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# Experiences with a Collaborative Map Use Interface in Remote Courses of Maritime Spatial Planning

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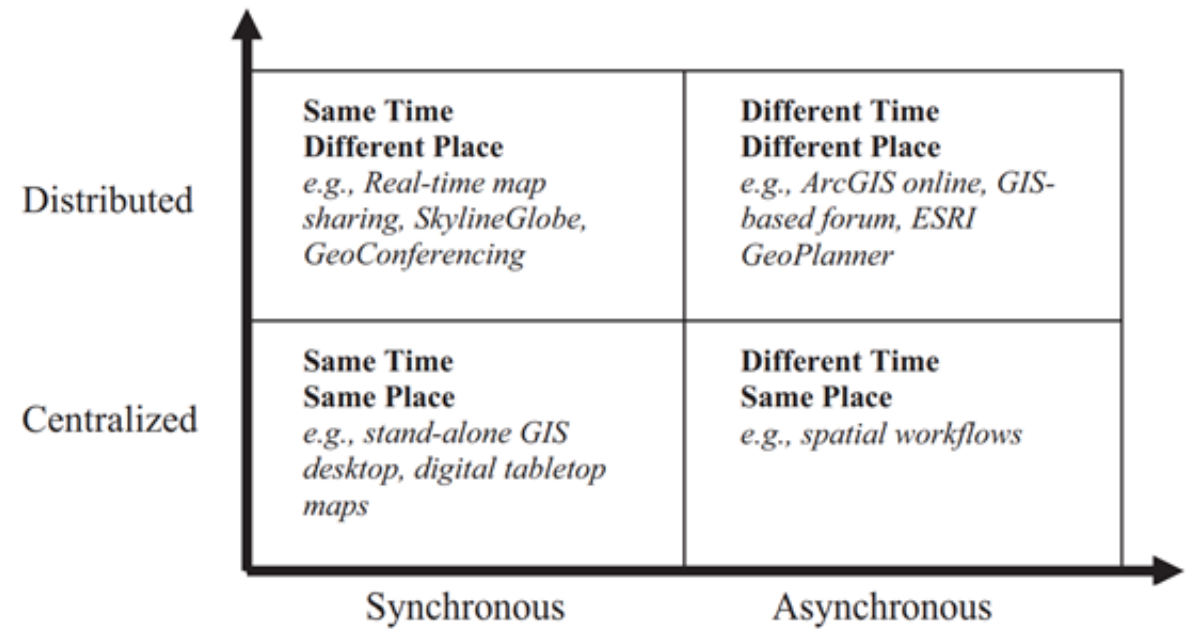


# Collaborative GIS (CGIS)



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- CGIS offers tools for structuring participation in spatial decision processes of groups (Balram & Dragicevic 2006).
- CGIS provides benefits for collaborative MSP
  - real-time interactions, inclusiveness, social learning and awareness about the shared challenges that need common solutions (Balram et al., 2003; Godschalk et al., 1992; Roche and Humeau, 1999).
- Collaborative MSP is usually set in the Same Time - Same Place dimension.



**Fig. 1.** Groupware classification based on time and place dimensions (Armstrong, 1993).

# Maritime Spatial Planning



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- Marine or maritime spatial planning (MSP) requires multiple actors, such as planners and stakeholders, to work together for planning harmonic use of marine space, often in collaborative workshops (Arciniegas and Janssen, 2012; Pınarbaşı et al. 2017).
- In real-world MSP, collaboration digital spatial tools are used sparingly.

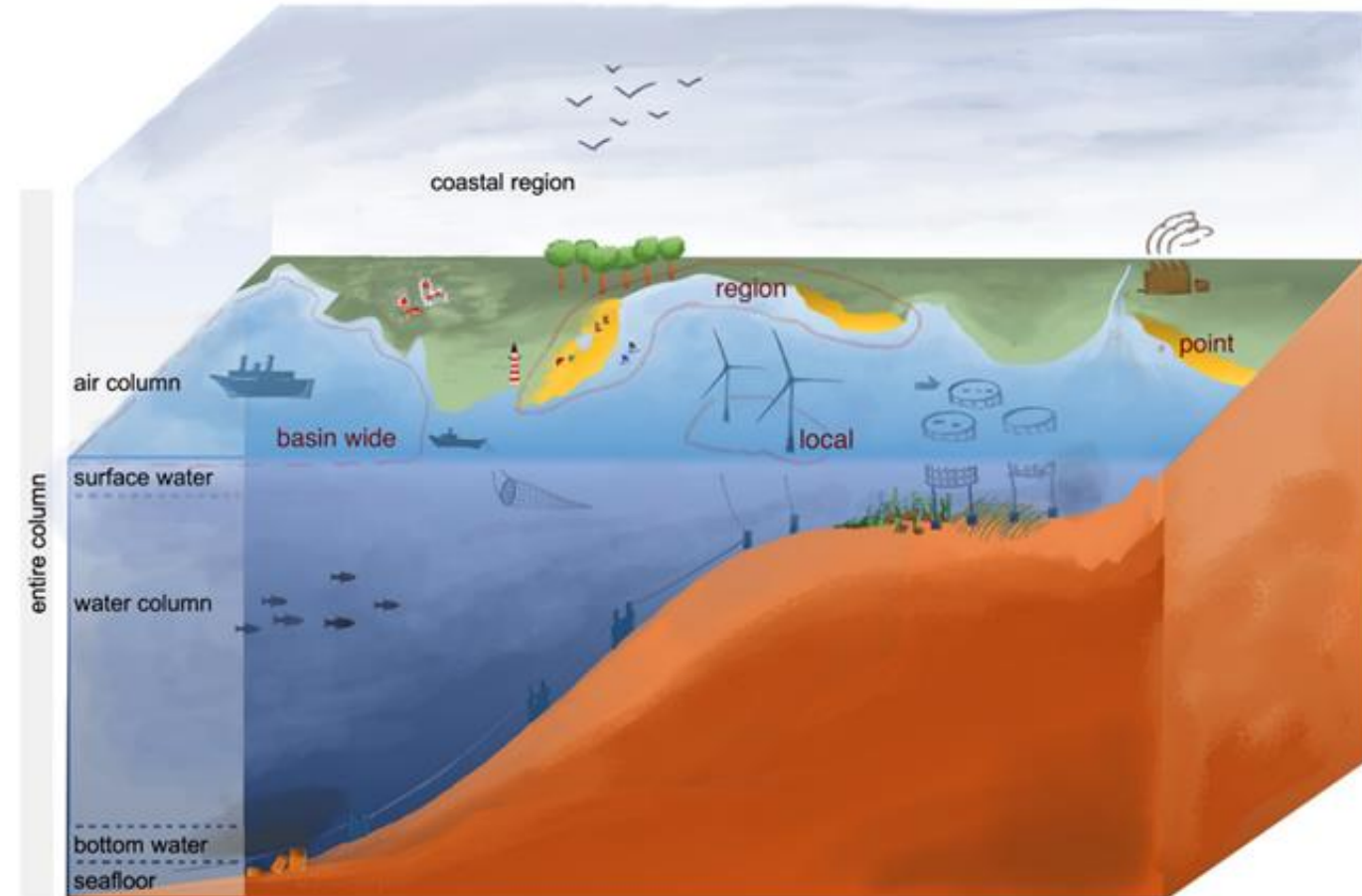


Image source: Holzhüter et al. 2019.



# CGIS to support MSP collaboration



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Paper maps on table →



Shared online map workspace on multiple devices

# Research aims

- Adapt a CGIS designed for MSP workshops to online university MSP courses

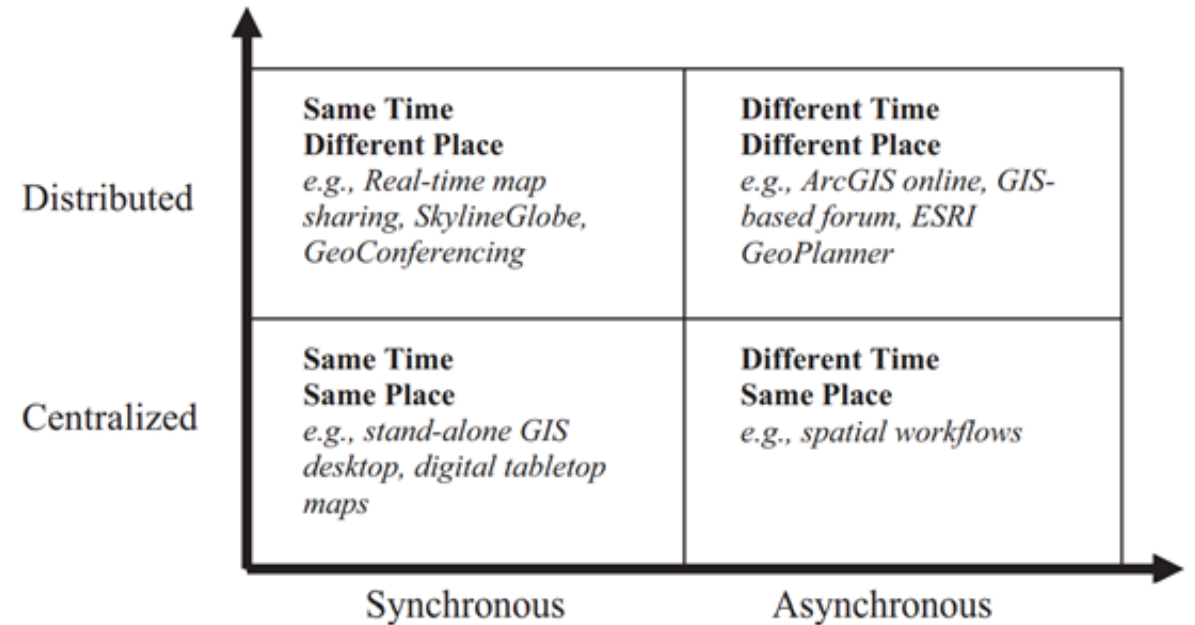
Same Time - Same Place

to

Same Time - Different Place

- Study how the concept of CGIS works in MSP courses

– Issues and benefits of CGIS?

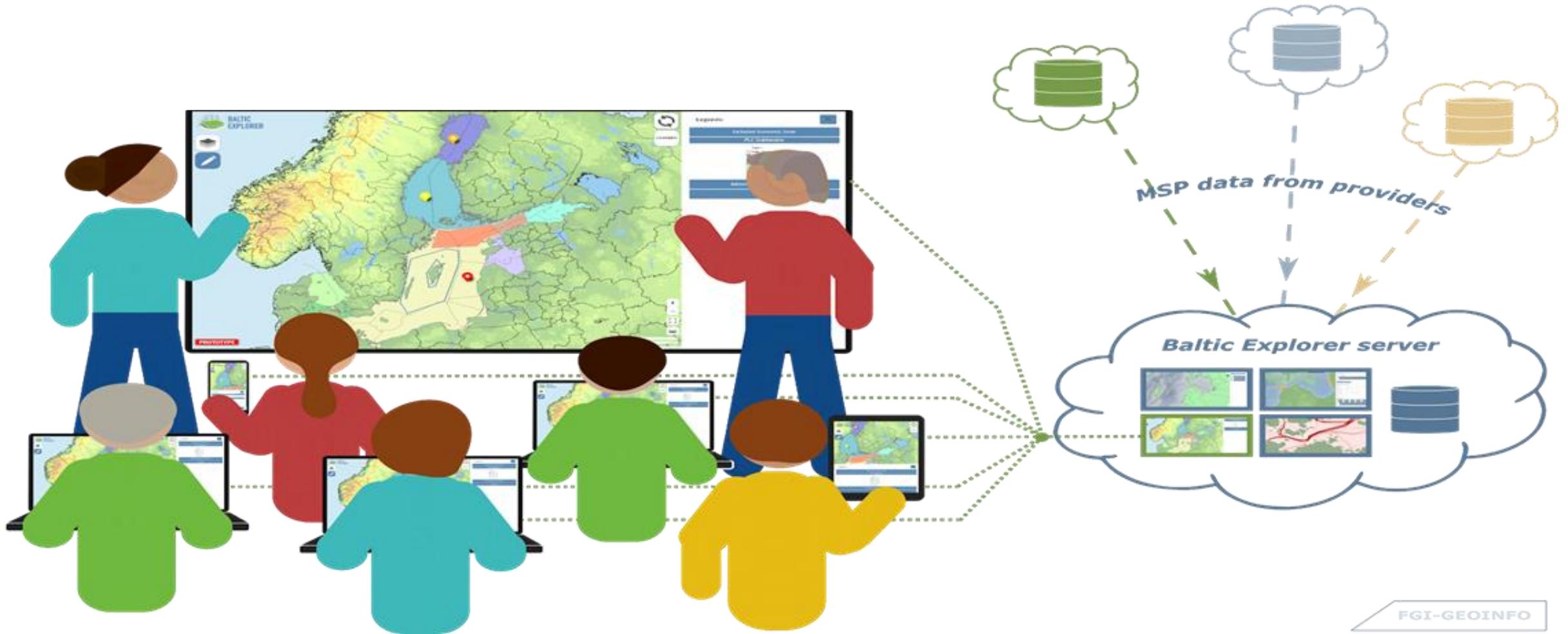


**Fig. 1.** Groupware classification based on time and place dimensions (Armstrong, 1993).

# Concept and architecture of Baltic Explorer



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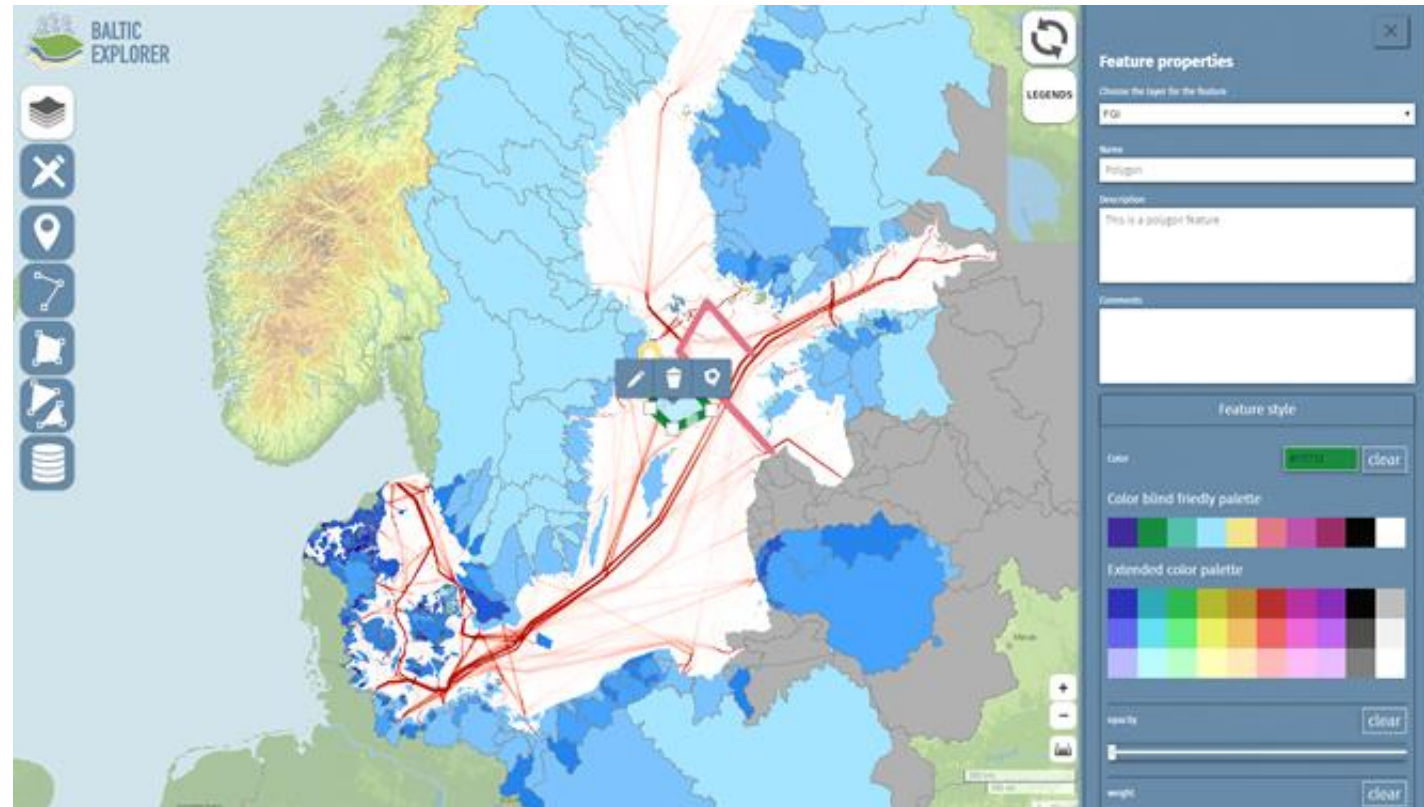


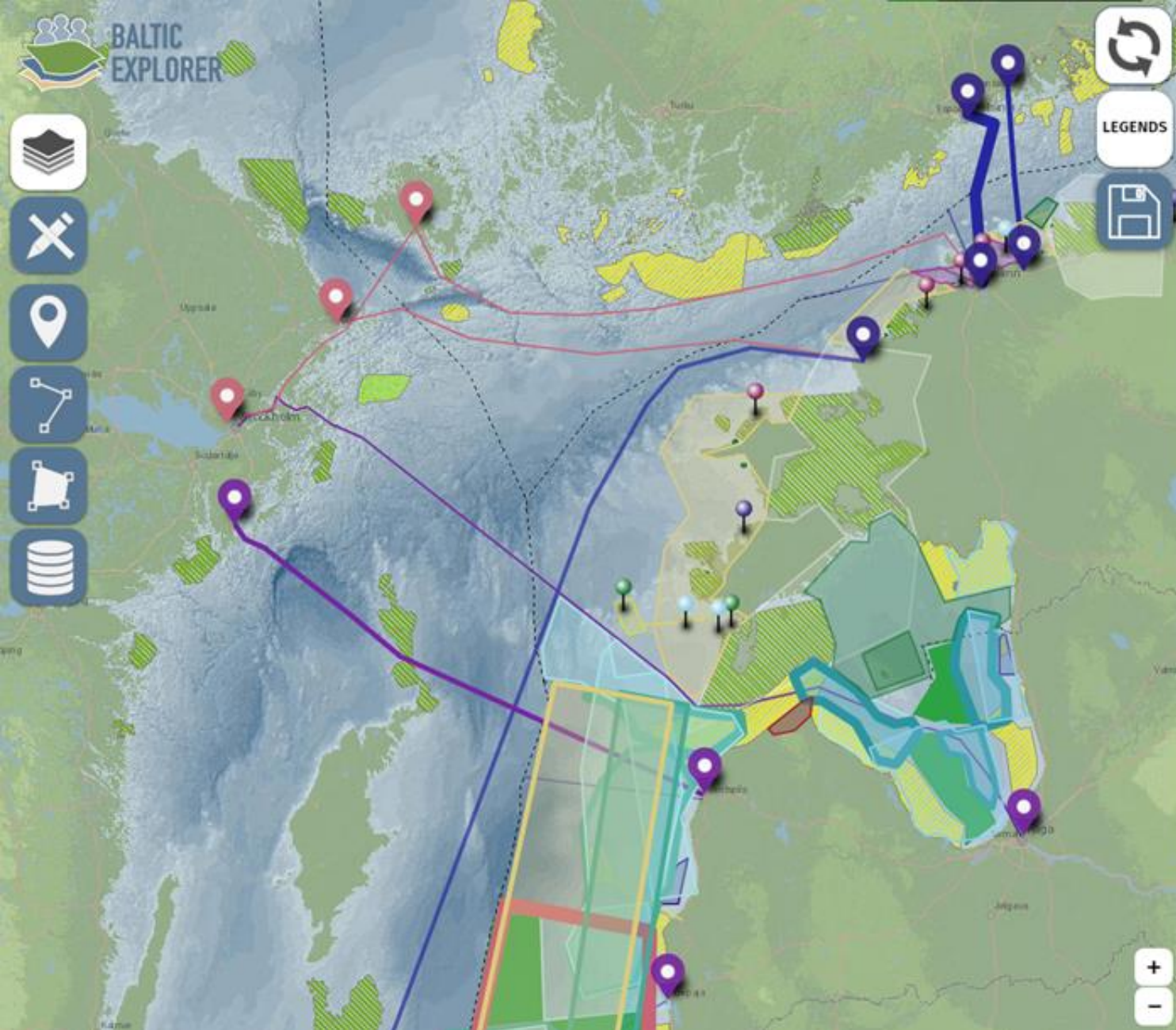
# Design of Baltic Explorer



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- Designed for novice GIS users
  - web-based and responsive map interface for many display sizes.
  - no installation, flexibly available.
- Map-founded workspaces for multiple simultaneous users.
- Access to MSP-related spatial data from a variety of providers.
- Control over sharing, editing rights and workspace privacy.





Background maps

Features on the map:

- gu\_mar464\_estlat\_envirnm (2).geojson
- MPA - no go area
- Natura 2000
- Seagrass meadow
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- Suggested MPAs

Manage overlays

Overlay data on the map:

- UNESCO sites
- HELCOM MPAs
- Natura 2000 sites
- RM13 Global Climate Regulation (by carbon sequestration)
- Shellfish mariculture areas
- P2 Wild animals (Fish, pelagic- herring)
- Total commercial fisheries by gear type



# Events of use and evaluation

(~100 participants, N=65 respondents)



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Place	MSP event	Organiser	Date	Participants	Project focus
Umeå, Sweden	MSP workshop “Better maritime planning – towards a shared future, together”	FIAXSE	26.3.2019	MSP planners and stakeholders	Usefulness of BE in MSP
Turku, Finland	PhD course “Maritime Spatial Planning processes in Baltic Sea countries”	University of Turku	6.-8.4.2019	Doctoral students	Usefulness of BE in MSP
Riga, Latvia	MSP workshop	Latvian Institute of Aquatic Ecology and the Latvian Ministry of Environmental Protection and Regional Development	20.2.2020	Ministry, regional authority and NGO personnel	Analysis functionality of the Latvian Case Study; Usefulness of BE in MSP
Online 1	University course “Maritime and Coastal Spatial Planning”	University of Turku	April 2020	Master’s students	Online use; usefulness of BE in MSP
Online 2	University course “Integrative governance of marine and coastal space: conditions, principles and toolbox”	University of Gothenburg	April-June 2020	Master’s students	Online use; usefulness of BE in MSP
Online 3	MSP workshop “Coastal and marine cultural heritage in the Baltic Sea – tourism, recreation and sustainability challenges”	Aalborg University Copenhagen	17.8.2020	Local NGO representatives and citizens with an interest in MSP	Online use; usefulness of BE in MSP

# Evaluation results: Benefits of Baltic Explorer



- MSP data available through SDIs
  - allows participants to explore data in as much detail as needed.
- The interactive nature of Baltic Explorer
  - offers participants means for joining to the discussion and collaborating together.
- UTU / ÅAU
  - parts of or even the whole MSP course can be organized as distance learning.
- UGOT
  - flexible enough for completing complex collaboration tasks.

# Evaluation results: Issues in Baltic Explorer



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- Usability
  - near real-time method of working appeared difficult in the beginning.
  - clearer editing rights were requested.
- Utility
  - drawing customization options are limited.
  - automatic saving of edited features were requested.
- Maps and data
  - background map offered by an SDI provider was not found detailed enough.
  - comparing and overlaying complex combinations of plan drafts was limited.



# Selected publications



Rönneberg, M., Koski, C., Kettunen, P., and J. Oksanen, 2020. Enhancing interaction in maritime spatial planning workshops through collaborative GIS. *Abstracts of the ICA*, 2, 45. <https://doi.org/10.5194/ica-abs-2-45-2020>

Koski, C., Rönneberg, M., Kettunen, P., Eliassen, S., Hansen, H.S., and J. Oksanen, 2021. Utility of collaborative GIS for maritime spatial planning: Design and evaluation of Baltic Explorer. *Transactions in GIS*, tgis.12732. <https://doi.org/10.1111/tgis.12732>

Kettunen, P., Koski, C., Rönneberg, M., Oksanen, J., Hansen, H.S., and L. Schrøder, 2020. Baltic Explorer web-map and multi-touch application. *BONUS BASMATI Deliverable 5.5*, August 2020. <https://bonusbasmati.eu/results-material/deliverables/>

# An MSP role play in a university course



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1. stakeholders state spatial claims on maps in the Baltic Explorer,
2. planners combine the claims and make a first plan proposal they present and discuss at a digital meeting with the stakeholders,
3. due to a general policy change, stakeholder have to adapt their former claims and submit new claims that are assembled into a second plan proposal by the planners, and
4. these new maps are presented and discussed in an online-meeting with the stakeholders and solutions are negotiated.

# Walkthrough of results related to the remote setting of the MSP role play (n=10)

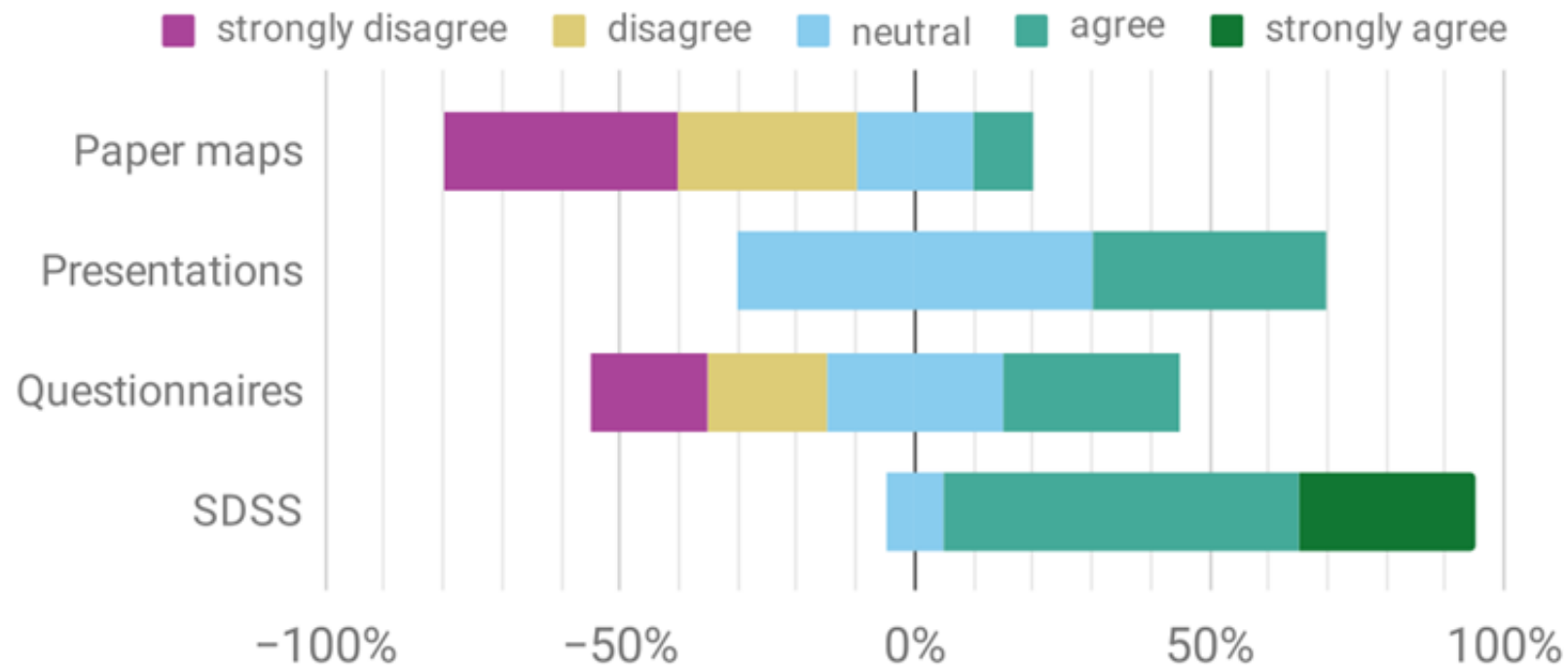


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1. Working with maps online: How well did it work to do a role play with maps online?
2. How well did the combination of Zoom meetings and BE as a platform work to do interactive planning with maps?
3. What other, complementary communication channels and sharing platforms did you use (please check)?
4. What are the 3 most important things you learned by participating in the online role play that you could not have experienced by lectures or exercises and other types of interactions so far in the course?
5. What capacities and skills are needed to use the Baltic Explorer effectively when participating?
6. Based on your experience of using Baltic Explorer in the course, if you were a planner: For which activities of a planning process (knowledge sharing, scenario making, deciding on alternatives, informing on plans and implementation) would you: a) use SDSS tools in general, b) use Baltic Explorer specifically
7. Playing your role: How much do you think you behaved like real planners/stakeholders?



## In the future, which of the following tools would you like to use in collaborative MSP work?



Spatial decision support systems, such as Baltic Explorer, were rated high by the respondents of the questionnaires. In the diagram, MSP course of the University of Gothenburg (n=10).

# Resources



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**<http://balticexplorer.eu>**

**Overview:** <http://bonusbasmati.eu/about-the-project/baltic-explorer/>

**Use concept film:** <https://www.youtube.com/watch?v=daydYqgRjLQ>

**User Guide:** <http://balticexplorer.eu/static/umap/BalticExplorerUserGuide.pdf>

**Source code:** <https://github.com/FGI-GEOINFO/Baltic-Explorer>

**Project deliverables and scientific publications:** <https://bonusbasmati.eu/results-material/>

# Thank you!



## Research Funding:

- Svenska Forskningsrådet Formas
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