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Authors : Paul SAYERS (SPL), Paul Sayers, Arjen Luijendijk, Etienne Kras, Gonéri Le Cozannet, Sam Carr, Vasileios Latinos, Giuseppe Roberto Tomasicchio, Edmund Penning-Rowsell, and Angélique Melet

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Author(s)	Paul SAYERS, Paul Sayers, Arjen Luijendijk, Etienne Kras, Gonéri Le Cozannet, Sam Carr, Vasileios Latinos, Giuseppe Roberto Tomasicchio, Edmund Penning-Rowsell, and Angélique Melet
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Summary

The overarching goal of CoCliCo is to improve decision-making on coastal risk management and adaptation, by establishing an integrated core service dedicated to coastal adaptation to sea-level rise. To be successful the development of the CoCliCo platform is necessarily predicated on the notion of co-design. Engagement with stakeholders to develop a shared understanding of the service requirements has been central to this process. This report summarizes the co-design process that has continued throughout CoCliCo across each of the decision centric Demonstration Case Studies (DSCs). This report presents the findings of the test-based refinement and validation processes, including bilateral meetings, an open workshop, and the more in-depth validation workshop with selected users (including those Champion Users that have been most closely involved in the co-design process). The findings of the workshop confirm the utility of the process of involving users from the start. The opportunity for transition of CoCliCo towards a mainstream operation with Copernicus has also been explored and confirmed as an important next step (subject to future decisions beyond the CoCliCo). This continues to be taken forward by Mercator Ocean.

Approval

Date	By
2025-07-24 10:03:12	Paul SAYERS (SPL)
2025-07-29 08:40:52	Gonéri LE COZANNET (BRGM)

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Authors:

Paul Sayers, Arjen Luijendijk, Etienne Kras, Gonéri Le Cozannet, Sam Carr,
Vasileios Latinos, Giuseppe Roberto Tomasicchio, Edmund Penning-Rowsell, and
Angélique Melet

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Project Coordinator	Gonéri Le Cozannet		

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Executive summary

The overarching goal of CoCliCo is to improve decision-making on coastal risk management and adaptation, by establishing an integrated core service dedicated to coastal adaptation to sea-level rise. To be successful the development of the CoCliCo platform is necessarily predicated on the notion of co-design. Engagement with stakeholders to develop a shared understanding of the service requirements has been central to this process.

This report summarizes the co-design process that has continued throughout CoCliCo across each of the decision centric Demonstration Case Studies (DSCs). This report presents the findings of the test-based refinement and validation processes, including bilateral meetings, an open workshop, and the more in-depth validation workshop with selected users (including those Champion Users that have been most closely involved in the co-design process). The findings of the workshop confirm the utility of the process of involving users from the start.

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1. Introduction

This report covers three aspects:

Refinement stage – this includes the process of refinement of the services together with Champion Users. This process was ongoing through final months of 2024 and early 2025 to ensure the tools, maps and information developed are useful in the real-world context of Demonstration Case Studies and to refine the final stages of platform development. This process took the form of bilateral meetings with selected users. This milestone has been achieved, and actions summarised here.

Validation Workshop: the Validation Workshop was held over the course of two days. The first day provided the opportunity for in-depth presentation of the full-track tools and discussion involving selected representatives of all three Demonstration Case Study areas. The second day focused on presentation of the full-track tool to the wider stakeholder group. During each workshop we were able to demonstrate the tools, provide the users with the opportunity to self-explore the tool (during the meeting and following), and the feedback was sought. The findings of this process are presented here.

Copernicus Compliance – this task has explored the opportunities to transition CoCliCo to an operational service within Copernicus. This has included a demonstration of an application based on CoCliCo data and platform and implemented by Mercator on the Digital Twin of the Ocean (as presented at UNOC in June 2025). This is reported here and lays the foundation for onwards transition to an operational service, but realisation of this goal will be subject to decisions beyond the end of the CoCliCo project.

Report structure

Following this introduction, the report is structured as follows:

- **Chapter 2 Test based refinement** – summarising the process of test-based refinement with Champion Users.
- **Chapter 3 Validation Workshop** – summarising the validation workshop with users and the findings
- **Chapter 4 Transition to Copernicus** – reviewing the transition process and the approach opportunity to develop an operational service post completion of the project.

References and appendices (including a summary of response from users during the test-based refinement process and the user slide responses made during the Validation Workshop).



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2. Test based refinement

Objective

The objective of the test-based refinement has been to provide Champion Users (and others) and the CoCliCo team (WP1/2) the opportunity to revisit their decision needs, test the evolving CoCliCo platform and provide feedback to refine the final stages of developments. This has been enabled through a combination of bilateral discussions and support.

The bilateral meetings have engaged users from across three decision -centre Demonstration Case Studies, namely:

- **DCS #1 - Floods Directive implementation:** To comply with the European Flood Risk Directive, Member States undertake periodic assessments of flood risk, including coastal flood risk. The assessment includes mapping flood extent and the exposed assets and people, to better inform plans to reduce flood risk. CoCliCo can directly support this process by developing services to provide insights into coastal risk that can be used by Member States to support their response to the Floods Directive.
- **DCS#2 – Coastal cities and towns:** Cities and towns are at the forefront of our response to climate change. There is significant diversity in the existing capabilities and the risks across cities and towns in Europe, but despite this diversity many common requirements emerge from the engagement process. These are discussed and presented to ensure the CoCliCo services respond to the needs of cities and towns across Europe.
- **DCS #3 - Infrastructure owners:** Infrastructure resilience underpins a resilient society. To ensure CoCliCo supports private infrastructure owners and operators at the coast to understand the risks they face and how best to respond, this DCS considers the needs of both regional and local private infrastructure owners, so they are adequately reflected in the co-design process.

This process is summarised below.

Bilateral meetings and findings

DCS #1

For France, the initial aim of CoCliCo was to support the implementation of the Floods Directive. In fact, the current implementation of the flood directive in France is based on hazard and exposure assessments, whereas the principle of the directive is to make decisions based on risk assessments.

The consultation with the minister and officials in charge of risk prevention did not reveal any opportunity to support this process to move from an exposure assessment to a risk assessment. The priority of the French government was indeed the development of the 3rd



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National Adaptation Plan, which has been published in March 2023. An important component of the plan was the definition of a single climate change scenario to harmonize assessments in France. This scenario is aligned with current intended nationally determined contributions and the associated greenhouse gas emissions, leading to 3° Global Warming Levels in 2100. Hence, to support the process, we developed sea-level projections aligned with this national scenario and published them in a paper explaining both the methodology and the implications for decision making on adaptation (Le Cozannet et al., 2025). Further, we completed this assessment with a broader assessment of the decision context in France, showing that the focus on the implementation of the regulation prevents us from developing a strategic vision for coastal adaptation (Cazenave and Le Cozannet 2024; Le Cozannet et al 2025).

Besides this aspect, another priority concern of the French Government is the sustainability of the public/private insurance system for major disasters. The principle of this system is that private insurance industries are covered by a public reinsurer, which covers half of their losses above a certain intensity of events and includes a stop loss mechanism for even larger events. The public reinsurer is funded through a business, cars and house insurance premium set by law. To secure this mechanism, that is, avoid the situation where the State budget is required to cover the losses of the public reinsurer, the premium needed to be adjusted, which required new assessments of climate risks, including those due to climate change (Langrenney et al., 2023). This assessment, usually done by reinsurance companies, currently anticipates a doubling of coastal risks costs by 2050, while Voudoukas et al. (2020) anticipates a multiplication by around 10. Though these are preliminary results, not yet integrated in policies, CoCliCo results tend to support an increase of risks that is larger than the current conservative estimates of insurers. While this does not compromise the entire insurance system – most costs remains drought impacts on buildings - this is an example of the usefulness of CoCliCo to support national decisions. The reinsurance company and the ministry in charge of Environment have been informed about these results, while the specific recommendations to support the sustainability of the insurance system are presented in the report Langrenney et al. (2024).

Overall, this case study illustrates the importance of assessing the decision context precisely to make sure that the services inform actual decisions, which are sufficiently high in the agenda of stakeholders to be taken forward.

Further work, beyond CoCliCo, will consist in refining and updating current national assessments in France, such as the costs by 2050 and estimates of the building at risks, which are an important concern both for the Insurance industry and the ministry in charge of environment.

DCS #2

Using the ICELI network and the relationships established during CoCliCo to date a series of bilateral meetings were held with Malmö, Helsingborg, Valencia, and Jesolo. The purpose of



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these meetings was to present the platform (led by WP2), discuss immediate feedback, and provide the opportunity for the users to review the platform themselves and provide considered feedback.

Each bilateral meeting followed the same agenda:

- A brief recap CoCliCo (led by WP1 and WP2)
- A presentation of the evolving CoCliCo platform (led by WP2)
- A moderated discussion of the opportunities for improvements to refine the final stages of development (mutual dialogue led by WP1)
- Opportunity to contribute to the Validation workshop (to be held later and discussed in Chapter 3 below).

Given the bilateral meetings engaged those already connected to CoCliCo, read-ahead material was not provided. The meetings held included:

- 25 Nov 2024 – Valencia
- 4 Dec 2024 - Helsingborg
- 18 Dec 2024 – Malmo
- 19 Dec 2024 – Jesolo

The individual responses are not recorded here as they were for internal development purposes (formal validation responses are discussed in Chapter 3). The immediate responses during these meetings and follow-up written comments ranged from suggestions and questions for:

tactical improvements:

- The explanation of the x-axis that disappears in the dashboard.
- It would be good if there was some reference between the places you add to the dashboard. I added three cities but could not figure out which graph was from which city.
- When I try to add Sea level rise to the dashboard, nothing happens

Understanding and framing questions

- What is the scenario "high end"?
- For some data sets SSP are used. For others RCP are used. Would it not be better to only use RCP or SSP?

The responses continued to reinforce that users found the platform valuable: *the tool is certainly very useful and interesting for technicians and policy-makers*, Jesolo Community feedback



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DCS #3

The final round of refinement built upon the ongoing discussions between NGRM and EDF during the project, the dedicated workshop in Rome focused on the issue of harbours, ports and private infrastructure (organized by Federlogistica) to provide bilateral meetings with the port of Naples and Genova.

- 10 Dec 2024 – Genova
- 16 Dec 2024 – Port of Naples

In addition to the general points of discussion as above, a focus was placed on:

- Discussion of how to refine the CoCliCo service to support the needs of port authorities
 - Recap of what information on coastal climate are the needs of the authorities
 - Are there particularly outputs or datasets that are most important in the platform?
 - Any suggestions to make the platform more useful/useable for port authorities?

A literature review of the approach to adaptation within ports and harbours and decision support needs continued through this period (supported by CoCliCo) and provided additional insight to the process of review (Jenkins et al., 2025). As reflected in the discussion with Genova and Naples the wider review highlighted the limited evidence in the Adaptation Report Power (ARP) reports in that ‘adaptation’ by ports and harbours is mainly reactive and not anticipatory (although this is changing). This provided a useful focus with CoCliCo to ensure we understood that the

- Large ports tend to remain focused on mitigation (e.g. shore to vessel electrification) and adapting incrementally to improved today’s resilience (both on and off port estate (rail connections etc.)).
- Capabilities (understanding of) sea level rise and impacts tend to be limited but conversely capacities in engineering, planning and delivery are high.

Consequently, the refinement meetings highlighted the significant opportunity for CoCliCo to be used to improve basic awareness of change, and importantly, access boundary conditions. Impacts are highly port specific (and best known by the ports themselves) but the CoCliCo boundary (and access to datasets) provides an important onward modelling opportunity.

Overall feedback from partners and champion users during the refinement process

Over the course of the test-based refinements (but also the end-user interactions through bilateral meetings and the validation workshop) we have received extensive feedback on the different versions of the web viewer presented to both the champion users and the consortium partners (as summarised in Appendix 1). The appendix lists 73 individual lines of feedback compiled from the interaction moments, along with the type of topic the feedback relates to. Feedback ranges from more generic comments on the platform layout to very detailed suggestions on certain datasets. We have done our best to take into account the feedback, if



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within the scope of the CoCliCo project. The end result this process can be seen in the final platform available at <https://platform.coclicoservices.eu/>.

3. Validation Workshops

Objective

The Validation Workshops held on the 4 and 5th March 2025 had the objective of presenting the science advances, the policy implications and most importantly for these workshops to demonstrate the tools and provide users with an opportunity to self-explore the tool (during the meeting and following) and to gather feedback. The findings of this process are presented below for Day 1 (a closed workshop open to Champion users and other invitees) and Day 2 (open to all, with invites sent to all CoCliCo stakeholders).

Day 1 Validation Workshop – Champion Users and other invitees

Context

Day 1 of the Validation Workshop was held on 4 March 2025. This date was deliberated chosen to follow the refinement of the platform through bilateral discussions held with Champion Users during the final months of 2024 and early 2025. This enabled the near final version of the full-track platform to be validated and discussed during the workshop.

Objective

Day 1 had three primary objectives:

- To recap and better understand the challenges and evidence gaps stakeholders face in responding to climate change
- To present and discuss the latest developments of the CoCliCo platform.
- To elicit stakeholders' responses regarding validation of the platform (through a series of slido questions)

Agenda

Following an introduction, Champion Users provided a series of short presentations to recap the challenges they face in adapting to coastal change and how they are responding to those challenges. This provided the foundational context for the validation discussions. Importantly, users had been given the opportunity to address and explore the CoCliCo platform before the meeting (via the test-based refinement process reported in Chapter 2), and this recent exposure and use of the platform underpinned their reflections on what role they see for services such as CoCliCo and possible future development priorities.

The user presentations covered each Demonstration Case Study area:



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A focus on national scale planning

- National response to coastal change: Netherlands (Q. Lodder)

A focus on infrastructure provision

- Energy provision - Adapting to coastal change (EDF)
- Ports and harbours - UK and the Mediterranean: Adapting to coastal change (K. Jenkins, Roberto Tomasicchio)

Focus on towns and cities

- City of Helsingborg (S. Sandgren)
- City of Valencia (E. Servera Martinez)
- City of Malmo (P. Svensson)
- City of Jesolo (N. Contarin, F. Provedel)

These presentations provided the foundation of the discussion and set the scene for the second part of the Validation Workshop in which the CoCliCo team presented:

- The Science advances (G. Le Cozannet)
- The insights into policy and practice (P Sayers)
- Introduction to the Platform and e-Guidance (A. Luijendijk)

The final session provided a demonstration and live exploration of the platform:

- Guided tour of the CoCliCo platform, including the user case studies
- Breakout for hands-on use of the full-track version of the platform
- Discussion and feedback

All the presentations and the recording are available within the project record.

Attendance

Day 1 of the workshop was well attended with 39 attending. The attendance records are available on within the project record but not included here (reflecting GDPR rules).

Validation responses and workshop findings

Following the presentations and the hands-on practical sessions, the attendees were asked a series of questions to elicit insight into the objectives set for the meeting. The questions and responses were managed through the Slido software with selected results given in Appendix 2.

Concluding comments and recommendations

The overall positive response confirmed the utility of the co-design process and highlighted important areas for future development as the CoCliCo transitions to an operational service. This focused on user interaction and simplistic as well as continued development and



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enhancement of the resolution (allowing user data to be included easily) and the adaptation response.

Day 2 Validation Workshop – Stakeholders and wider users

Context

Day 2 of the Validation Workshop was held on 5 March 2025 and was open all stakeholders registered with CoCliCo and those connected through a campaign of social media (primarily via LinkedIn).

Objective

Day 2 maintained the primary objectives from Day 1, namely:

- To recap and better understand the challenges and evidence gaps stakeholders face in responding to climate change
- To present and discuss the latest developments of the CoCliCo platform.
- To elicit stakeholders' responses (through a series of slido questions)

Agenda

The agenda was slightly adjusted from Day 1 to reflect an audience less familiar with the detail of CoCliCo, as follows:

- The Science advances (G. Le Cozannet)
- The insights into policy and practice (P Sayers)
- Introduction to the Platform and e-Guidance (A. Luijendijk)
- Guided tour of the CoCliCo platform, including the user case studies
- Discussion and feedback

All the presentations and the recording are available within the project record.

Attendance

The workshop was well attended with **76** attending. The attendance records are available on the project site (by appropriate request) but not included here (reflecting GDPR rules).

Validation responses and workshop findings

Following the presentations the attendees were asked a series of questions (modified from Day 1) to elicit insight into the objectives set for the meeting. A full set of the questions and responses is available on the project site, with selected results below.

Concluding comments and recommendations

The overall positive response confirmed the utility of the co-design process and highlighted important areas for future development as the CoCliCo transitions to an operational service.



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Specific comments focused on continuing to improve the navigation and the user stories, and the importance of access to guidance and the continually updated underlying data.

4. Transition to Copernicus

Objective

The strategic goal is to integrate CoCliCo datasets and platform functionalities into the European Digital Twin of the Ocean (EDITO) and the Copernicus Marine Service. In a first step, a simplified version of the platform, based on CoCliCo data, has been implemented on the EDITO infrastructure (<https://coastal-risk.lab.dive.edito.eu>), demonstrating the feasibility of this process. In a second step, the entire platform should migrate on EDITO.

The objectives are threefold:

- Ensure long-term visibility and accessibility of CoCliCo tools and data by embedding them into the European ocean data infrastructure.
- Support operational climate services by enabling localized risk assessments using EDITO's scalable architecture and CoCliCo's data-driven tools.
- Prepare for the next steps: the development of a fully operational platform (TRL9 – technology readiness level), building upon the TRL6 platform developed within the CoCliCo project.

Discussions and findings

The technical feasibility of integrating CoCliCo data and functionalities into the EDITO infrastructure has been positively assessed. No major technical barriers were identified for this integration, and the first steps have already been taken. The demonstrator has been presented at international events such as the United Nations Ocean Conference (UNOC, Nice, France, June 2025) to a wide audience, from EC commissioners to mayors, scientists and the general public. A discussion with the Copernicus Marine User Forum on the interest of Member States for a CoCliCo-based climate service is planned.

The integration of the platform is planned to be done over the summer and autumn 2025. It will offer important added value: CoCliCo provides a unique combination of datasets, coastal risk tools, and visualisation capacities focused on adaptation to sea-level rise that can directly support the goals of Copernicus, its Marine Service, and EDITO in terms of climate resilience. These datasets are at the state of the art: they can be improved with higher resolution digital elevation models and bathymetries and more information about current coastal protection levels. However, the framework will remain. This means that the CoCliCo platform on EDITO can serve as a prototype of a future service.



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The main difficulty related to this migration is securing adequate funding, first for the migration itself, then, for future upgrades. The migration is partly funded by CoCliCo, with complementary funding, still to be secured, within the project partners. Hence this migration can only be based on current best efforts. Further development of the service requires additional financial support, especially to ingest new datasets and to design more advanced functionalities. This financial support will be requested in the next Multiannual Financial Framework (MFF) of the European Commission.

In summary, the EDITO infrastructure appears well adapted for hosting a European platform assessing present day and future coastal flood risks in Europe, and the migration has started, with some encouraging results and a clear demonstration of its feasibility. However, finalizing this process will require commitment beyond the closure of the CoCliCo project by the project partners.

5. References

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6. Appendices

Appendix 1 - Summary of feedback from the test-based refinement process

Table Summary of feedback from the test-based refinement process

#	Feedback on the platform (single item per line)	type of topic
1	regarding user story on SLR projections: can we mask the gridcells over land? this will improve the look & feel of this data product.	sea levels
2	regarding user story on SLR projections: the User Instruction ('select an element on the map') is not visible per default. You have to scroll to see it. Can we make this more apparent / visible? See the image for which instruction I mean	sea levels
3	regarding user story on Flood maps: loading the flood maps requires some time, while it is not clear that the viewer is loading data. Can we somehow show that the viewer is 'loading' data?	flood maps
4	regarding user story on Flood maps: check why LAU's sometimes show weird shapes when clicking on it. Is the extent correctly picked up? Also, put graph in the right upper corner of the LAU in order not to mask half of it.	flood maps
5	Make it clear what is available to users and how to access each: could be (1) data exploration (+ easy download), (2) user story outputs and (3) the workbench. At the moment it is not clear to a new user what is meant by "User Stories" and how that is different from "Data Layers". We propose that User Stories (aggregated and combined outputs) – perhaps renamed simply to "Storylines" for example – be moved to a separate section in the main ribbon on the left of the screen. The three sections could be organized in a similar way to navigation pane in Word?	general
6	To promote the workbench as a resource for all users, it would then make sense to provide the template code used to produce each storyline that could be modified and adapted for more advanced users (and those with low capacity/limited resources with guidance?)	general
7	There should be a way to minimize/move the "Active Data Layers/Dashboard" window. Alternatively move this window to the right-hand edge and make it long (like the main menu) so the user options and any graphs etc. added can be easily seen. Other windows also need to be moveable	general



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8	The data layer information needs to be clear and consistent; at the moment it is confusing or non-existent. Also make clear what the user options are – e.g., spell out return period rather than ‘rp’	general
9	Graphs, pie charts etc. in the Dashboard need to have a location added	general
10	Check colour choices (comment in Santander)	general
11	Link data layers directly to relevant information in the STAC catalog (and for download)?	general
12	The presentation has little context.	sea levels
13	Presenting the "high high end" scenario without any context or caveat may lead experienced users to lose credibility in the platform, or alarm less experienced users. Values are much higher than anticipated in other projects by 2150 (PROTECT)	sea levels
14	The y-axis on graphs does not coincide with the data.	sea levels
15	No need to report numbers with such precision, 1 decimal place may be sufficient.	sea levels
16	The figure shows all scenarios and ensembles no matter which combination was chosen in the active data layer window. Representing only the chosen scenario/ensemble for the selected point could remove bloat in the figure.	sea levels
17	The raster grid does not line up well with the coastline and this could be confusing for local-level users as no SLR is reported in the blank spaces. Could SLR projections be shown as points, or line segments instead?	sea levels
18	Not sure what the purpose of the scale is, the data doesn't seem to change colour despite changing the scenario choices (same for other layers)	sea levels
19	Are sea level rise projections 'user stories'? Might be better as just data layers	sea levels
20	The info text on these two layers is not clear. How are they different? Does TWL not include surge? It would be better to describe exactly what is shown in simple terms. The methodology to derive the RPs (Peaks Over Threshold) can be moved to technical material elsewhere.	extreme sea level and extreme surge level
21	Links in the info text but no way to click them.	extreme sea level and extreme surge level



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22	Are users going to be able to download the flood maps themselves? There is a mismatch here with the visible flood areas and the user storyline area-based outputs.	flood maps
23	Flood maps are slow to load	flood maps
24	Some NUTS2 regions seem to be truncated, e.g. why is the Isle of Wight divided into 3 polygons?	flood maps, see also comment #4
25	Will users be able to select multiple admin units and get a combined result?	flood maps
26	What is the "none" scenario? Rename, or explain somewhere.	flood maps
27	Would be good if the difference between scenarios could be shown	flood maps
28	The data does not show if you are too zoomed out giving the impression it has not loaded. Could you zoom in automatically to the maximum zoom for the layer that was activated last, if the current zoom is greater?	shoreline change
29	y-axis should scale to data	shoreline change
30	The graphs only show change between 2050 and 2100; will this be replaced with other data? Graph needs more explanation	shoreline change
31	Fix the edible (dynamic) colorbar / limits to work properly on the data layers	floodmaps, SLR etc
32	Now I am able to do assessments on local scales (LAU), can we also enable aggregation to NUTS0 and NUTS2? What about the people projections dataset, do we mask data outside polygons? Not the same as the floodmaps, we have pan-EU wide covering data! Think!	general
33	I have been playing with the platform. I have one suggestion that might be valuable. I think it would be valuable to combine/confront the: - Extreme surge level (ESL) curve- SLR curve. This is especially interesting because it helps understanding the change in frequencies of "extreme" events. Locations like NL and Germany have a steep Extreme Surge Level curve. This result is a relative moderate change in return period of a specified extreme water level. However, for example the Baltics, the Mediterranean and the open Atlantic coasts (Portugal, Spain, Marocco) have a moderate ESL curve. Which means that the change in return period of a specified extreme water level is much bigger. Rendering these areas from that perspective more vulnerable.	storm surge



34	Validation workshop feedback special attention was on getting erosion data in. The platform now is primarily focussed on flooding whereas erosion is also a parameter that should be and can be addressed	erosion
35	The explanation of the x-axis disappears in the dashboard	general
36	It would be good if there was some reference between the places you add to the dashboard. I added three cities but could not figure out which graph was from which city.	general
37	When I try to add Sea level rise to the dashboard, nothing happens	sea level rise
38	What is the scenario "high end"?	general
39	For some data sets SSP are used. For others RCP are used. Would it not be better to only use RCP or SSP?	general
40	Contact info for datasets if questions about specific location results	general
41	The i should be clickable to enable user to click on PDF link to get more info	general
42	Add a user story demo explaining how one can use the platform for ... (e-guidelines?)	general
43	What do variables mean? à put in i buttons (short texts) and put PDF in for more info	general
44	Figure on sea levels; TWL = Mean SLR + surge + extreme waves, how to combine or why decoupled?	sea levels
45	On a small screen, the dialogues takes up a lot of space	general
46	Strange order of time & Without information (the circles with "i" are greyed out) it is not possible to understand "defence level, rp	Flood Maps
47	Are there missing data regarding inundation?	Flood Maps
48	From time to time the graph does not show on the dashboard. Only the X-button.	general
49	Should this be interpreted that the extreme sea level decreases in the future?	Sea Level
50	I don't know if you want it to be very user-friendly for everyone, but I miss a 'help' section or a place where you briefly explain points such as the methodological basis, what 'high_end' scenario is and other concepts that are more or less intuitive, but it would be good to know what is considered 'high_defended_map' (based on what), etc.	general
51	I don't know if this was my mistake, but the boxes overlap (the 'active data layers' box doesn't let me see what's underneath)	sea levels
52	Some axis titles or other texts in the graphs are also cut off sometimes	sea levels



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53	In the exposure and vulnerability section, nothing appeared for me, I suppose I either did something wrong or it's still in progress. On this, what you already commented on about the potential it could have to directly show a diagnosis by impact chain and that could be selected by neighborhoods/census sections. It would be nice to have info regarding the cost of inaction versus other alternatives (“hard” engineering, NbS, ...)	Exposure & vulnerability
54	It would be good if the mouse pointer could change to show that you can click in some points to get information related to that specific point. Currently, for instance in the sea levels section, it shows the same shape (a hand) if you are moving it over land or over the sea. It might make some users not aware of how they should use that section.	general
55	In the images downloaded from the dashboard axis titles are also cut off	dashboard
56	Two user stories can be active at the same time, but results obtained after requesting a specific location analysis appear to be related only to one of them. It might be difficult for the user to know what’s going on, or to notice they must turn off one the user stories to use correctly the other one	general
57	In the “Inundation distribution during flood events” it’s difficult to know if it works or not. I don’t see anything, I can’t get any information. I guess it might be related to choosing the wrong combination of defense level/rp/scenarios/time but I’m not sure. If it’s related to that, it would be good that the options are dynamically adjusted so once you choose a defense level, for instance, or a certain scenario, only the relevant options for the rest of variables are shown	natural hazards
58	Maps don’t show any kind of legend, making it difficult to understand them	general
59	Is it under construction? Nothing is shown there	Exposure & vulnerability
60	Long data layers name appear cut-off	general
61	When we zoom in/out it takes some time for the visualisation of map/data to adjust. Nevertheless, the highest degree of detail (when we zoom in) is very precise!	general



62	This brought us to wonder how the platform chooses the label/name of the places it shows: in the case of Jesolo there is an abundance of hotels/resorts' names but only seldomly does the map show street or square names. Not that this is necessarily a bad thing (it might prove to be very useful should the private sector be involved at some point), although we thought the instrument seems particularly useful for policy-makers and hence a more "institutional" approach to local geography could be more versatile.	general
63	Again, when we look at the map at the maximum zoom in, we seem to notice some kind of "orographic elevation" represented (if we can call them like that in the case of Jesolo). It is not clear to us whether the map represents these in such detail (even when we think the land is completely flat) or if there is some kind of graphic texture to avoid total white... Not that this is a problem in itself, it just seemed strange because it almost looked like there was some kind of dunes on the beach of Jesolo.	general
64	When starting to use the labels of the various options, especially the ones in the drop-down menus, we found that the "names" of the selectable options were a little obscure (at least to us, who are quite amateurs for the subject), and we couldn't find an explanation for what each option means. Maybe it is there somewhere but it is definitely not easily accessible from the platform - we couldn't find it anyway.	general
65	Generally, the platform seems a little slow (but this might be due to our computers' capabilities...): when we first inserted some options in the "Sea level rise projections" category the platform appeared to be working and doing some calculations but nothing happened (or it took a very long time to show the results); When we activated the "extreme surge level" and "extreme sea level" we had a few "dots" appearing (although again it took some time) - at one point there was a "white square" coming up where the results should have appeared but instead it remained stuck and we had to exit the platform and come back in.	general



66	We noticed the possibility to access the Data Catalog and the Workbench at the bottom left side of the menu, although it is not clear how these are connected to the operations that you can do on the map - it would be good to have some kind of explanation (already from the map display, maybe with a "i" information sign) on how these instruments can be useful.	general
67	There is an orange layer that appears over the seas according to the options that are selected. It is very grossly chunked into squares, though, and very approximated. It does not get better or more refined if we zoom in. I suppose this might be due to the graphic capability of our PC?	general
68	We thought that the dashboard instrument can certainly be very useful. It was only possible to pin graphs of results to the dashboard only within the same "category" though (for example, only within "Sea level rise projections"). Again, we are no experts, but I wonder if it would be useful/interesting to keep some graphs from one category - such as "sea level..." - and then switch to another one like "Natural Hazards" or "Risk & Adaptation" and pin some other results to the dashboard to systematise all these.	general
69	Again, on the dashboard, and because it seems so interesting, it is a pity that it cannot be expanded to improve the visualisation of all these data in order to compare between them. It would be good if you could re-size it according to your needs (even if just to reduce it in order to have a better, wider look at the map).	general
70	We tried interacting on the "Natural Hazard" category but no matter what we did or the combination of options we selected, we only seemed to achieve some kind of graphic "reaction" along the North-Eastern coast of Germany. Maybe this part of the platform has not been completely implemented, or maybe it needed more time to showcase the results?	general
71	We thought that in the "Risk & Adaptation" category there was a very appealing and interesting visualisation of results through a pie-chart. But again, for amateurs like us, it was not clear what this pie-chart meant to say. Each "slice" had a name but what seemed to be missing was the actual question.	general



72	We found the same issue when we activated the "Shore line change" option that triggers the appearance of a dotted line representing the regression of the shoreline. Again, very interesting and quite intuitive, I guess, but maybe it would be good for it to be "stupid-proof" and explain more thoroughly what the input is and what the output is.	general
73	Though it was a bit difficult to check the data on the platform as the layers are missing a legend. Related to this I realized that in the visualization of the layer one value class is missing ($= 0$). I think it is important to indicate those cells with no population specifically. As it is now, these cells fall into the color category between 0-2. I have attached the file again for a possible color scheme. Here cells with no population are grey. The remaining categories are colored as you have already implemented in the platform.	population projections



Appendix 2 – Validation Workshop – Day 1 – Slido results

The scale in the following chart refers to (1) Strongly disagree or Very little to (5) Strongly agree or Very much (or similar)

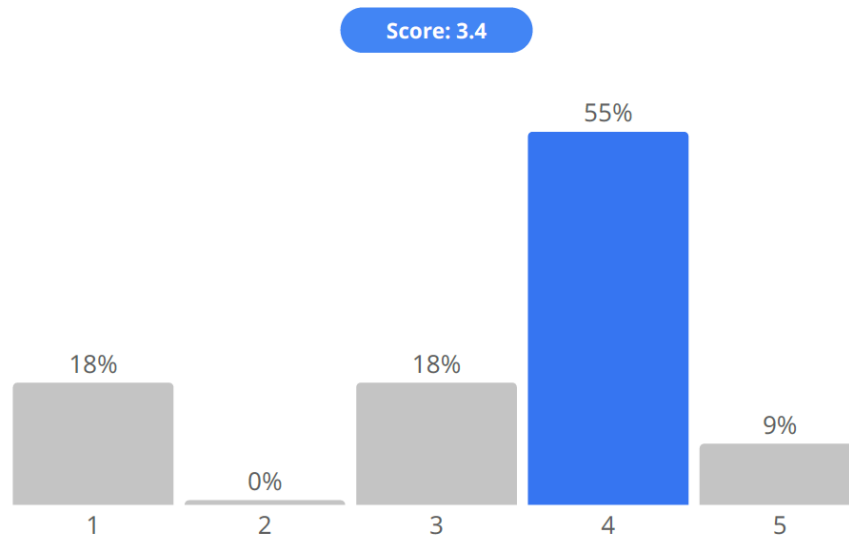


Figure 1 How seriously is adapting to coastal change being taken in your region/sector?

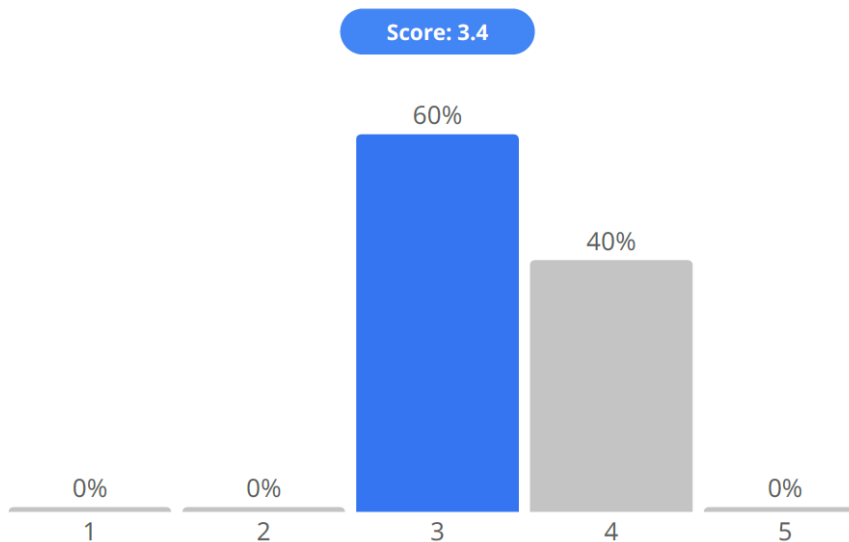


Figure 2 Can tools like CoCliCo help encourage appropriate action and urgency?



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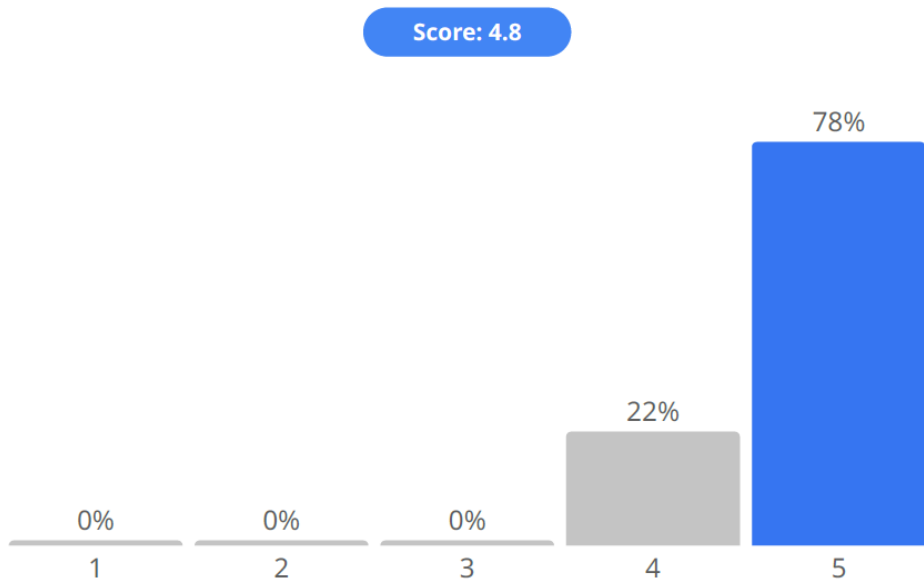


Figure 3 Would you use CoCliCo to access the latest projections of sea level rise?

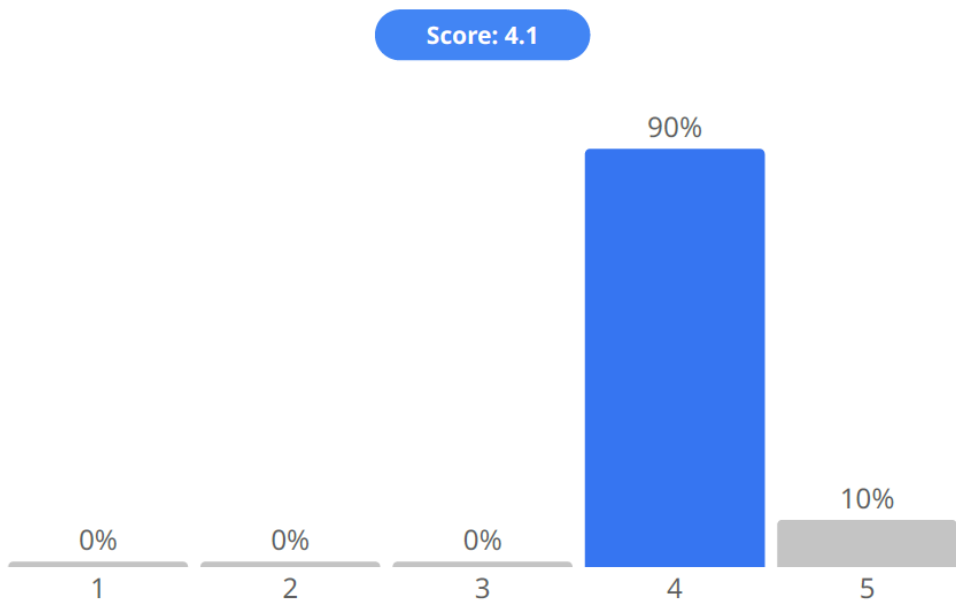


Figure 4 Can you see how you could use CoCliCo to help you assess present and future changes in coastal risk?



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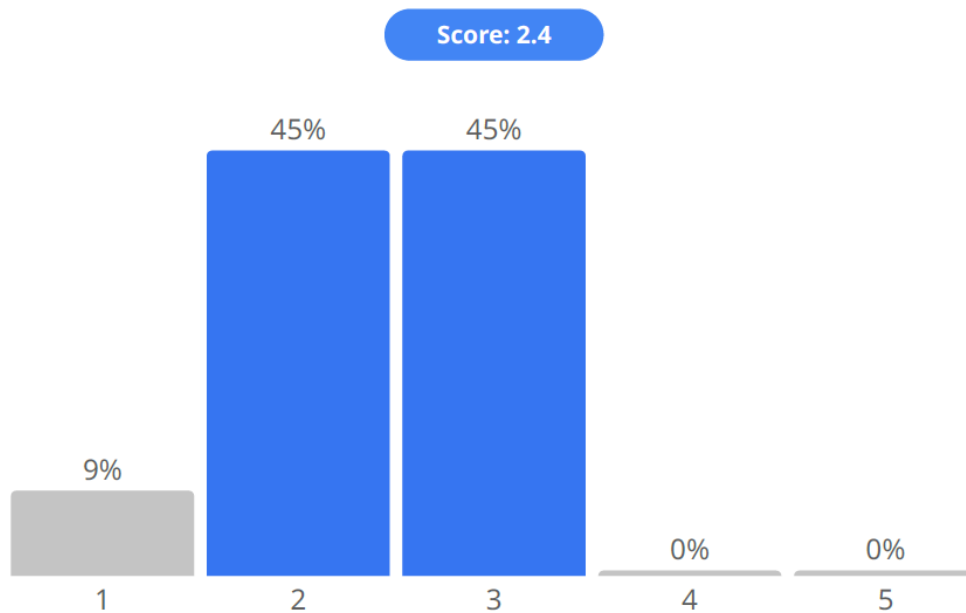


Figure 5 Can you see how you could use CoCliCo to help you explore for adaptation decisions?

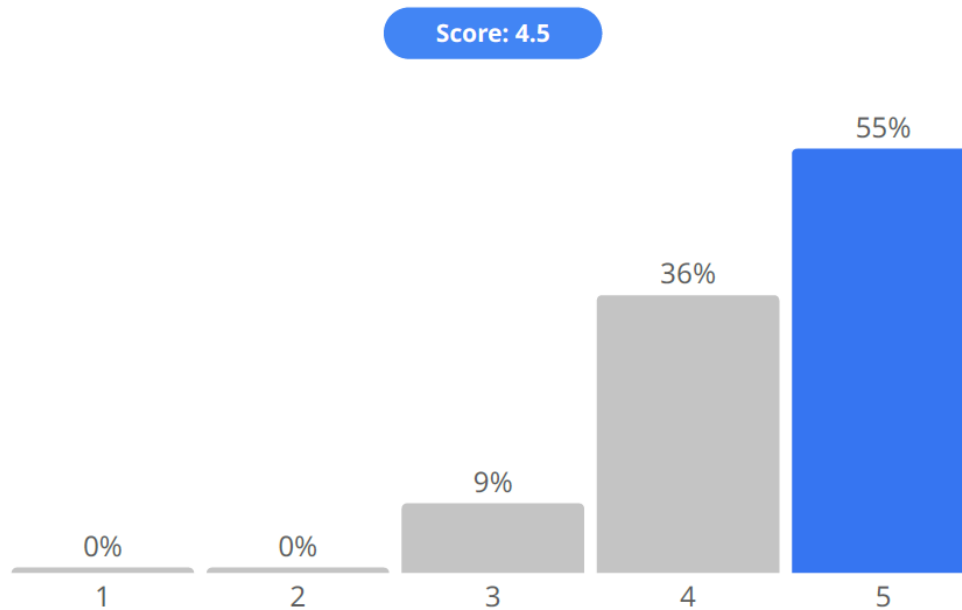


Figure 6 Would the onward development of the CoCliCo as a Copernicus core service be useful?



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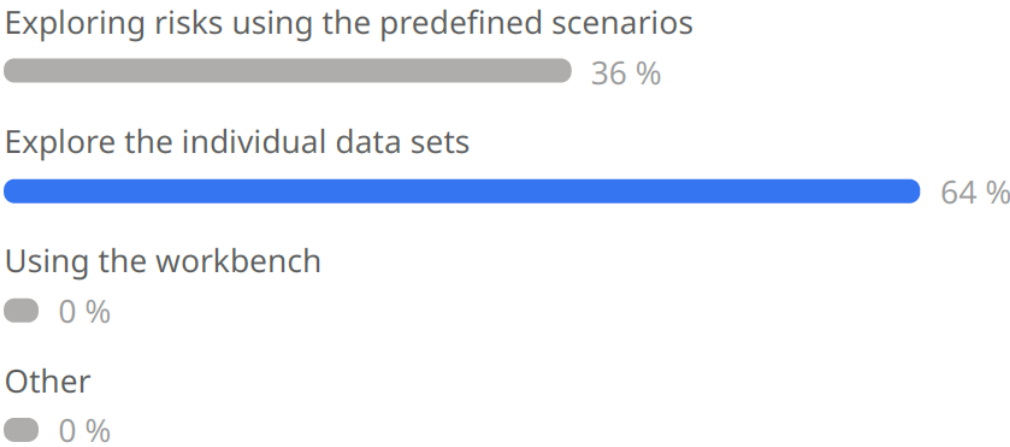


Figure 7 How are you most likely to use the CoCliCo platform if it gets transferred to Copernicus?

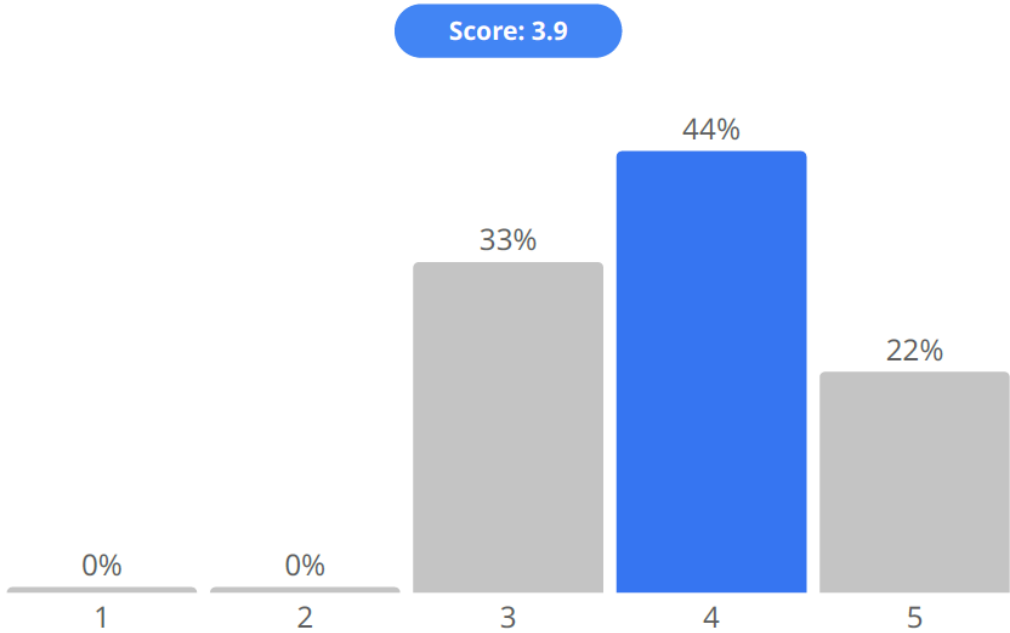


Figure 8 CoCliCo has been developed using a co-design approach. How successful has this been?



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Easier navigation and guidance



Export selected data



Access to underlying data



Something else



Figure 9 What do you see as the key priorities?



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Appendix 3 – Validation Workshop – Day 2 – Slido results

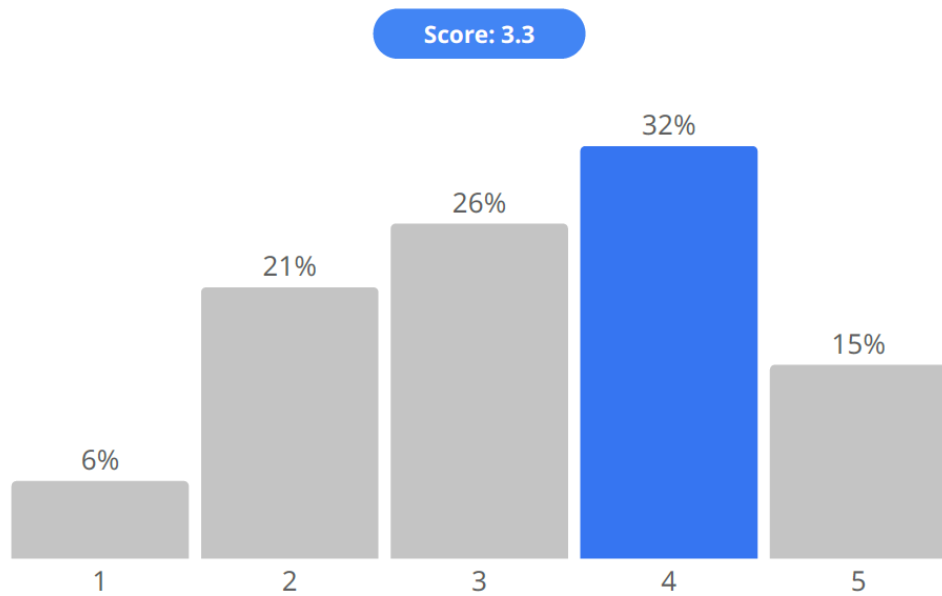


Figure 10 How seriously is adapting to coastal change being taken in your region/sector?

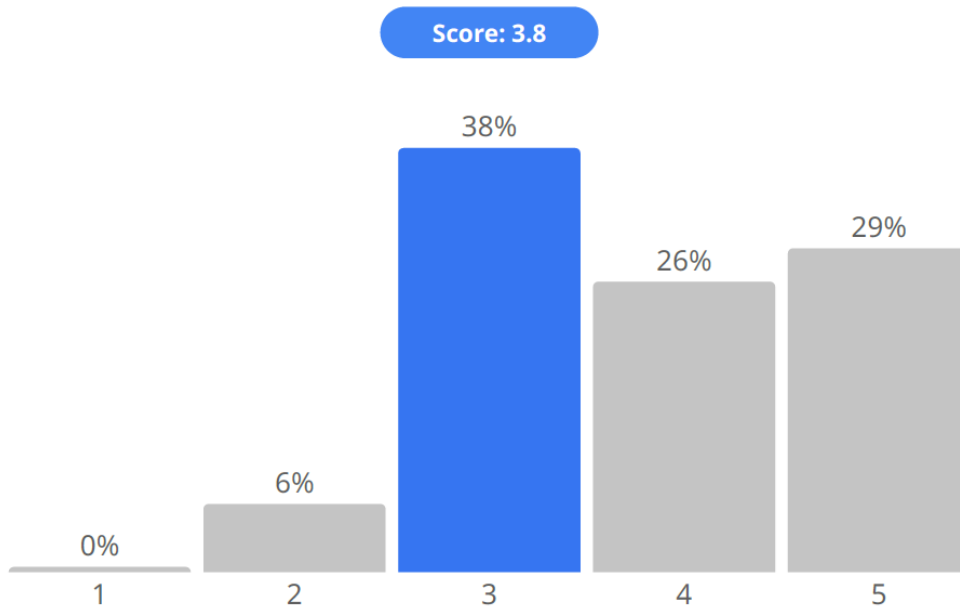


Figure 11 Can tools like CoCliCo help encourage appropriate action and urgency?



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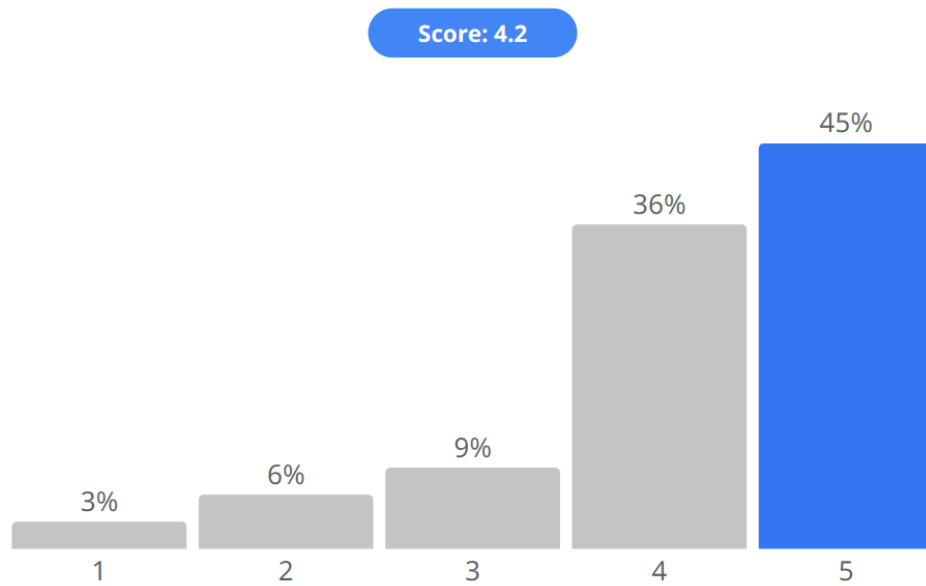


Figure 12 Would you use CoCliCo to access the latest projections of sea level rise?

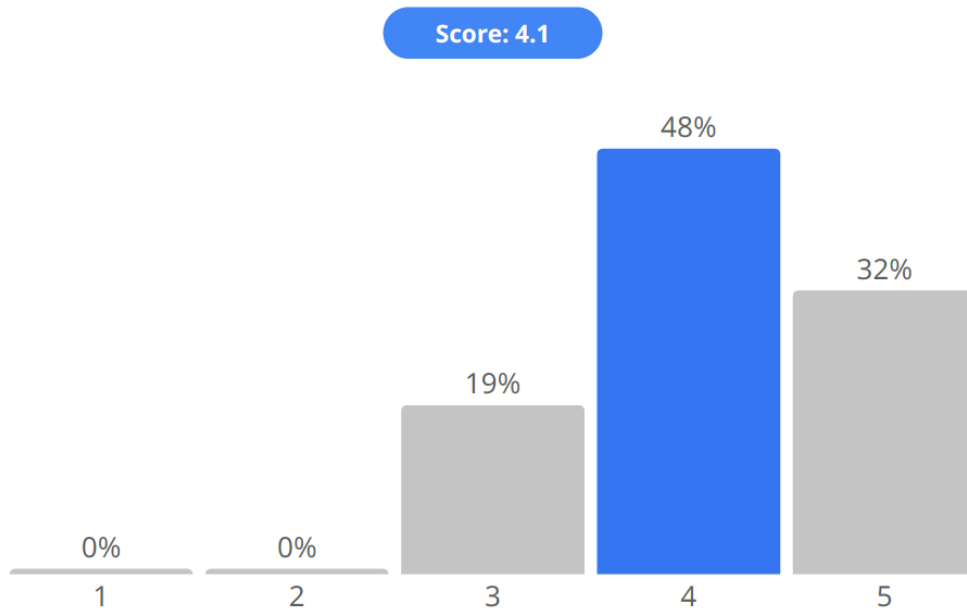


Figure 13 Can you see how you could use CoCliCo to help you assess present and future changes in coastal risk?



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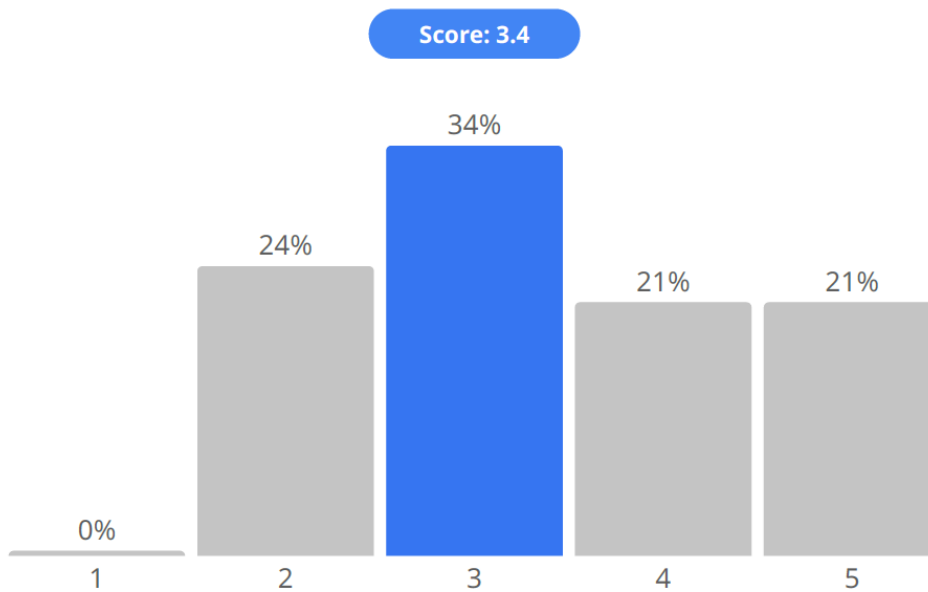


Figure 14 Can you see how you could use CoCliCo to help you explore for adaptation decisions?

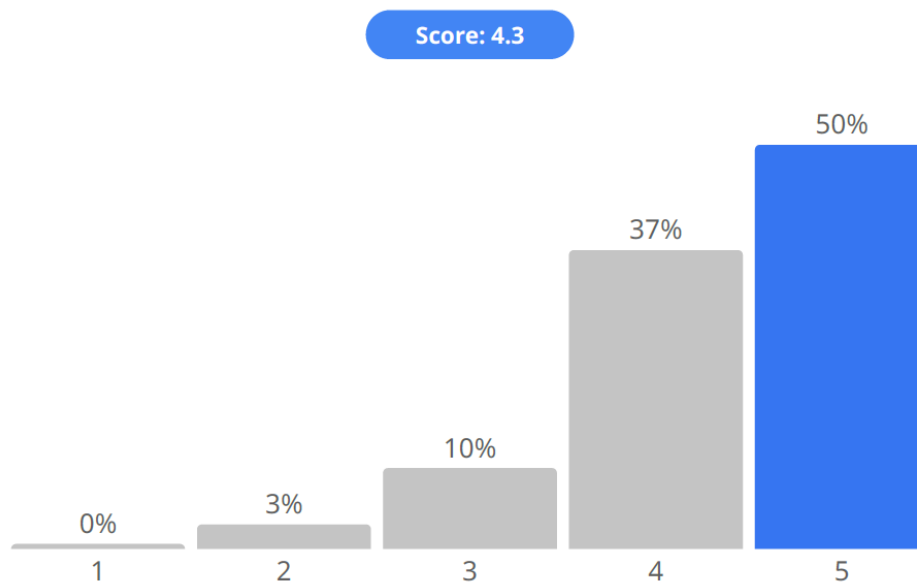


Figure 15 Would the onward development of the CoCliCo as a Copernicus core service be useful?



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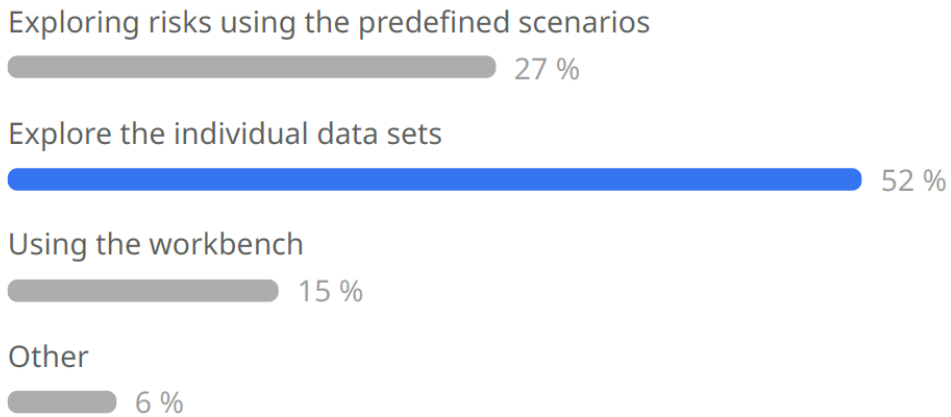


Figure 16 How are you most likely to use the CoCliCo platform if it gets transferred to Copernicus?

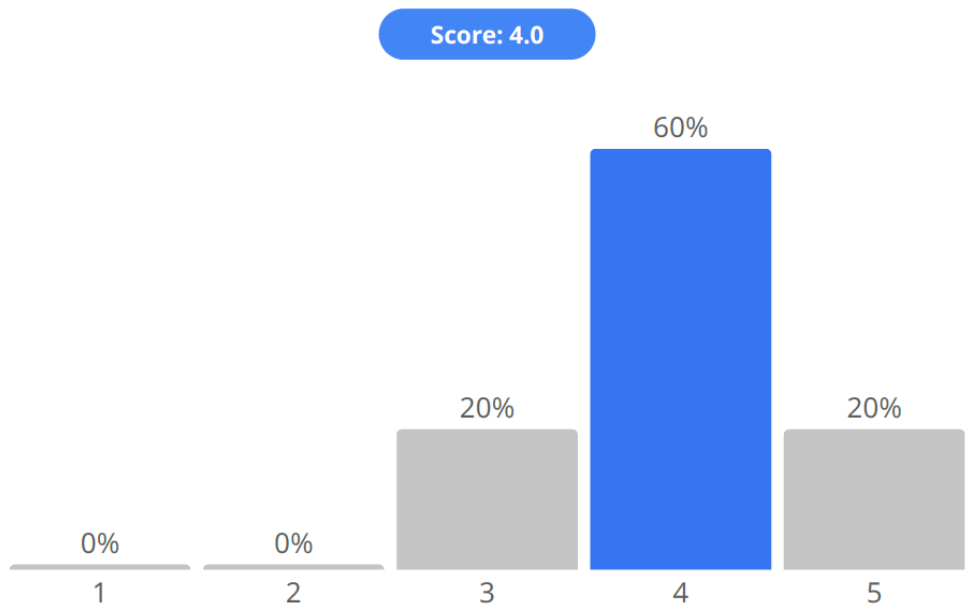


Figure 17 CoCliCo has been developed using a co-design approach. How successful has this been?



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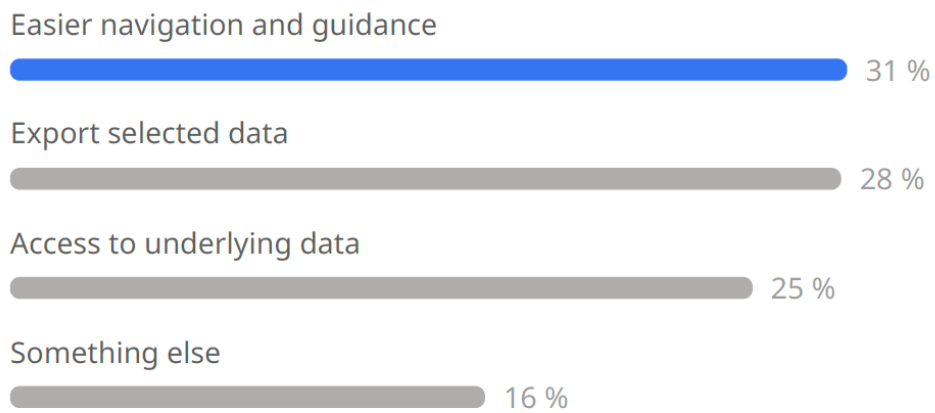


Figure 18 What do you see as the key priorities for future service development to encourage widespread use?

