The subsequent interactive part of the workshop was moderated by work package leaders. During this part, questionnaires were filled

by participants through Mentimeter platform. Finally, the workshop concluded with presentation of results and a discussion.

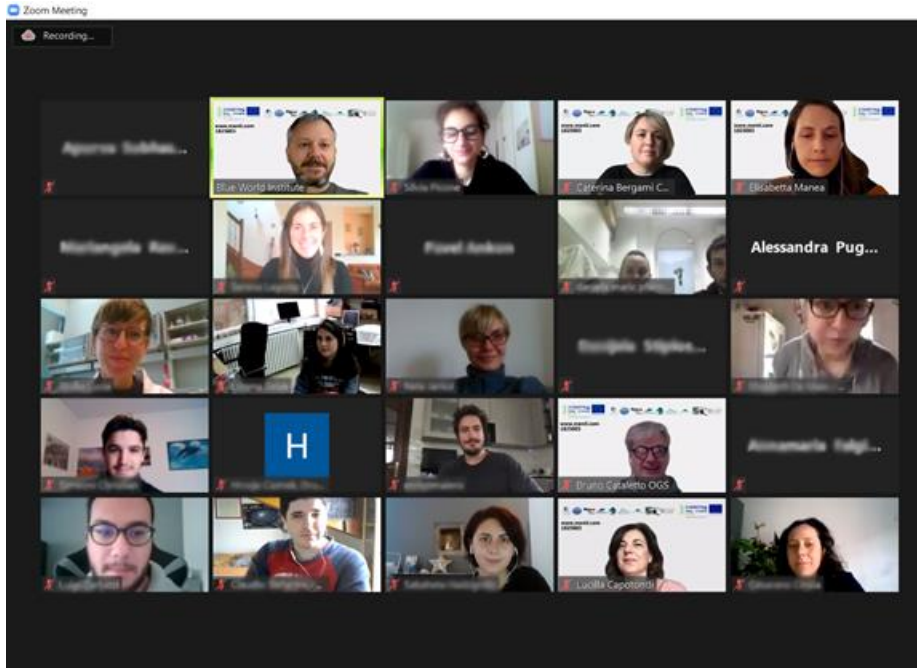


Figure 1. Screenshot of the online workshop for stakeholders. Participants' names are blurred due to GDPR requirements.

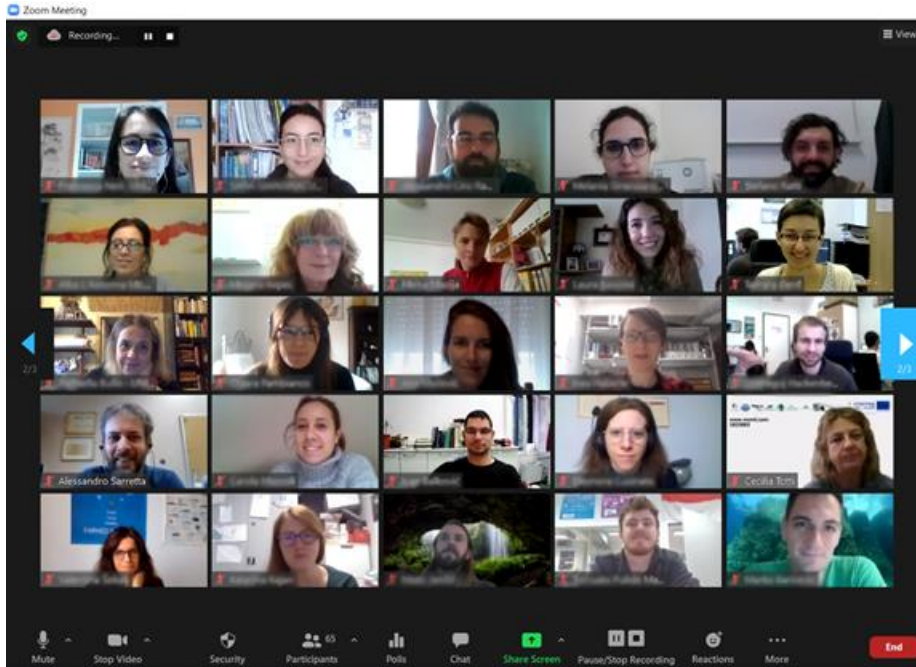


Figure 2. Screenshot of the online workshop for stakeholders. Participants' names are blurred due to GDPR requirements.

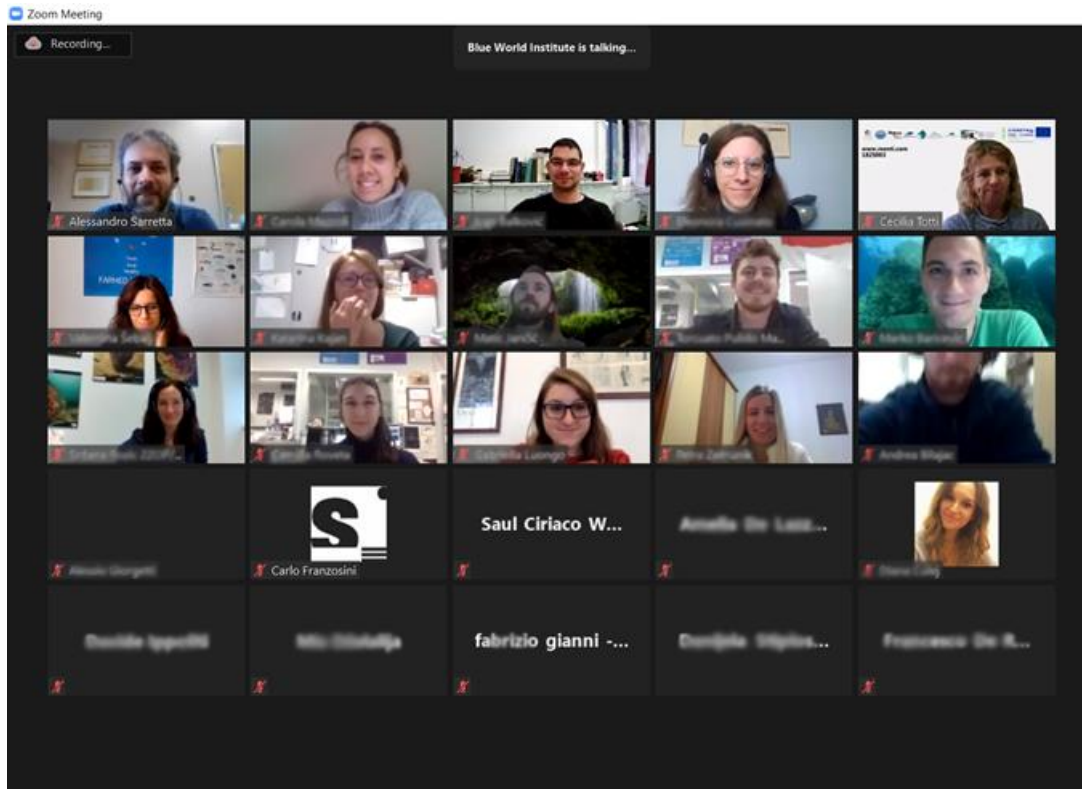


Figure 3. Screenshot of the online workshop for stakeholders. Participants' names are blurred due to GDPR requirements.

Workshop summary and conclusions

The interactive part of the workshop was divided into three thematic sessions, each consisting of a short presentation and a series of Mentimeter questions. The topics were: Marine Natura 2000 sites and main marine conservation issues, Needs and challenges for an integrated marine ecological observatory, and Requirements and expectations for the ECOAdS web portal. The questions and results of the Mentimeter sessions are in Annex 1 of this report.

Following the three thematic sessions and based on the results of the Mentimeter questions, the open discussion at the end of the workshop was focused on several main issues that were most common among the participants' answers. The main conclusions are as follows:

- Vast majority of participants were post-graduate students, studying very diverse topics. However, relatively high proportion of them did not consider their studies to have clear contribution to conservation issues
- Only about 50% of participants consider the access to data crucial for their studies to be satisfactory. Participants stated a clear need for better access to data
- Most of the participants emphasized the need to integrate various disciplines in research and conservation
- Most of the participants find that ecological observatories, and data access, treatment and products should be taught at universities
- Most of the participants wish for ECOAdS functionalities to explore available parameters per MPA and direct access to source data
- The participants were the least concerned with EU directives and regulations related to marine conservation issues

The discussion ended with announcement of the third workshop that will present the final version of ECOAdS web portal. The participants expressed willingness to participate in the final workshop.

Workshop evaluation

Following the workshop, the participants were asked to fill out an evaluation form. Following are the results of the evaluation.

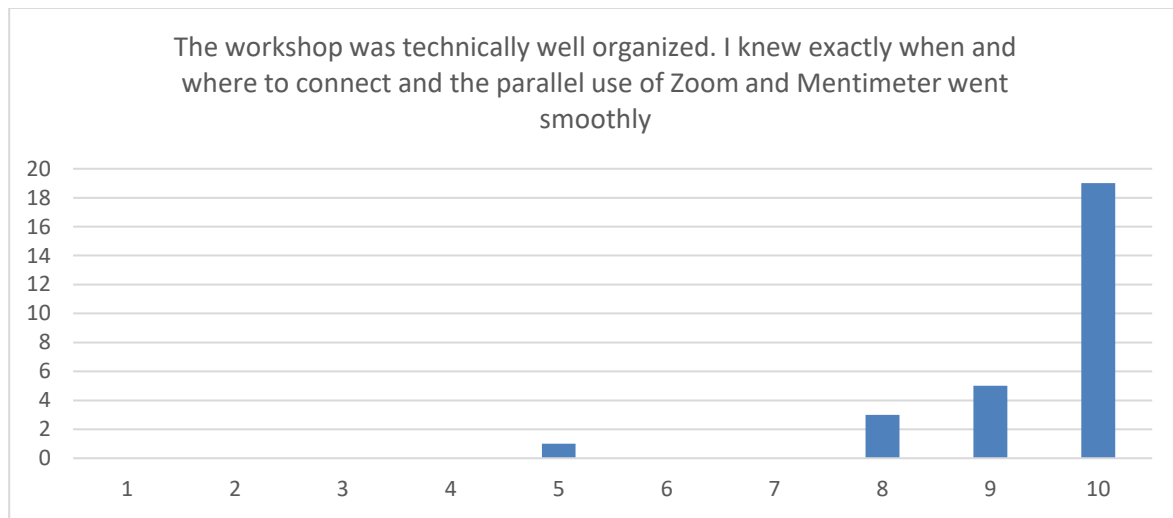


Figure 4. Evaluation of technical aspect of workshop organization. The y-axis represents number of answers. The x-axis represents how much the participants agree with the title statement.

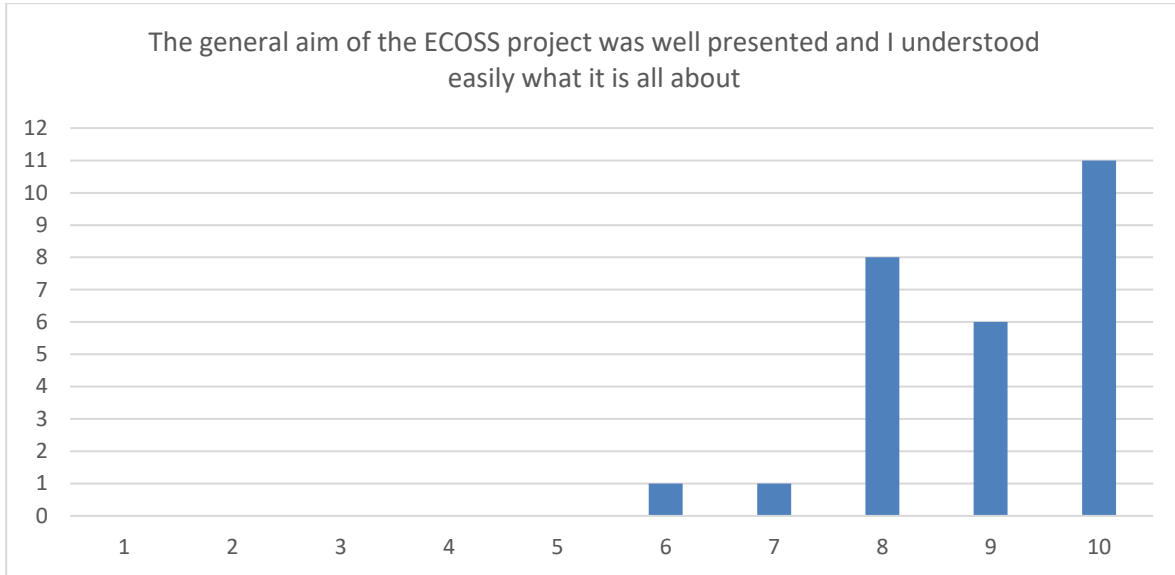


Figure 5. Evaluation of presentation of ECOSS project. The y-axis represents number of answers. The x-axis represents how much the participants agree with the title statement.

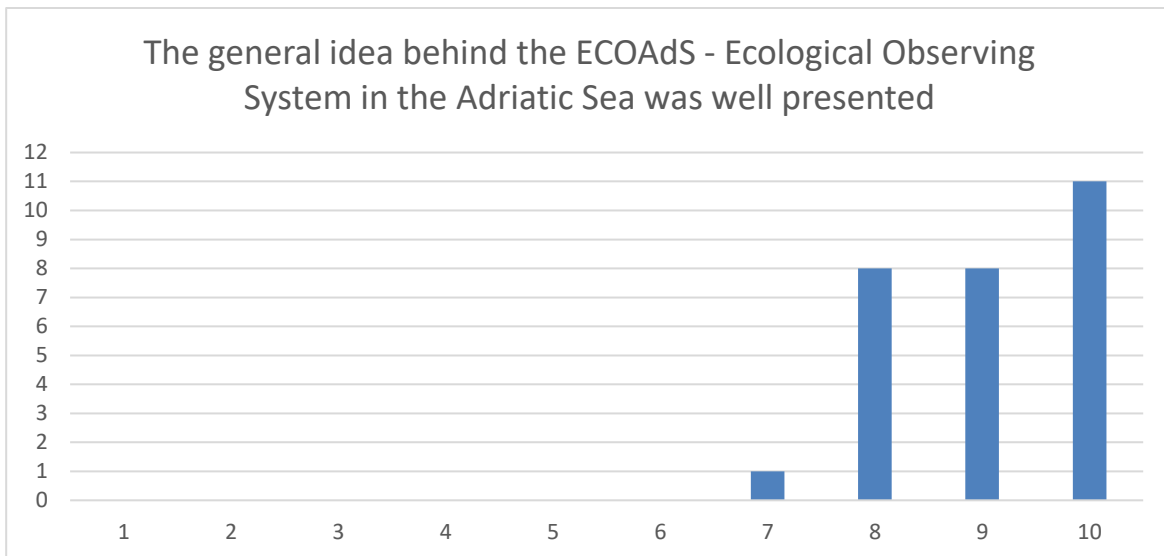


Figure 6. Evaluation of presentation of ECOAdS. The y-axis represents number of answers. The x-axis represents how much the participants agree with the title statement.

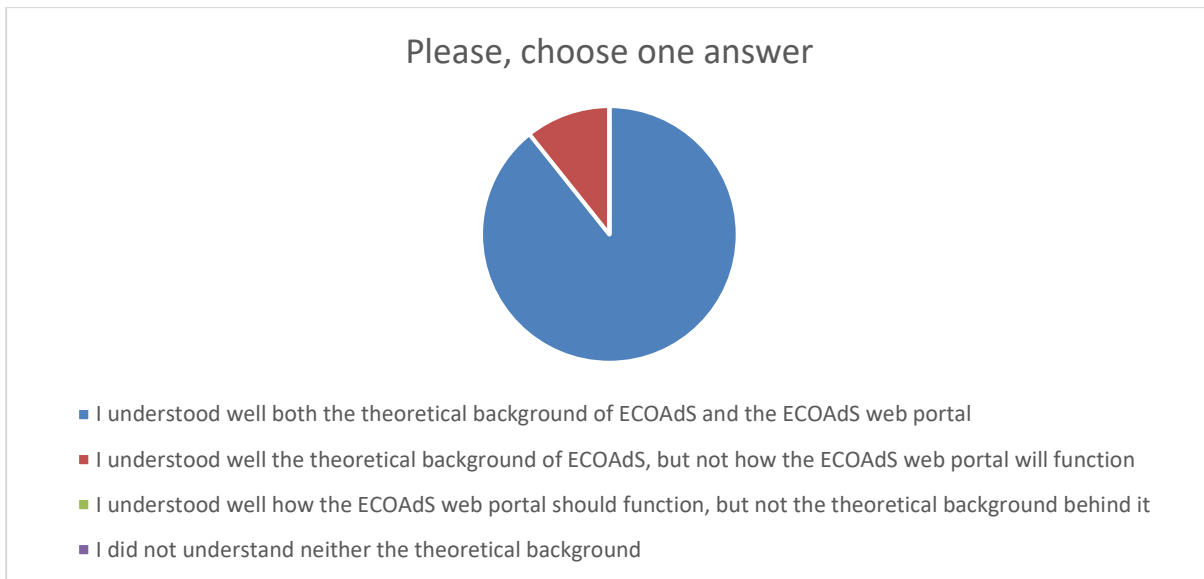


Figure 7. Evaluation of how well the participants have understood the ECOAdS

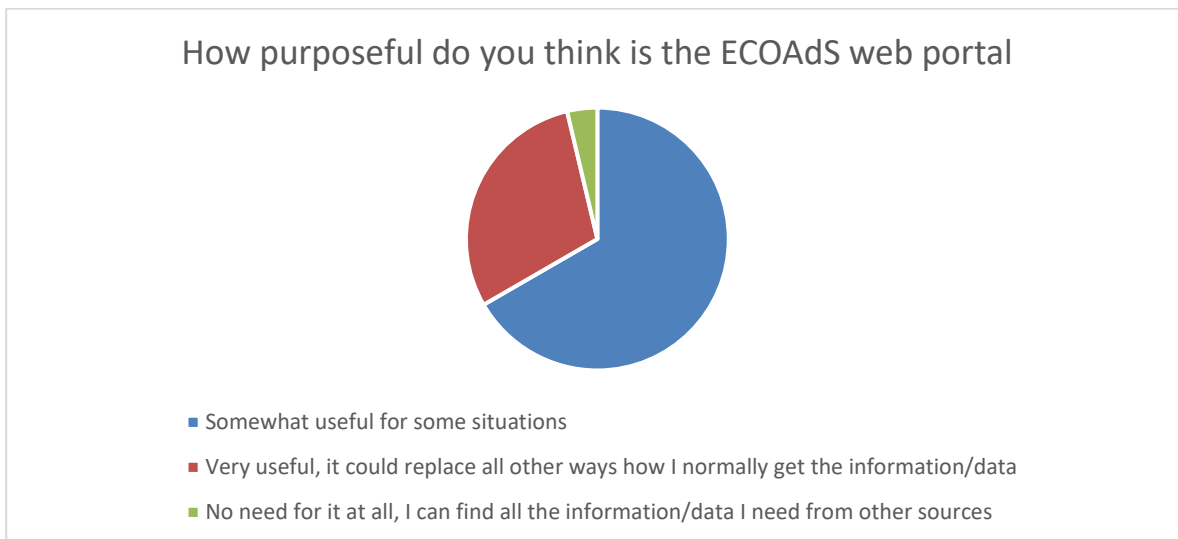


Figure 8. Evaluation of how purposeful the ECOAdS web portal is for the participants

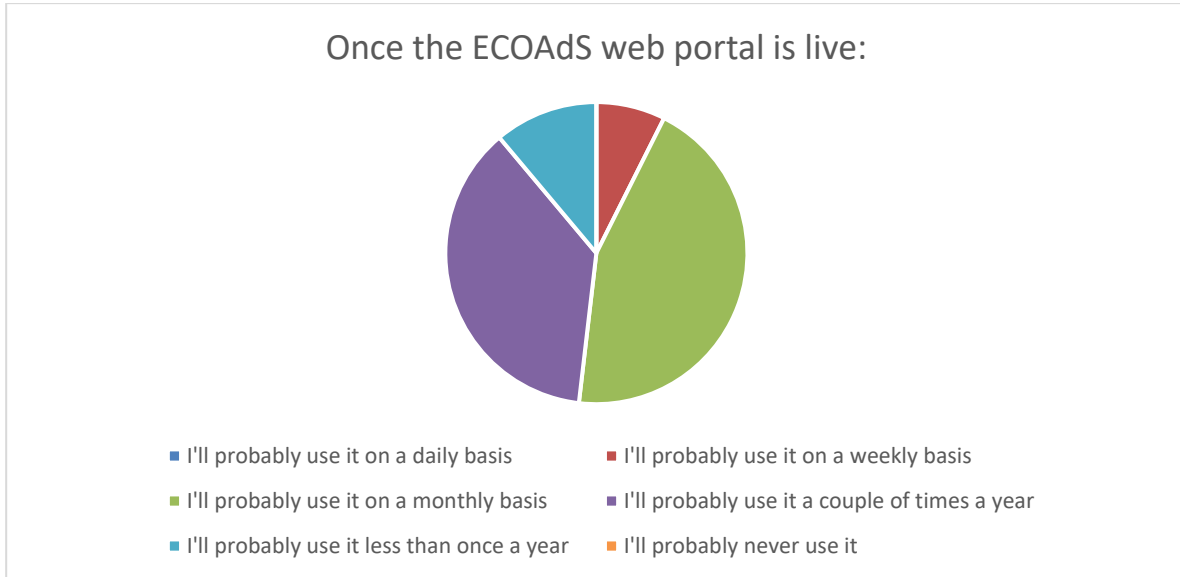


Figure 9. Evaluation of how frequently the participants might use the ECOAdS web portal

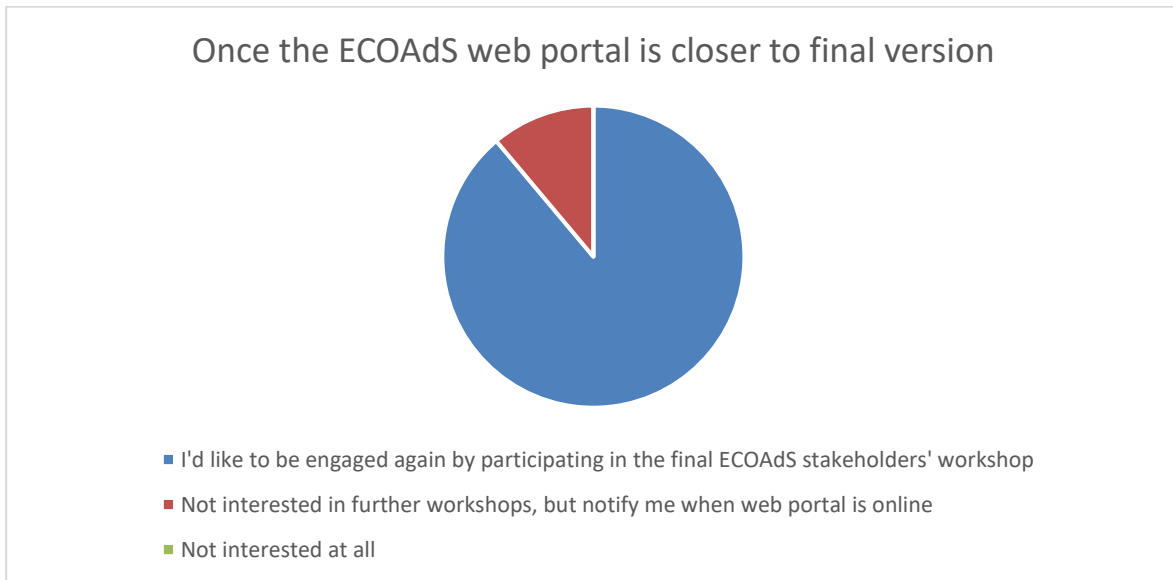


Figure 10. Evaluation of willingness of participants to be further engaged in the development of ECOAdS



Annex 1

The questions and results of three thematic Mentimeter sessions are presented on the following pages.

Session 1

Marine Natura 2000 sites and main marine conservation issues



Q1.1 You are tasked to manage a Natura 2000 site. What would be your approach?



I would base all decisions on scientifically proven facts only



I would make pragmatical decisions, even if based on scientifically proven, but incomplete facts



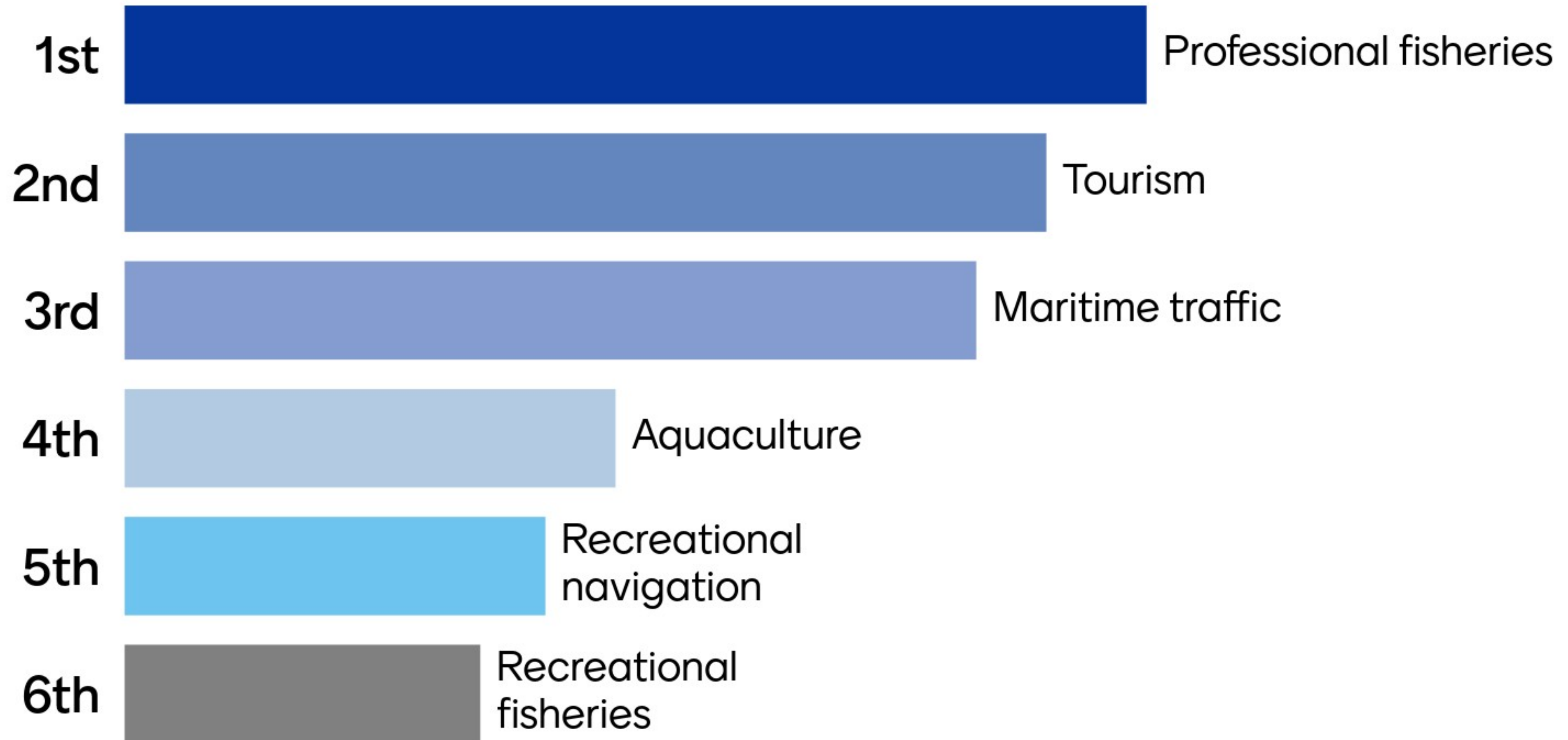
I would prioritize socio-economical aspects of conservation, to gain public support for decisions



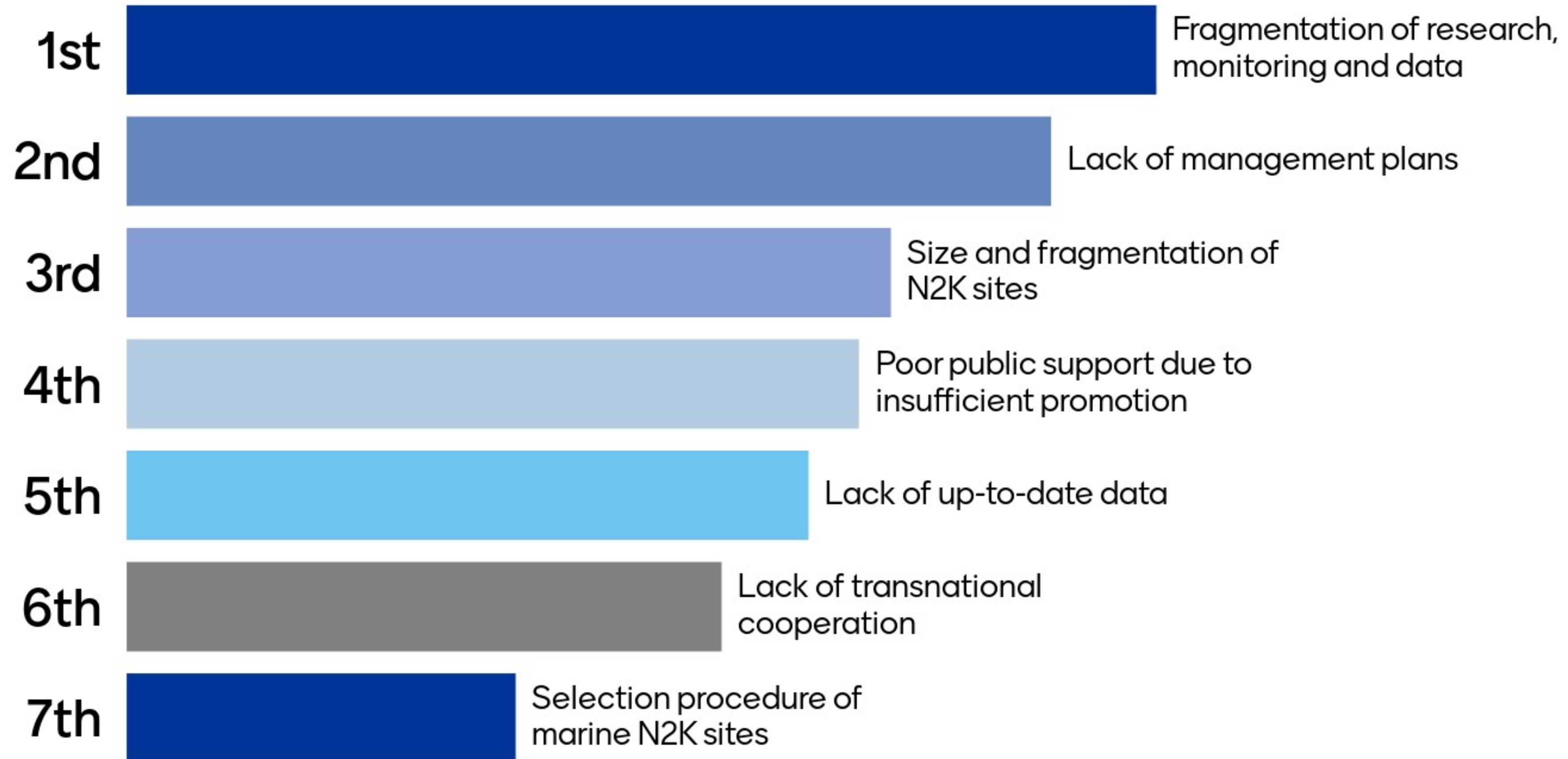
I would try to reconcile all aspects and only then make decisions



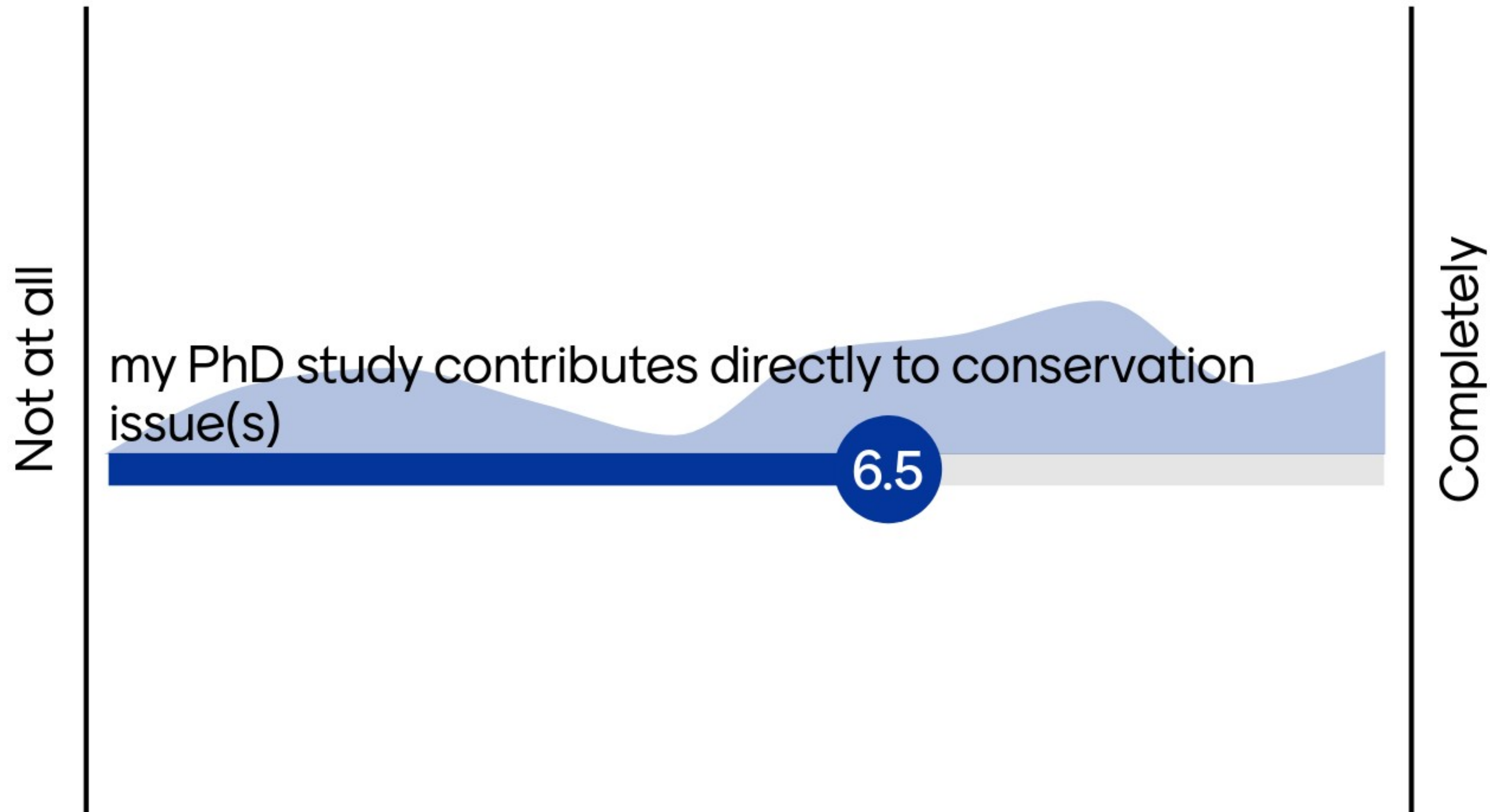
Q1.2 Which human activities you consider the greatest threat to N2K sites?



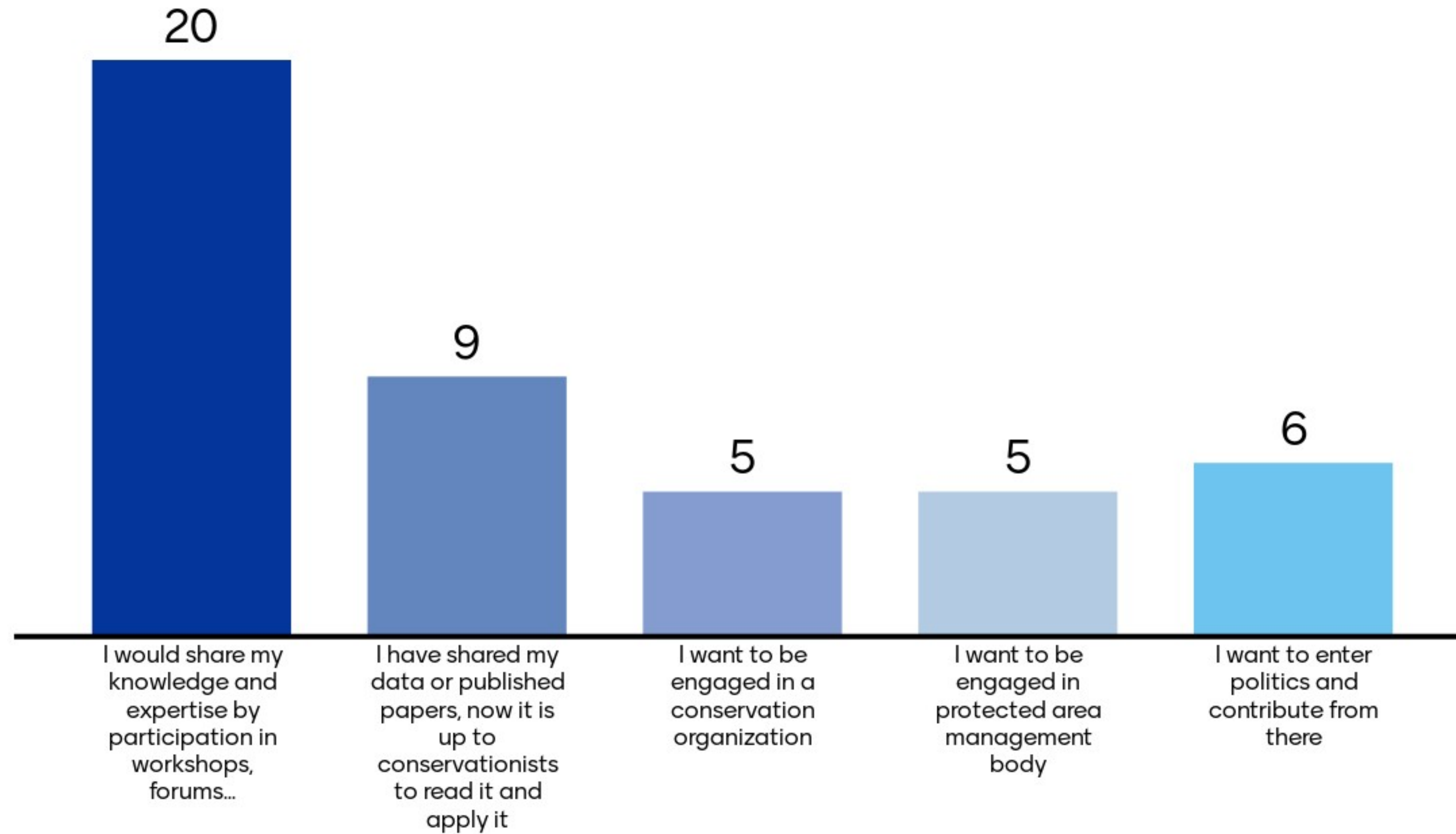
Q1.3 Which are the main limitations concerning the N2K sites' efficiency in safeguarding adequately the marine environment?



Q1.4 Please, rate the statement:



Q1.5 How could your study be translated into conservation?



Q1.6 Please, explain shortly how your study is linked to conservation

Filling the gaps in knowledge of species distribution and abundance.

My study is focused on habitat management requirements for Natura 2000 species.

Remote sensing of vegetation, but can be applied to sea (e.g. chl a content, ocean color, temperature..)

The study of the evolution of sea ice provides a context for the study of marine species.

I have done an assessment of multiple ecosystem services (ESs) and I am linking it with ecosystem functioning (EF) to clearer the bridge between ESs and EF.

My study tackles feeding ecology of key species in the marine ecosystems and could provide an insight on trophic connections and be a foundation for conservation policies

I study long-term dataset to evaluate changes in the Northern Adriatic Sea in terms of abundance and composition of phytoplankton communities, related to meteorological and hydrological variations, and to anthropogenic pressures

I am developing and doing research with automated remote sensing systems to facilitate conservation data gathering, data analysis and data sharing.

How Mediterranean Thermohaline Circulation will change in the future in response to regional scale (winds, heat fluxes, freshwater budget) and large-scale (e.g. North Atlantic Oscillation) atmospheric forcing.

Q1.6 Please, explain shortly how your study is linked to conservation

I'm involved in marine beach litter monitoring and citizen science activities, in order to improve knowledge and dissemination of the problems affecting coastal environment and its conservation

My study is introduction of new shellfish to aquaculture farming which will contribute to lower collection of shellfish from the wild.

I'm working on different projects dealing with bioremediation, marine framework directive and impacts of climate changes on deep sea ecosystems

I will study the ice melting processes in Greenland and Antarctica, so basically the study of fragile environments

My study is linked to the importance of in deep-sea in ocean biogeochemical sites in a global climate changing scenario. Conservation should also involve deep-sea areas

My PhD deals with the study of the dynamics of anthropogenic pollutants in the polar marine environment. My data may be useful to improve the knowledge of these remote areas and preserve them, also developing forecasting models.

Environmental changes within climatic oscillations

Linking coastal microbial diversity to the influence of heavy metals, PAH, PCB

Study of endangered species affected with mass mortality with mitigating measures.

Q1.6 Please, explain shortly how your study is linked to conservation

I do research in ecotoxicology and remote sensing. Findings from these research can be applied for conservation.

by development and application of new technologies and contribution in monitoring it will directly impact observations and conclusion on climate change and human impact on protected areas.

Assessing effectiveness of a bycatch reduction method shown to reduce sea turtle bycatch in experimental studies worldwide for 40 - 80 % in Adriatic. Develop habitat suitability models for turtles in Adriatic - investigate interaction with fisheries.

I am a PhD student in Polar Sciences and my aim is to tackle climatic changes in Ross Sea -Antarctic- and how it influences the atmospheric and oceanic circulations from an ice core point of view. Then zooming on trophic chains in the future.

My study is connected to the sea level. Sites that are on the coastline are influenced by sea level oscillations. By research of sea level, community can find effective ways of protecting coastline.

I am studying the ecology of the species from the genus *Cystoseira*. I am trying to get data and informations about the impact of local and global stressors on these species in the western Istrian coast.

Use of new ingredients (insect) in aquaculture feeds

Working in the field of ecological modeling, my study can be useful in providing information for conservation decision-making process.

I am working on the Microphytobenthos, diatoms present in the sediment. samples collected from Adriatic sea and Mediterranean sea will show their abundance and diversity in each season. also effect of climate change on their population.

Q1.6 Please, explain shortly how your study is linked to conservation

My work deals with wastewater purification. It is not directly linked with marine conservation. But, the protozoans, especially ciliates have main role in purification the effluents after wastewater treatment. It will be interesting to study the sea

I work on the restoration of cystoseira in the Adriatic Sea and on the creation of a completely eco-sustainable sunscreen of microalgal origin.

My PhD project is focused on the study of marine biotoxins produced by algae in the Adriatic Sea

The data that will be collected in the project could help define areas widely. The citizen science approach will help to engage civil society to appreciate the protection, conservation and above all the scientific effort for a better conservation

Spatio-temporal microbial ecological study that can capture the changes that are happening in any water system as an answer to the climate change, organic matter input, greenhouse gas emissions or any kind of disruption of the ecosystem

I'm studying the impact of marine pollutants especially cigarette butts and their impact on marine organisms, so I would like to try to contribute to decrease their discharge into the sea and save marine organisms from them

I'm involved in monitoring of anthropogenic influence on the seagrass and algal communities.

My study is linked to conservation cause its aim is to evaluate the abundance of plastic litter in marine environment, evaluating how it can interact with marine biota and affect the environment.

My study is about impact of climate change on coral biodiversity - a case study of mass deaths in the Adriatic Sea. The main aim is to discuss influence of climate change on marine benthic ecosystems in corellation with changing sea temperature

Q1.6 Please, explain shortly how your study is linked to conservation

My study is about seasonal and spatial distribution of resistance gene in marine microbial communities along the trophic gradient in middle Adriatic sea

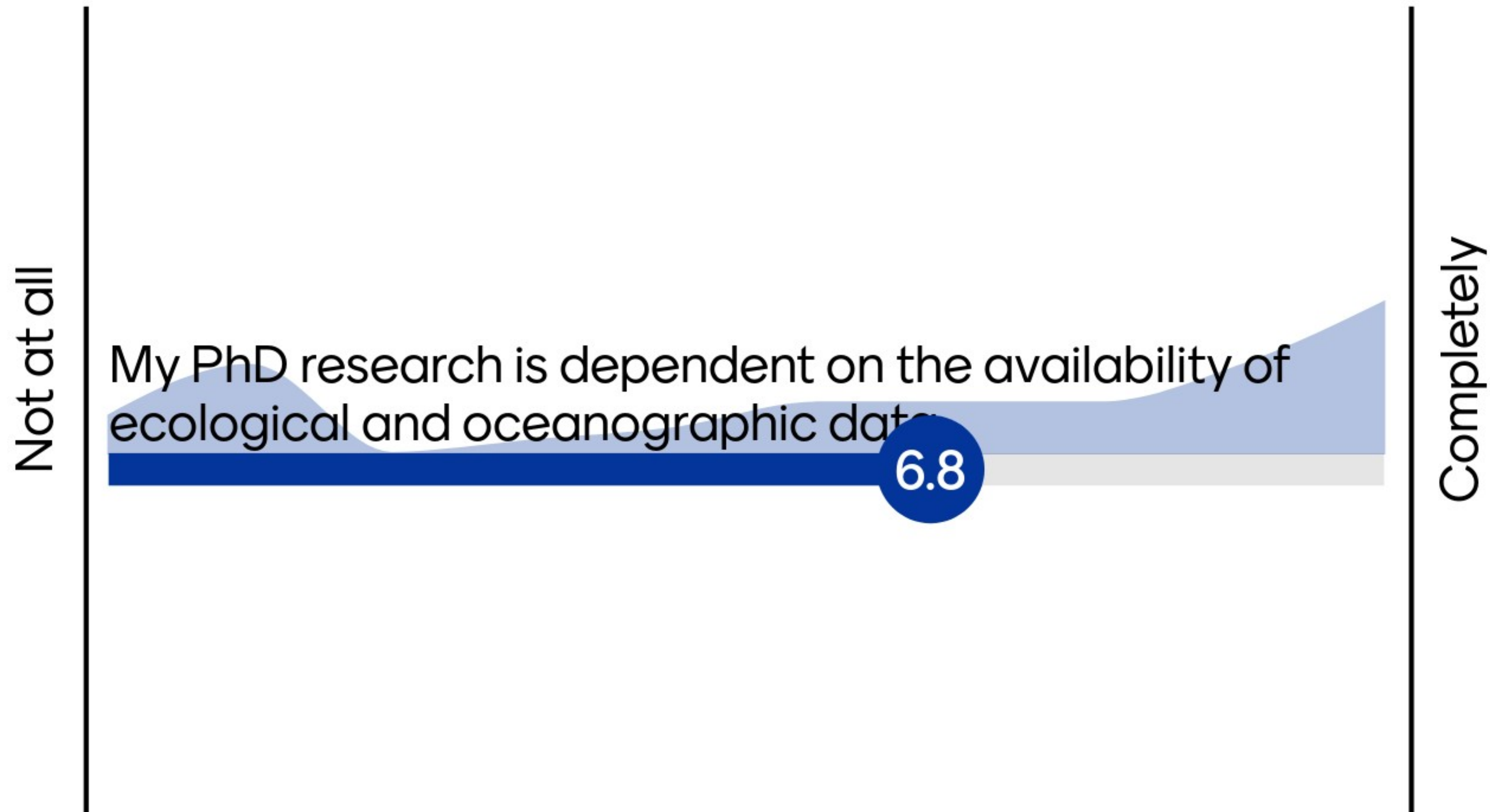
I work on improving the quality of relevant monitoring data of anthropogenic impacts on marine ecosystem (e.g. fishing activity) in order to build better model and scenarios.

Session 2

Needs and challenges for an integrated marine ecological observatory



Q2.1 Please, rate the statement



Q2.2 Please, rate the statement



Q2.3 Please, rate the statement



Q2.4 What data should be collected and available for your research and is not available today?

Sea level data from many tide gauges all over the world.

deep sea data

uniform data on micro plastics that could be compare between them

Ecosystem data (ecosystem model, foodweb model, species distribution model), data of source and sink (connectivity), climate refugia and mismatch with protected sites

A detailed world wide network of daily measurements of physical and chemical quantities in the oceans.

Few data are available regarding the local contamination sources in contrast to remote sources

3D complexity at regional and local level on MPAs

Citizen science initiative observations in a standard common format

satellitare data of turbidity at high resolution

Q2.4 What data should be collected and available for your research and is not available today?

More frequent ecosystem and oceanographic data in time and space

satellite data

continuous physio-chemical data on the coastal parts of the Adriatic sea

Deep-sea data are difficult to find: bottom temperature, pH, O₂ levels, fluxes of particulate organic carbon to the bottom

Possibly some more in situ data collection, such as scientific cruises so that students are able to collect samples themselves and learn how to do so.

Molecular data

in situ chl a content for all Adriatic sea (many data points)

Data of marine observatories are not crucial for my research. As I mentioned before, my work deals with wastewaters.

I have access to required oceanographic data (either through Copernicus or Bio-Oracle) that is usually remotely sensed, I would need more data on species distribution/presence in the environment - harder to obtain.

Q2.4 What data should be collected and available for your research and is not available today?

Contamination sources, detailed environmental parameter measures

Physical and ecological Parameters recorded every season or every year should be displayed publicly so that changes in the climate and its effect on the marine life can be monitored.

Thermocline depth, higher resolution sea bottom maps, there is a need for up to date general data for maritime research.

subject of my research is underwater photogrammetry of red corals, it's usually found in depths below 45 meters. Such data collection is still rare and demanding for monitoring. More similar researches would be beneficial.

Ecophysiological data of organisms.

Cystoseira species distribution, abundance, biomass, sea water temperature.

There is a lack of expertise for certain invertebrate animal groups. Although we collect samples in toto, there is no one who would determine the species for some smaller groups.

Sea level data, marine ecological end-members and marine cores

sea water column profiling data

Q2.4 What data should be collected and available for your research and is not available today?

an exhaustive database on algal blooms and relative climate parameters

pollutants from sunscreen dissolved in the sea

Continuous data on population size estimations

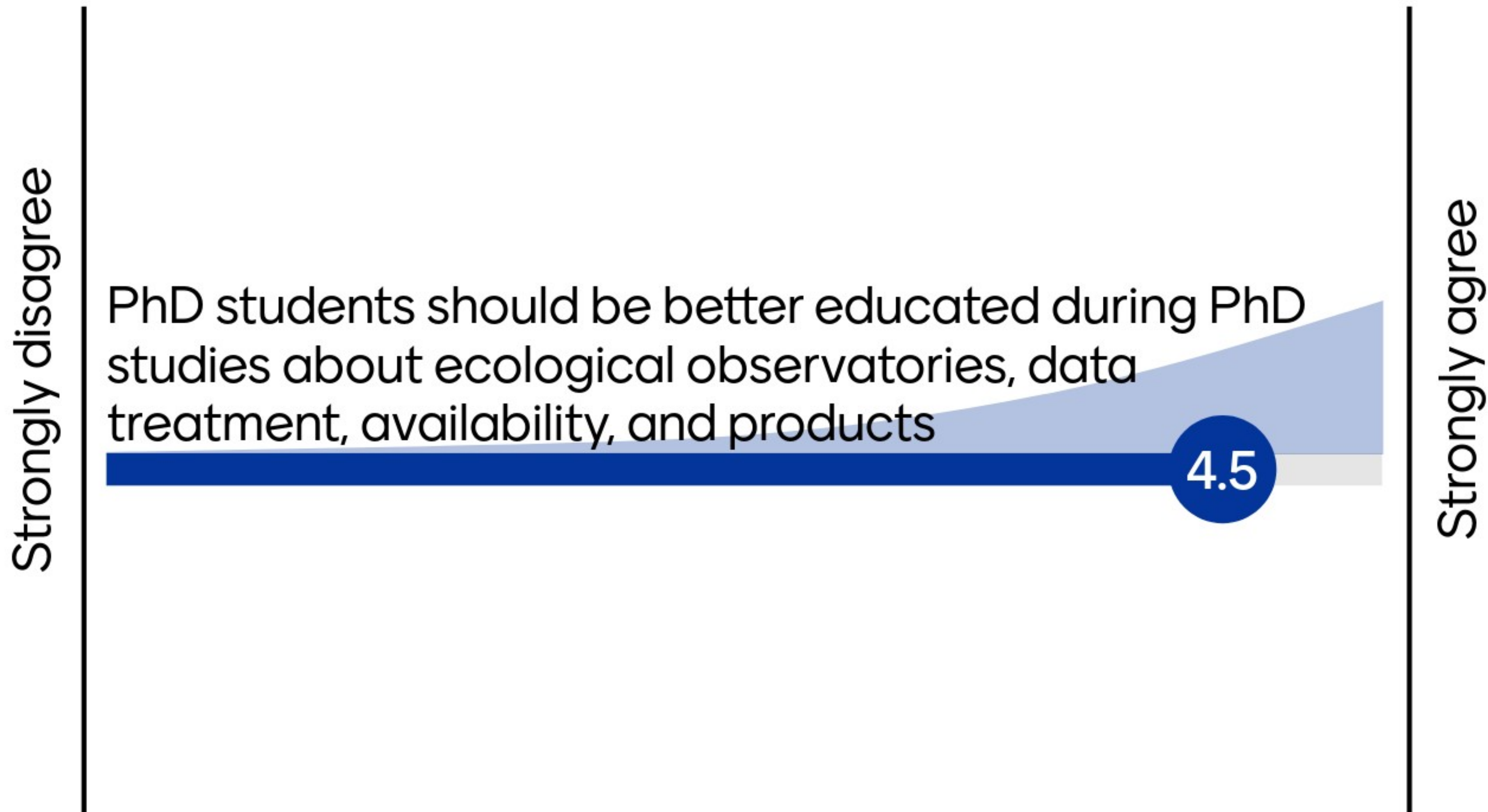
most of the data I collect in situ

most abundant typology of marine litter interaction between litter, marine currents power and organisms

Species biomass monitoring data and higher resolution satellite data on different oceanographic features and anthropogenic impacts.

concentration of some pollutants

Q2.5 Please, rate the statement

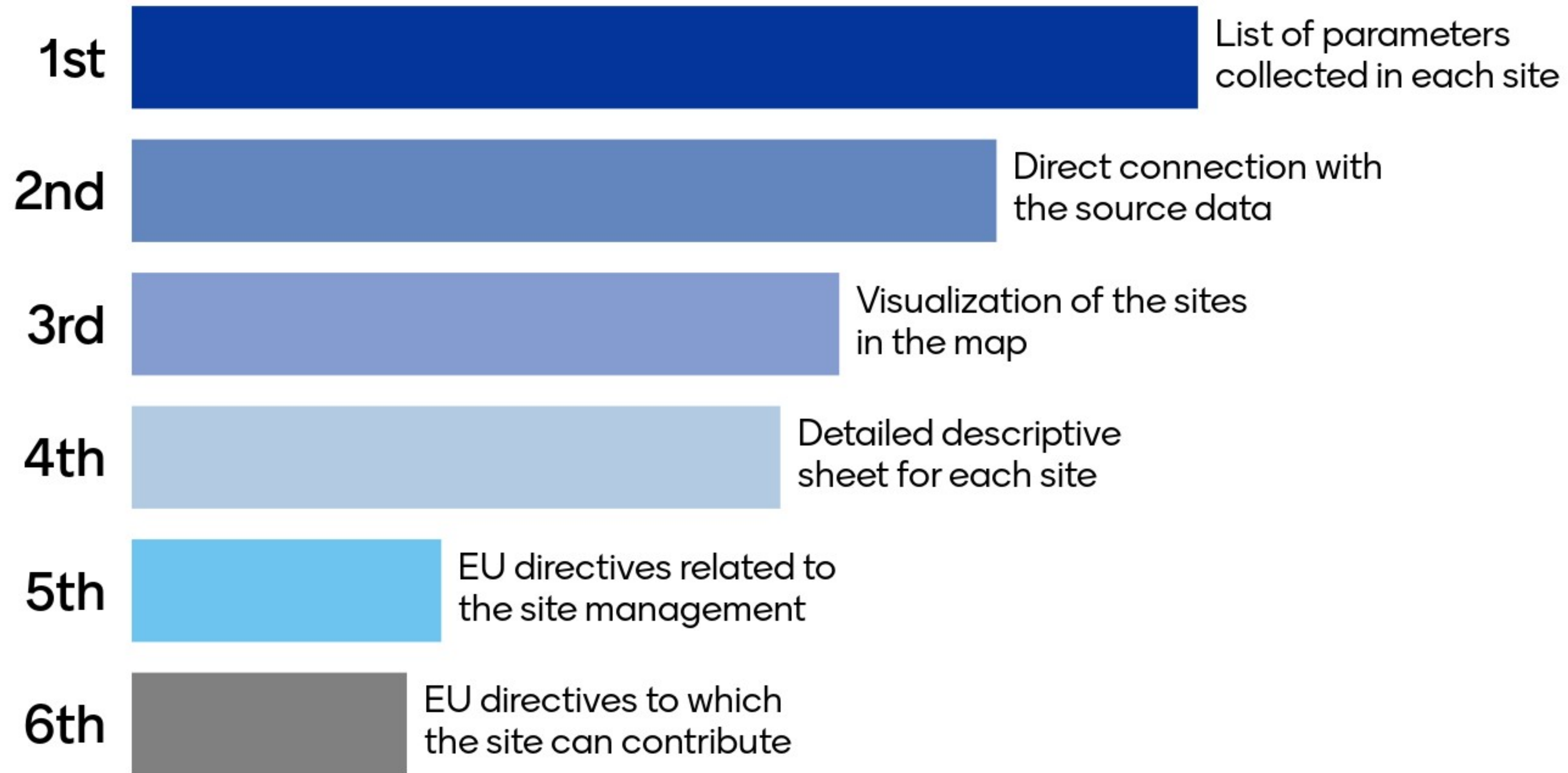


Session 3

Requirements and expectations for the ECOAdS Web portal



Q3.1 Rank the types of ECOAdS web-portal contents by importance based on your experience or on possible workflow related to your studies



Q3.2 Describe what web-portals (if any) you have used in your studies to discover, access, reuse data, and what functionalities you use the most

Download spatial explicit data

So far, I have not used any.

Copernicus - available oceanographic and satellite data

I used Copernicus for satellite data and it was useful.

none yet

Copernicus Marine - chl A, SST, nutrients

I use webportals to access datasets and layers

Any platform which contains publication databases is useful

Did not use any yet

Q3.2 Describe what web-portals (if any) you have used in your studies to discover, access, reuse data, and what functionalities you use the most

CDP: map visualization based on source data selection

none yet

Copernicus Marine Service

Free Open Street Map data - shapes on natural features (water, urban areas, forests...)

didnt use any yet

Copernicus Services, various national (Croatian) databases

SciHub (Copernicus) - satellite images

Experience with copernicus data, different croatian national databases for abiotic data (DHMZ, HAOP) - direct connection to the source data in .csv format is the functionality I used the most.

I have never used a web-portal, but I believe that it is important to provide the ecological features of the site and the results obtained regarding the parameters analysed

Q3.2 Describe what web-portals (if any) you have used in your studies to discover, access, reuse data, and what functionalities you use the most

BiportalHAOP - Corine Land Cover (but only for the land area)

research gate for general information collection so far.

reefcheckmed.orgmarine.copernicus.euData and metadata downloads

none yet

None at the moment

Didn't use any web - portals.

Web portal of Faculty of the Science, portal of nature park Krka, many scientific papers... Provides many useful informations...

Scopus, Springerlink, EU website, Copernicus

none yet

Q3.2 Describe what web-portals (if any) you have used in your studies to discover, access, reuse data, and what functionalities you use the most

Greengenes database, ncbi , kegg , genes and for physical parameters I didn't use any, and your portal could be of great help if you include detailed physical parameters about marine sites from which you collected samples

I used satellite, geophysical, biotic and environmental data (Bio-ORACLE, GBIF, OBIS, OceanColor) - mostly visualize and download them to implement in my work

Bio-oracle, copernicus - access and download oceanographic data, STAT - satellite tracking and analysis tool, GBIF - Global Biodiversity Information facility, OBIS - Ocean Biodiversity information system

ALGAEADRIA

PAP deep-sea observatory site; Data publisher for Earth and Environments; NOAA website, NASA website

Natura 2000 (ISPRA)

Sea Level Station Monitoring Facility

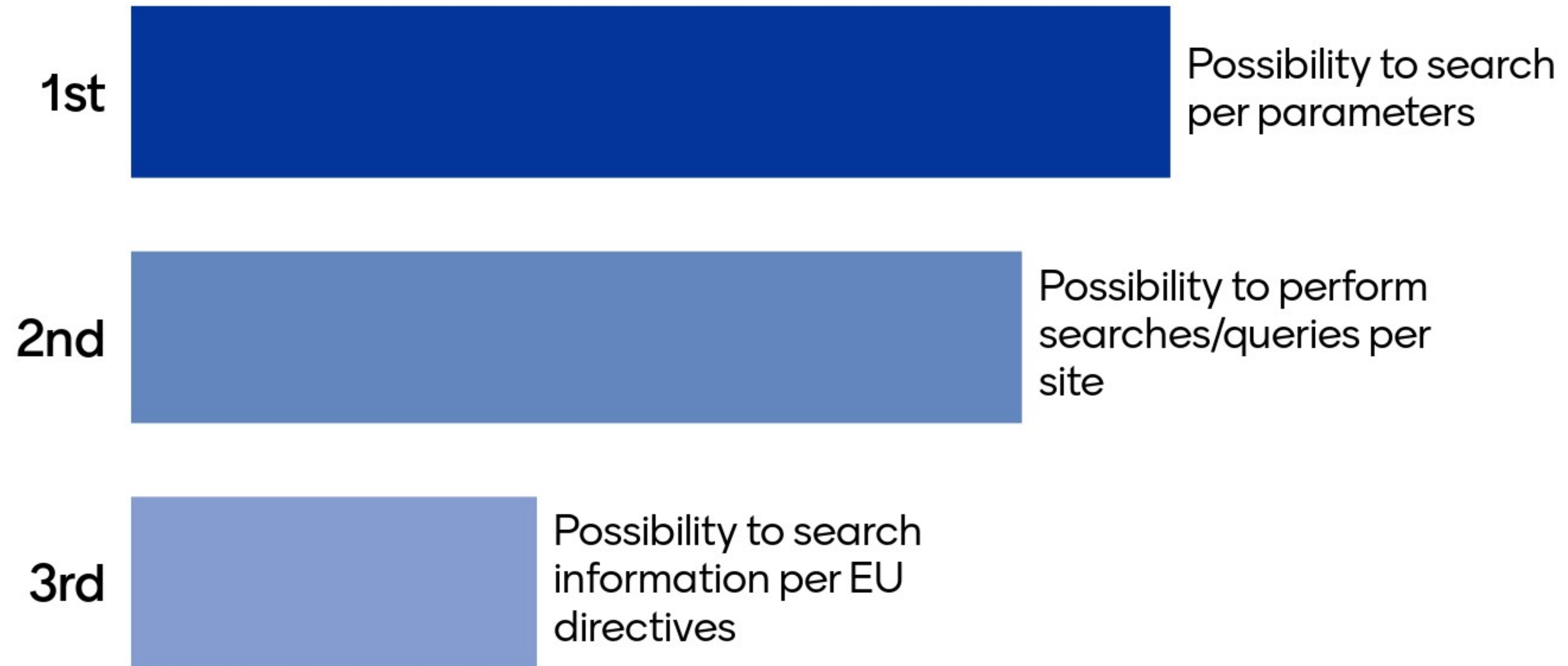
Eurodeer, Arpa-portal, Lifewatch

Copernicus marine service, NASA earth observations; NOAA

Q3.2 Describe what web-portals (if any) you have used in your studies to discover, access, reuse data, and what functionalities you use the most

Springerlink, ICES dataportals.

Q3.3 Rank the options for searching the contents of ECOAdS web-portal according to your preferred workflow



Q3.4 Do you have any remarks or suggestion in relation to the ECOAds web portal? Share your thoughts to improve content and functionalities

Data access API - download/export source data in .csv format

I do not have any suggestion yet since I have never used it, but I'll try :)

.csv or JSON data access API will be extremely usefull for data scientists among us.

Include data useful for ecosystem-based management. Hence, ecosystem data :)

web API to interact directly with data from my platform/environment

Data export in .csv

I do not have any.

Download of the available data.

not yet

Q3.4 Do you have any remarks or suggestion in relation to the ECOAds web portal? Share your thoughts to improve content and functionalities

It would be useful to have the possibility do download data in different formats

Well done. You are on the right track.

not at the moment

Short description how the data was collected.

The portal is very informative, no remarks at this point

It gives many informations, it is well organised for searching the informations.

I haven't any suggestions now because I would like to use before saying something about it

I would like a clear information about what is in-situ data, what is i.e. copernicus derived. It would be helpful to see which parameters can be compared from different sites

Looks good for now ;-)

Q3.4 Do you have any remarks or suggestion in relation to the ECOAds web portal? Share your thoughts to improve content and functionalities

I don't have any suggestion at the moment

Easy access to data (in .csv format or txt format);

I never used the portal, so i don't have any

Provide the source of the data obtained (e.g. published articles)

I think your approach is very useful: to integrate data for each protected/NATURA 2000 site in Adriatic, as not all managers/organizations have the capacity to perform that kind of analysis on their own.

Downloading of the data and link for the original source.

possibility to download the data

urbanisation data on the coast.

maybe make the main map a little bit more graphical intuitive: showing some outcomes and their evolution through time

Q3.4 Do you have any remarks or suggestion in relation to the ECOAds web portal? Share your thoughts to improve content and functionalities

It would be useful if we could download the layers that contain geographical distribution compatible with GIS programs. Also if the raw data could be available for download.

increase the number of monitoring sites

I don't have any suggestions yet

I dont have any suggestion an the moment. Thanky you for all information. It was very usefull for me.

didn't use/access it yet, so I don't know if list of research papers and scientists is available and related to specific site and data collected?