



## VIII CLGE Conference of the European Surveyor “BLUE SURVEYING”

# Role of Surveying Engineers in Marine Spatial Planning

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Sevilla (Spain) 27th October 2022 Hotel Barceló Sevilla Renacimiento





# Blue Growth and Blue Economy

- In 2010 European Commission published a document Europe 2020 with three main goals:
  - sustainable, smart and inclusive growth.
- Behind that concept is set an economic growth based on three foundations:
  - knowledge and innovation,
  - efficient and green and
  - high-employment.
- These foundations are easily connected to Blue Growth and Blue Economy.





# Marine Spatial Planning

- MSP is the process of analysing and organizing spatial and temporal human activities in the marine domain to achieve economic, ecological and social goals. MSP is crucial tool for sustainable seas and ocean governance.
- The first MSP publication was issued in 2003.
- The first international workshop on MSP was held in 2006.
- Research interest substantial grow on MSP in 2011 and continued to increase sharply through 2015.







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Research was done,  
keywords in 1323  
papers on MSP in  
scientific databases  
(WoSCC and Scopus).



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### Top 30 keywords ranked according to the total link strength.

Ranking	Keyword	Total link strength	Occurrences
1	Marine spatial planning	8236	931
2	Marine environment	3736	331
3	Ecosystems	3451	272
4	Conservation	3305	269
5	Marine protected areas	2293	222
6	Human activity	2141	169
7	Atlantic ocean	1831	152
8	Coastal zone	1791	153
9	Marine policy	1786	182
10	Biodiversity	1765	148
11	Sustainability	1714	171
12	Coastal zone management	1711	164
13	Ecosystem-based management	1658	153
14	Fisheries	1517	127
15	Habitat	1515	124
16	Spatial analysis	1454	130
17	Stakeholders	1393	131
18	Decision making	1391	122
19	Animals	1386	85
20	United States	1238	101
21	Europe	1211	121
22	Planning	1172	104
23	GIS	1155	104
24	Fish	1137	92
25	Fisheries management	1134	111
26	Environmental planning	1096	83
27	Environmental management	1039	77
28	United Kingdom	995	96
29	Offshore wind energy	980	96
30	Integration	948	82

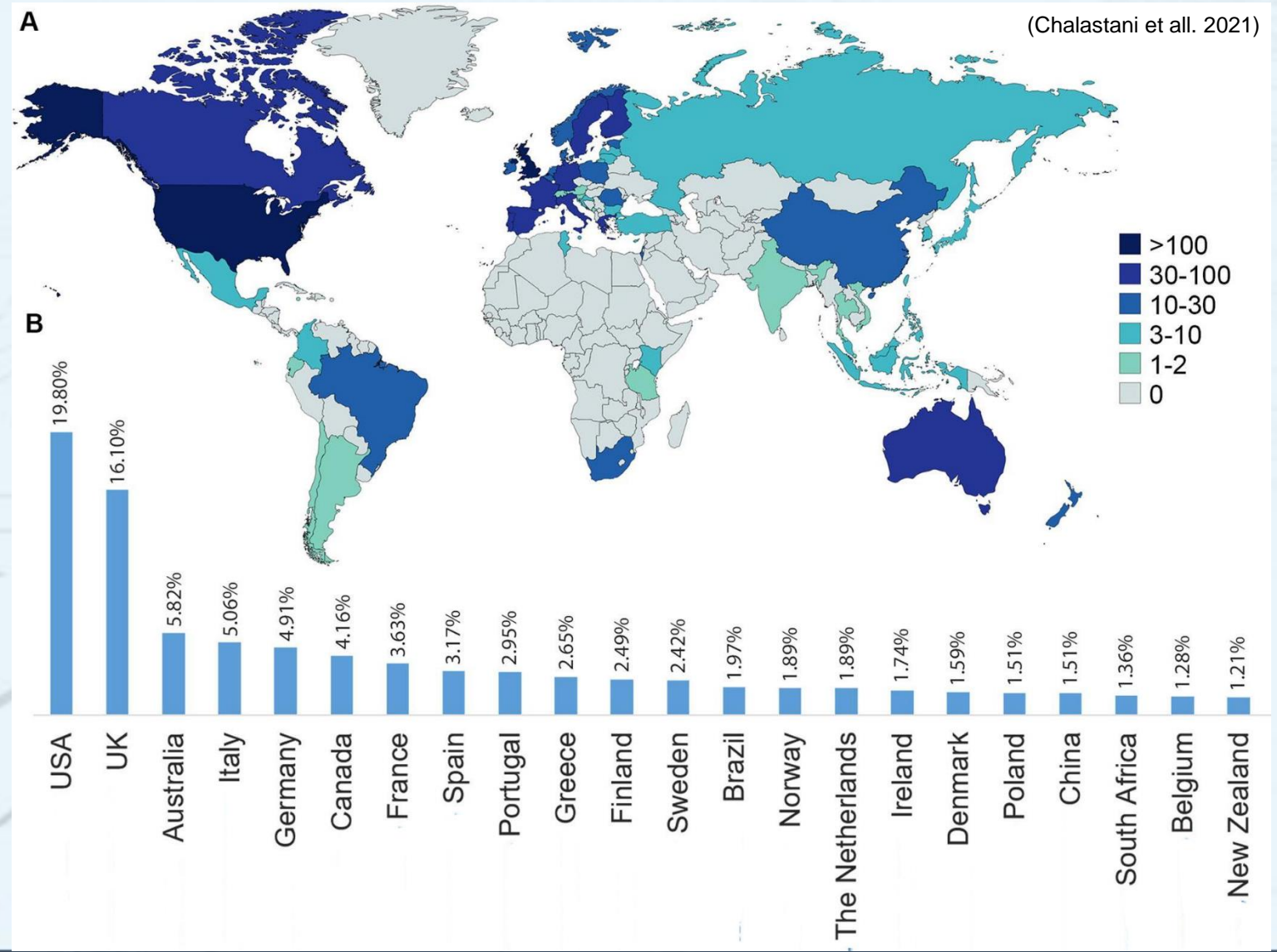






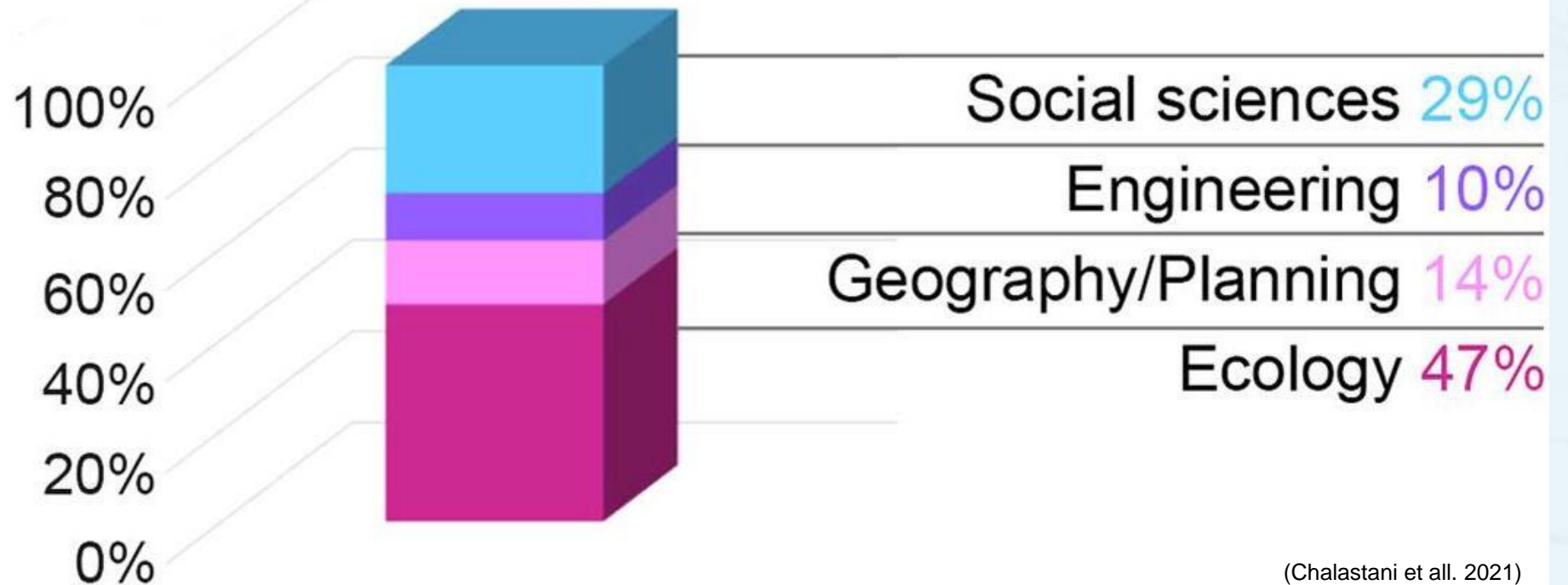
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## Who is writing about MPS?





Engineers and geographers/planners and are underrepresented in the published literature on MSP.



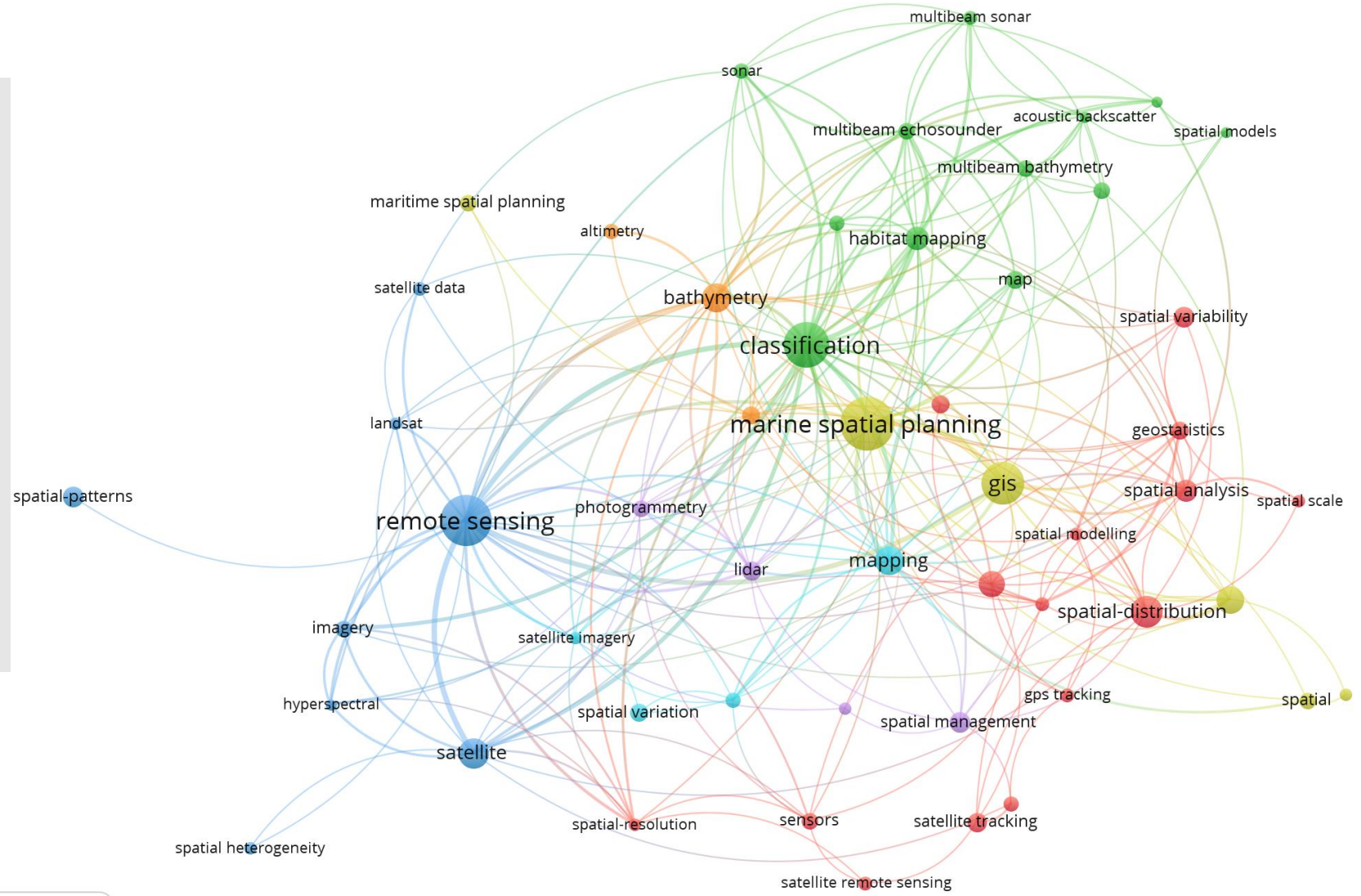
(Chalastani et al. 2021)







MSP and Blue Surveying:  
– no Marine Spatial Data Infrastructure and  
- no Marine Cadastre



Manually extracted surveying keywords in MSP papers







# MSP in MSDI and MC context

- One of the elements of effective MSP is that it should be place-based or area-based. That is why more focus should be on coastal and marine areas recording and that is not the case at the moment. The more efficient MSP will be the one placed in MSDI and MC context.
- In marine zones, some conflicts occur. Most of them are user-user or user-environment related. Yet, in the next few decades, with further marine areas development, there will likely be new types of conflicts that need to be dealt with.

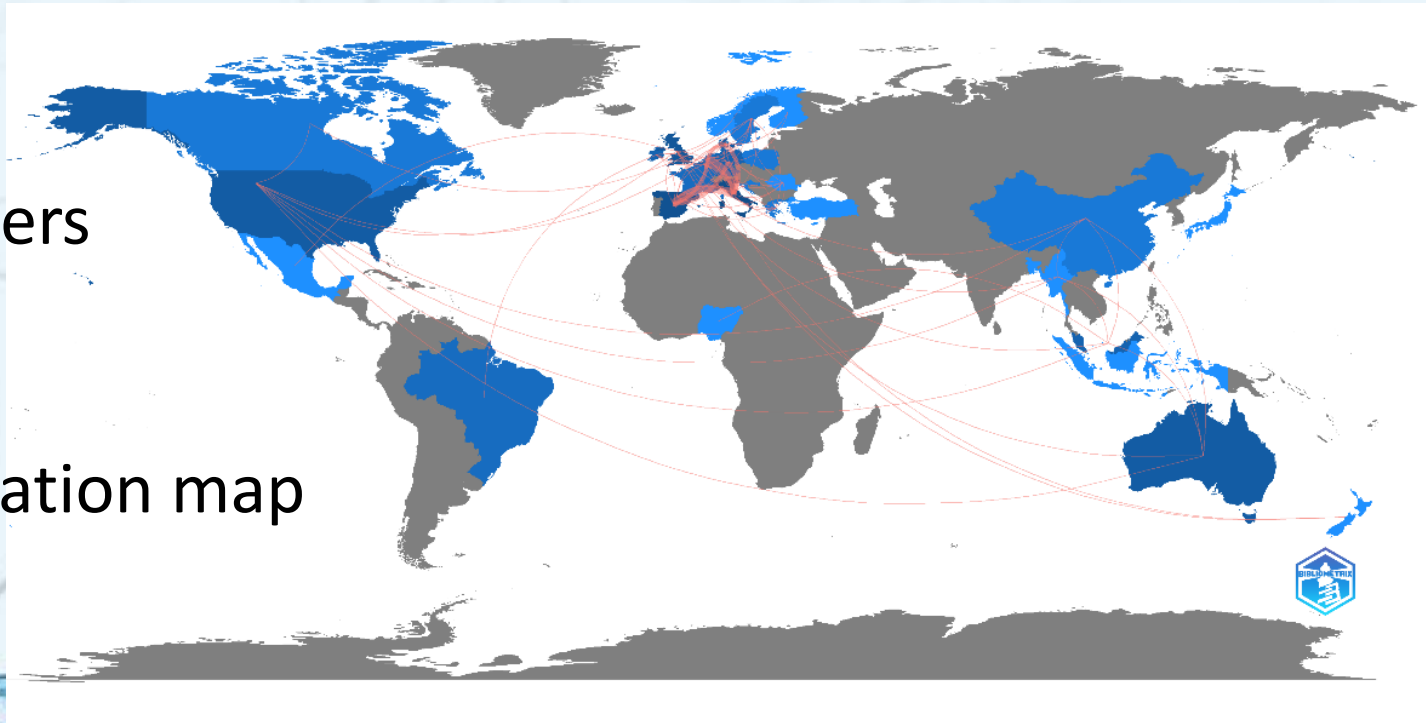




# Marine Spatial Data Infrastructure

198 papers

Country  
collaboration map



Author's Keywords

spatial data infrastructure  
marine spatial planning  
inspire  
spatial data infrastructures  
marine spatial data infrastructure  
spatial data infrastructure (sdi)  
coastal management  
gis  
integrated coastal zone management  
marine spatial data infrastructure (msdi)  
maritime spatial planning  
constraint mapping  
data model  
e-reporting  
geographic information systems  
geospatial  
marine cadastre  
marine environment  
marine spatial planning (msp)  
marine strategy framework directive  
offshore renewable energy  
sdi  
spatial information  
aggregated datasets  
analytic hierarchy process  
archaeological data infrastructure  
artificial intelligence  
assessment

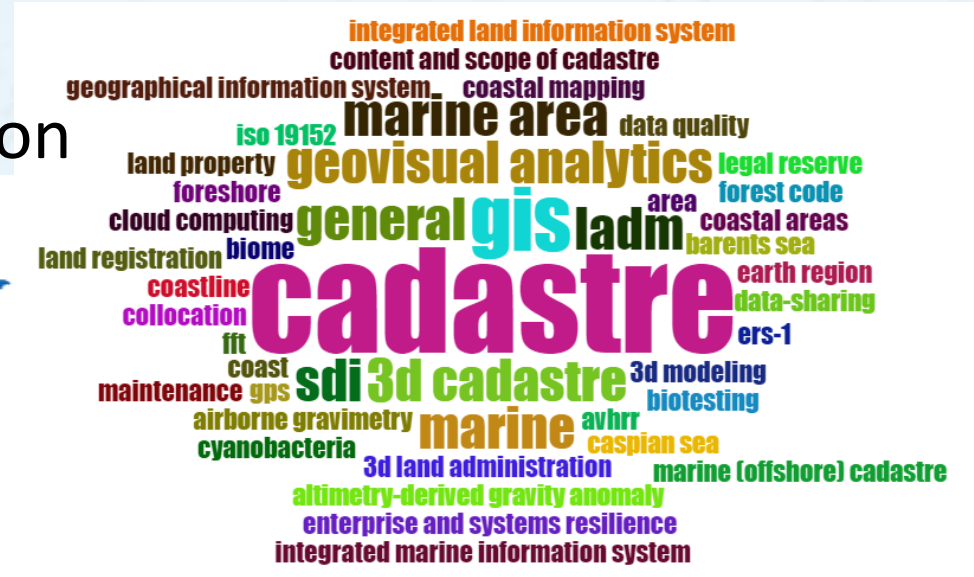
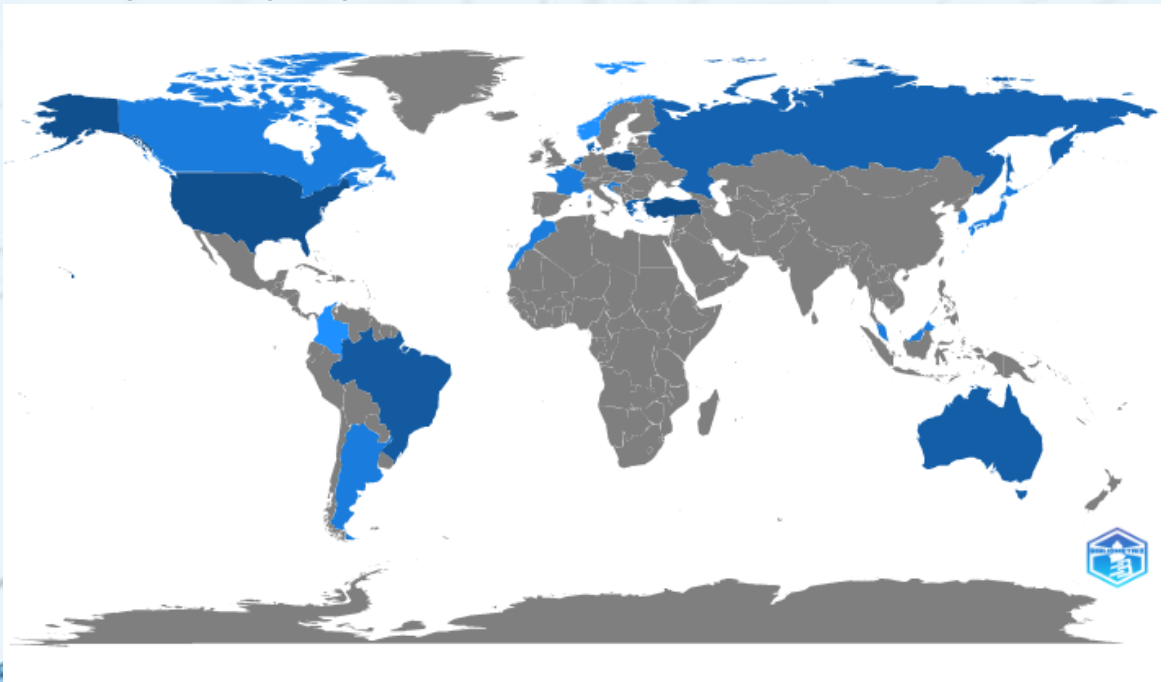






# Marine Cadastre - the basic layer of MSDI

Only 27 papers, almost no collaboration



Keywords in papers on Marine Cadastre





# MSDI and MC in MSP sustainability context

- MC can be seen as a continuation of Land Cadastre or it can be seen as a layer of MSDI created for property rights, ownership, taxation and usages, or as a part of MSP, BE and BG supporting their advancement.
- Some parts of the world giving the topic of technology and engineering of marine and maritime domain, in the context of sustainable development, proper attention. One can always learn from their experience and stronger cooperation can and should be established. Europe can improve on the same basis.
- Sustainability is of a great significant in today's world. That is the reason why MSP, MSDI and MC should be properly organised in a framework of sustainable development.







# Questions to be raised in Blue Surveying

## How to increase

- standardisation
- legislative
- education,
- capacity building,
- visibility,
- dissemination,
- country collaboration, etc.

## Problems to be solved

- questions of jurisdiction on national levels,
- question on connecting blue growth, blue economy and blue surveying,
- communication between developed and less developed MSDI and MC countries,
- technical challenges on connecting Land Cadastre and MC,
- challenges on connecting national SDIs and MSDIs, etc.

