Using past data to inform future management

Telmo Morato

ATLAS Science Policy Panel – Brussels, 23 March 2017

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Vison

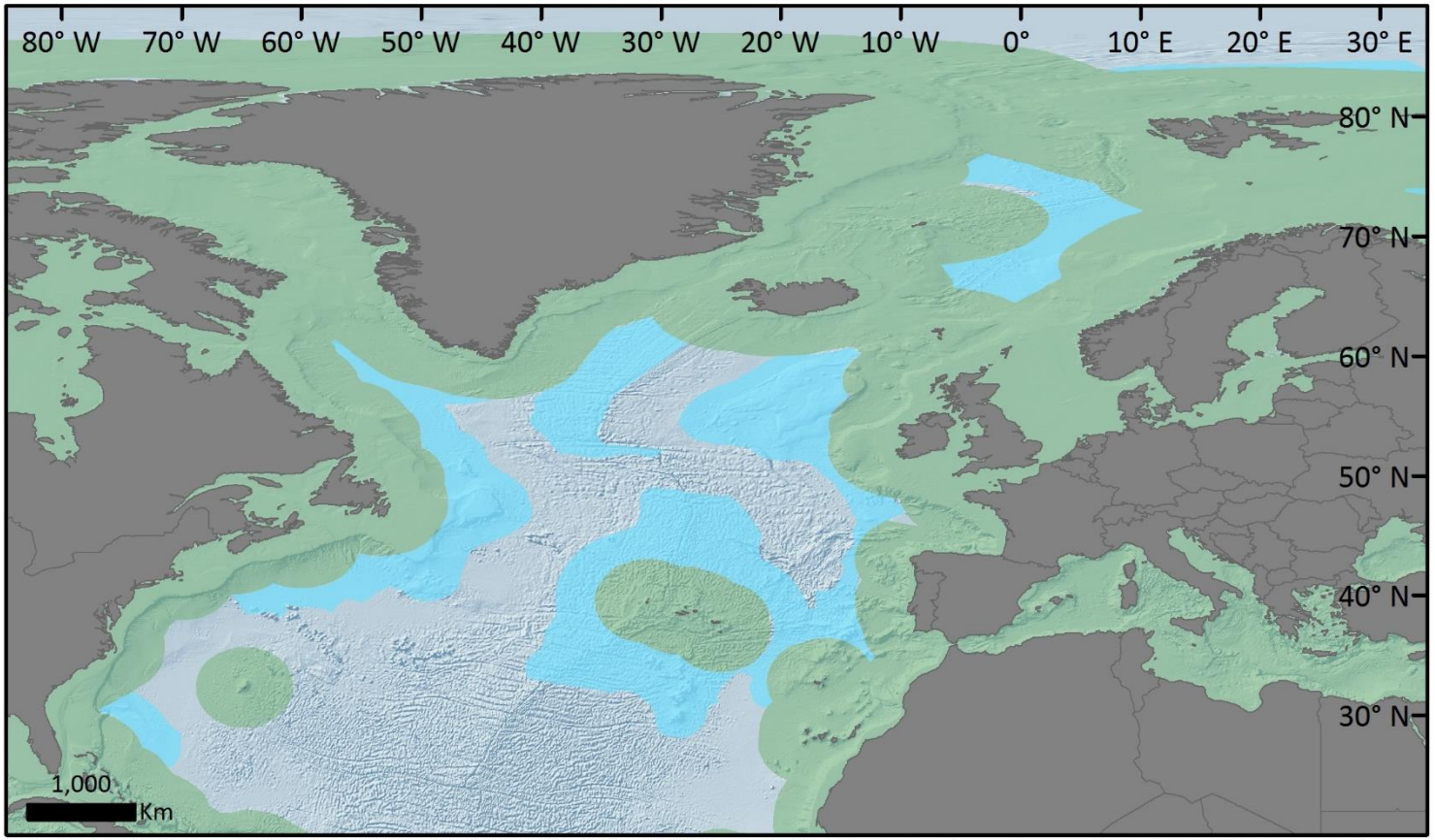
To bring together existing and new biodiversity and environmental data:

- to deepen the understanding of the deep North Atlantic,

- promote sustainable blue growth opportunities

- transform new understanding into effective ocean governance

Geographical Area

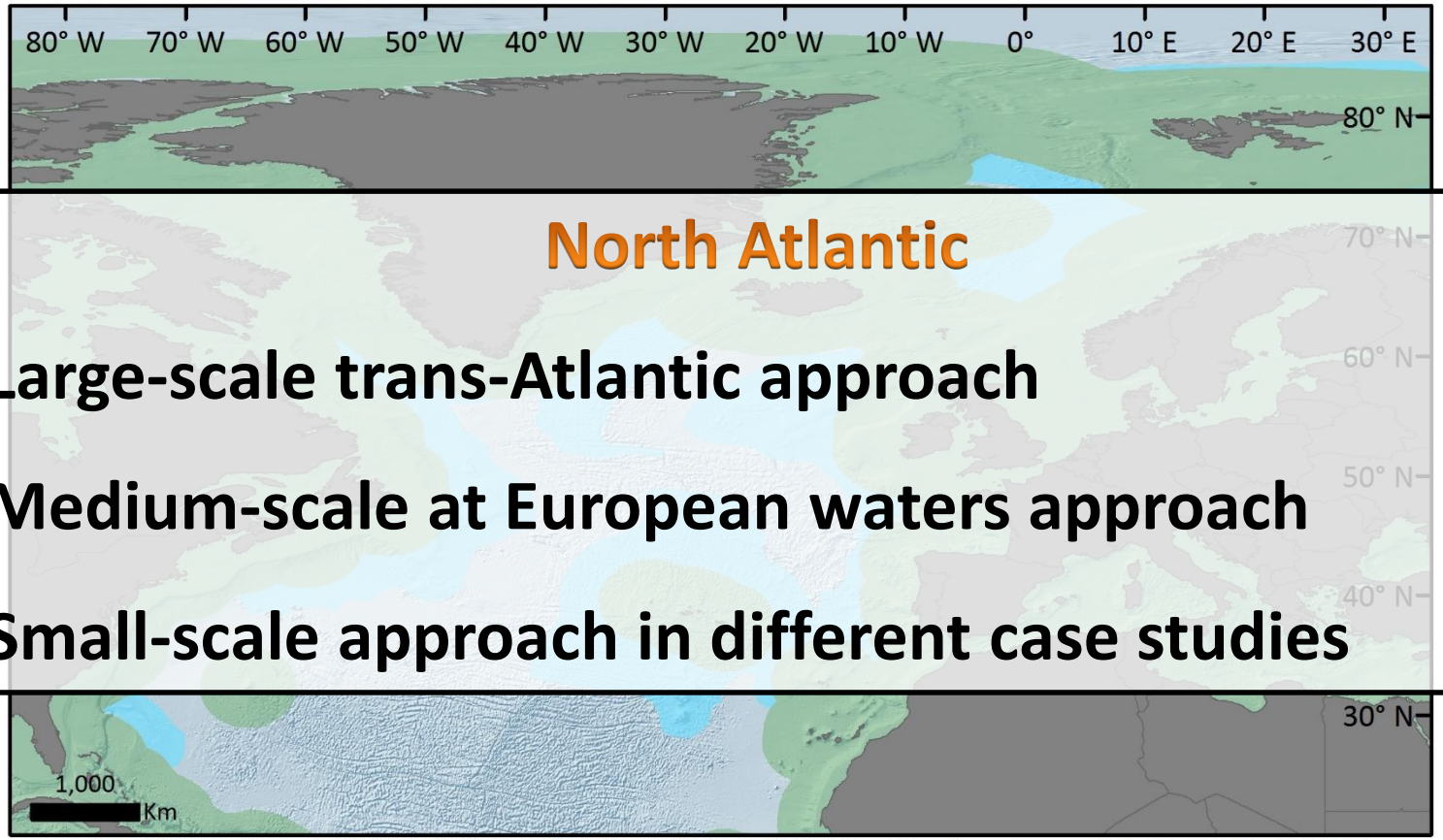


OBIS and published data for benthic VME indicator taxa (WGDEC, 2016)

ECS Submissions

World's EEZ

Geographical Area



North Atlantic

1. **Large-scale trans-Atlantic approach**
2. **Medium-scale at European waters approach**
3. **Small-scale approach in different case studies**

OBIS and published data for benthic VME indicator taxa (WGDEC, 2016)

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Past data sources

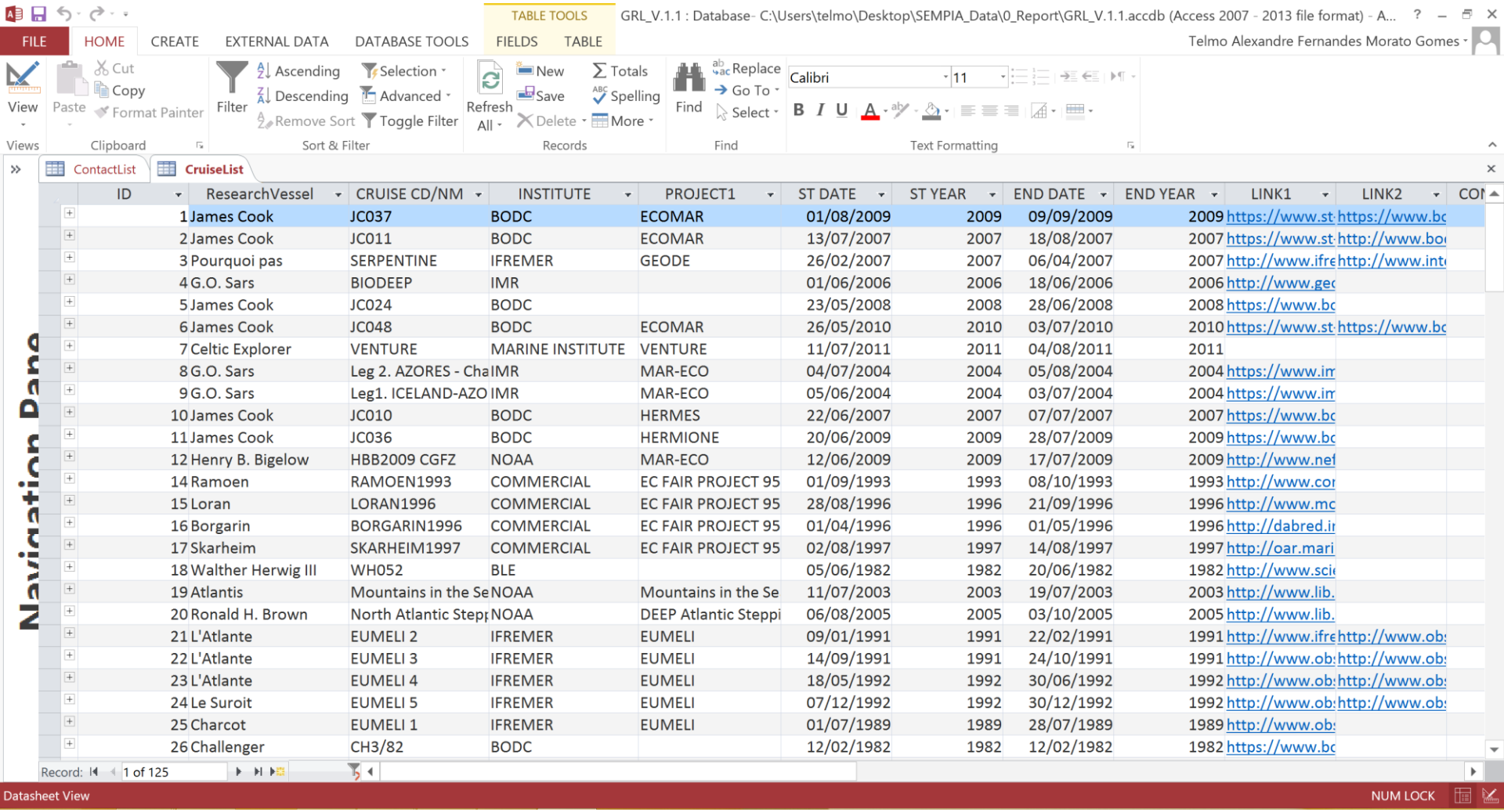
1. Published literature including cruise reports

2. Major repositories for biological data in the Atlantic (OBIS, Pangaea and EMODnet)

3. Biogeographic databases, expert consultation, online libraries and habitat suitability models

4. Other global datasets

Cruise List (MAR) n= 131



GRL_V.1.1 : Database- C:\Users\telmo\Desktop\SEMPIA_Data\0_Report\GRL_V.1.1.accdb (Access 2007 - 2013 file format) - A...

Telmo Alexandre Fernandes Morato Gomes

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ContactList | CruiseList

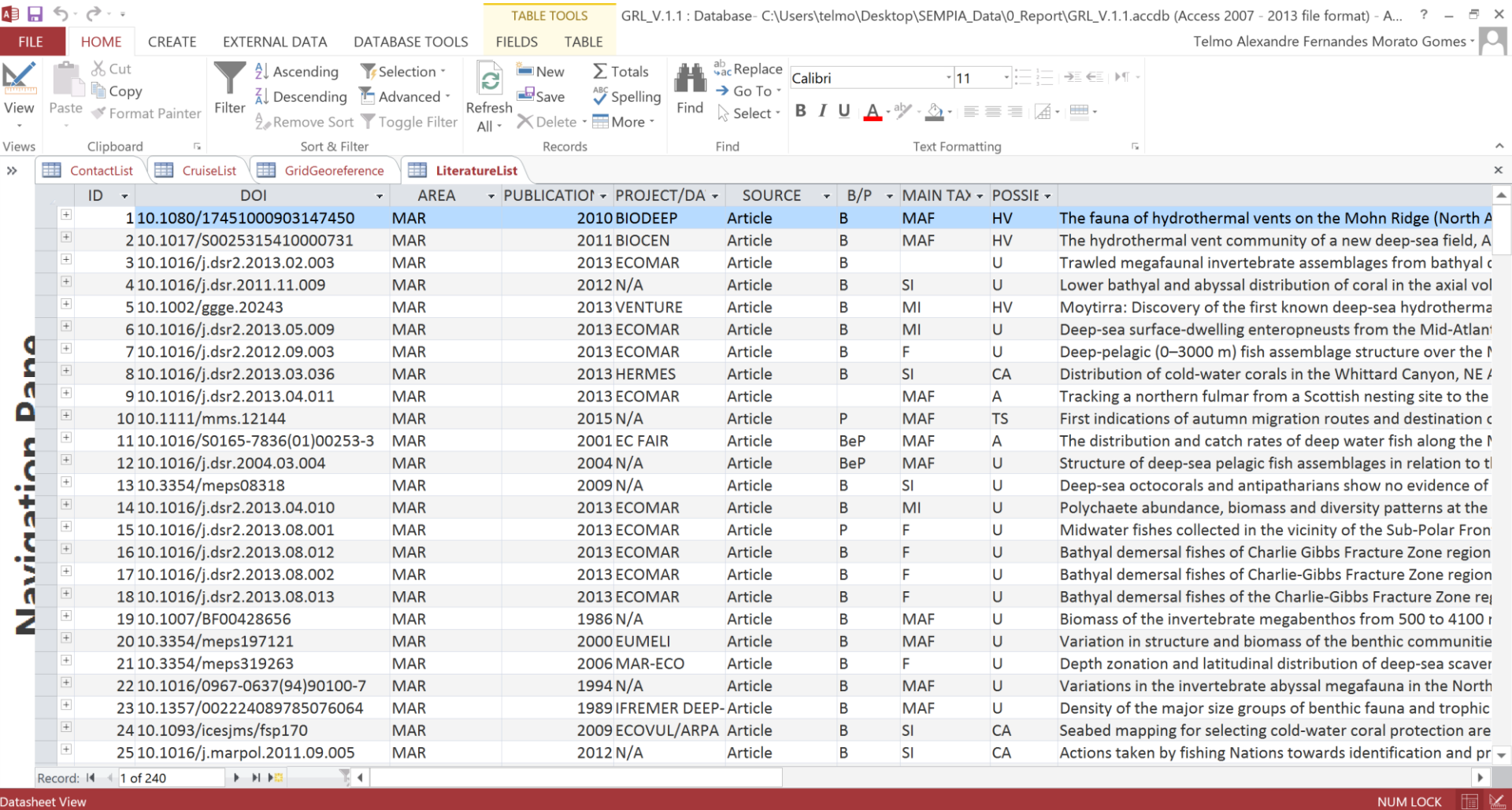
Navigation Pane

ID	ResearchVessel	CRUISE CD/NM	INSTITUTE	PROJECT1	ST DATE	ST YEAR	END DATE	END YEAR	LINK1	LINK2	CON
1	James Cook	JC037	BODC	ECOMAR	01/08/2009	2009	09/09/2009	2009	https://www.st	https://www.bc	
2	James Cook	JC011	BODC	ECOMAR	13/07/2007	2007	18/08/2007	2007	https://www.st	http://www.boc	
3	Pourquoi pas	SERPENTINE	IFREMER	GEODE	26/02/2007	2007	06/04/2007	2007	http://www.ifre	http://www.int	
4	G.O. Sars	BIODEEP	IMR		01/06/2006	2006	18/06/2006	2006	http://www.gec		
5	James Cook	JC024	BODC		23/05/2008	2008	28/06/2008	2008	https://www.bc		
6	James Cook	JC048	BODC	ECOMAR	26/05/2010	2010	03/07/2010	2010	https://www.st	https://www.bc	
7	Celtic Explorer	VENTURE	MARINE INSTITUTE	VENTURE	11/07/2011	2011	04/08/2011	2011			
8	G.O. Sars	Leg 2. AZORES - Cha	IMR	MAR-ECO	04/07/2004	2004	05/08/2004	2004	https://www.im		
9	G.O. Sars	Leg1. ICELAND-AZO	IMR	MAR-ECO	05/06/2004	2004	03/07/2004	2004	https://www.im		
10	James Cook	JC010	BODC	HERMES	22/06/2007	2007	07/07/2007	2007	https://www.bc		
11	James Cook	JC036	BODC	HERMIONE	20/06/2009	2009	28/07/2009	2009	https://www.bc		
12	Henry B. Bigelow	HBB2009 CGFZ	NOAA	MAR-ECO	12/06/2009	2009	17/07/2009	2009	http://www.nef		
14	Ramoen	RAMOEN1993	COMMERCIAL	EC FAIR PROJECT 95	01/09/1993	1993	08/10/1993	1993	http://www.cor		
15	Loran	LORAN1996	COMMERCIAL	EC FAIR PROJECT 95	28/08/1996	1996	21/09/1996	1996	http://www.mc		
16	Borgarin	BORGARIN1996	COMMERCIAL	EC FAIR PROJECT 95	01/04/1996	1996	01/05/1996	1996	http://dabred.ir		
17	Skarheim	SKARHEIM1997	COMMERCIAL	EC FAIR PROJECT 95	02/08/1997	1997	14/08/1997	1997	http://oar.mari		
18	Walther Herwig III	WH052	BLE		05/06/1982	1982	20/06/1982	1982	http://www.scie		
19	Atlantis	Mountains in the Se	NOAA	Mountains in the Se	11/07/2003	2003	19/07/2003	2003	http://www.lib.		
20	Ronald H. Brown	North Atlantic Stepp	NOAA	DEEP Atlantic Steppi	06/08/2005	2005	03/10/2005	2005	http://www.lib.		
21	L'Atlante	EUMELI 2	IFREMER	EUMELI	09/01/1991	1991	22/02/1991	1991	http://www.ifre	http://www.obs	
22	L'Atlante	EUMELI 3	IFREMER	EUMELI	14/09/1991	1991	24/10/1991	1991	http://www.obs	http://www.obs	
23	L'Atlante	EUMELI 4	IFREMER	EUMELI	18/05/1992	1992	30/06/1992	1992	http://www.obs	http://www.obs	
24	Le Suroit	EUMELI 5	IFREMER	EUMELI	07/12/1992	1992	30/12/1992	1992	http://www.obs	http://www.obs	
25	Charcot	EUMELI 1	IFREMER	EUMELI	01/07/1989	1989	28/07/1989	1989	http://www.obs		
26	Challenger	CH3/82	BODC		12/02/1982	1982	12/02/1982	1982	https://www.bc		

Record: 1 of 125

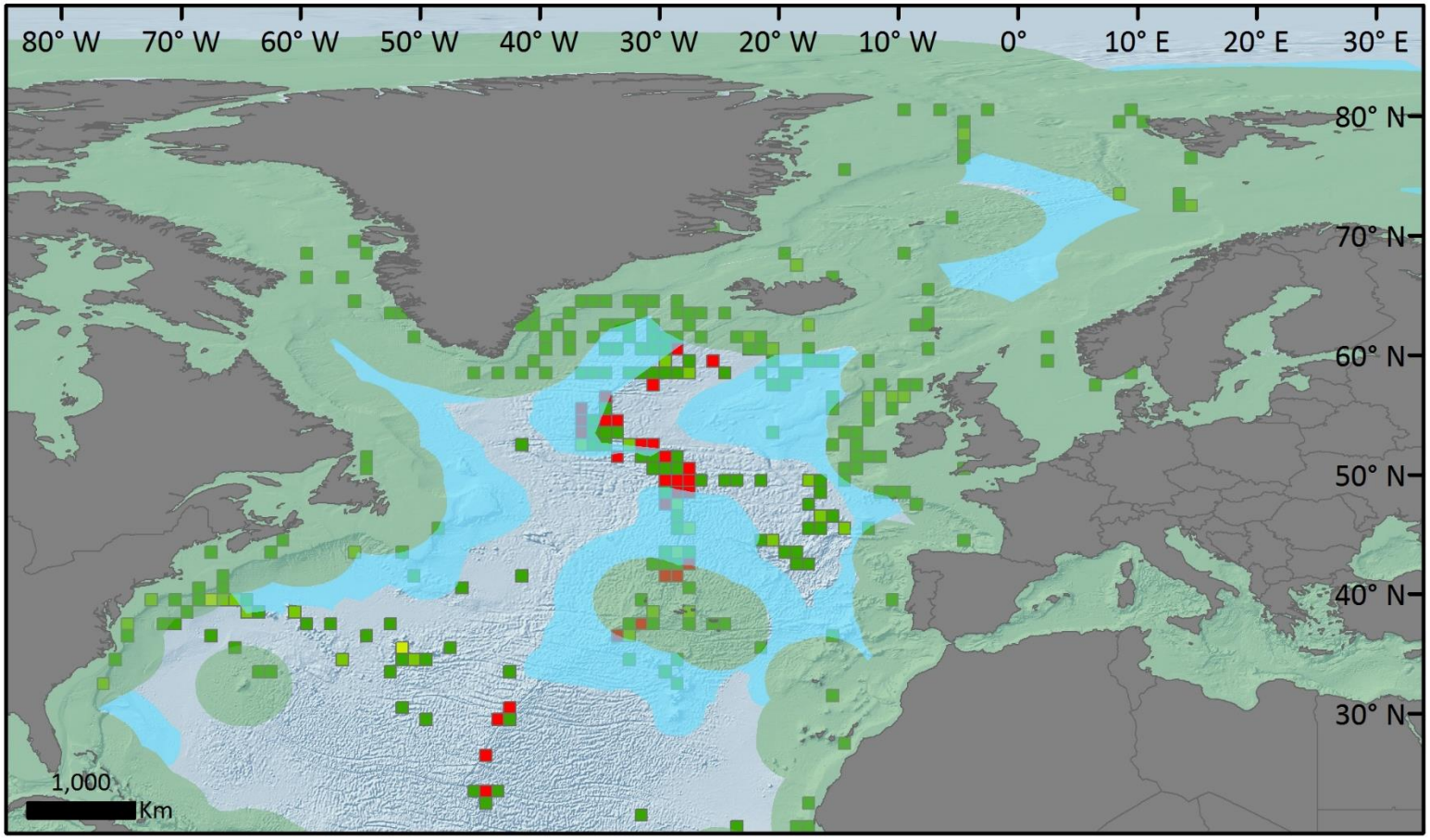
Datasheet View | NUM LOCK

Publication List (MAR) n= 304



ID	DOI	AREA	PUBLICATIOI	PROJECT/DA	SOURCE	B/P	MAIN TA	POSSIE	
1	10.1080/17451000903147450	MAR	2010	BIODEEP	Article	B	MAF	HV	The fauna of hydrothermal vents on the Mohn Ridge (North A
2	10.1017/S0025315410000731	MAR	2011	BIOCEN	Article	B	MAF	HV	The hydrothermal vent community of a new deep-sea field, A
3	10.1016/j.dsr2.2013.02.003	MAR	2013	ECOMAR	Article	B		U	Trawled megafaunal invertebrate assemblages from bathyal c
4	10.1016/j.dsr.2011.11.009	MAR	2012	N/A	Article	B	SI	U	Lower bathyal and abyssal distribution of coral in the axial vol
5	10.1002/ggge.20243	MAR	2013	VENTURE	Article	B	MI	HV	Moytirra: Discovery of the first known deep-sea hydrotherma
6	10.1016/j.dsr2.2013.05.009	MAR	2013	ECOMAR	Article	B	MI	U	Deep-sea surface-dwelling enteropneusts from the Mid-Atlant
7	10.1016/j.dsr2.2012.09.003	MAR	2013	ECOMAR	Article	B	F	U	Deep-pelagic (0–3000 m) fish assemblage structure over the M
8	10.1016/j.dsr2.2013.03.036	MAR	2013	HERMES	Article	B	SI	CA	Distribution of cold-water corals in the Whittard Canyon, NE A
9	10.1016/j.dsr2.2013.04.011	MAR	2013	ECOMAR	Article		MAF	A	Tracking a northern fulmar from a Scottish nesting site to the
10	10.1111/mms.12144	MAR	2015	N/A	Article	P	MAF	TS	First indications of autumn migration routes and destination c
11	10.1016/S0165-7836(01)00253-3	MAR	2001	EC FAIR	Article	BeP	MAF	A	The distribution and catch rates of deep water fish along the M
12	10.1016/j.dsr.2004.03.004	MAR	2004	N/A	Article	BeP	MAF	U	Structure of deep-sea pelagic fish assemblages in relation to t
13	10.3354/meps08318	MAR	2009	N/A	Article	B	SI	U	Deep-sea octocorals and antipatharians show no evidence of
14	10.1016/j.dsr2.2013.04.010	MAR	2013	ECOMAR	Article	B	MI	U	Polychaete abundance, biomass and diversity patterns at the
15	10.1016/j.dsr2.2013.08.001	MAR	2013	ECOMAR	Article	P	F	U	Midwater fishes collected in the vicinity of the Sub-Polar Fron
16	10.1016/j.dsr2.2013.08.012	MAR	2013	ECOMAR	Article	B	F	U	Bathyal demersal fishes of Charlie Gibbs Fracture Zone region
17	10.1016/j.dsr2.2013.08.002	MAR	2013	ECOMAR	Article	B	F	U	Bathyal demersal fishes of Charlie-Gibbs Fracture Zone region
18	10.1016/j.dsr2.2013.08.013	MAR	2013	ECOMAR	Article	B	F	U	Bathyal demersal fishes of the Charlie-Gibbs Fracture Zone re
19	10.1007/BF00428656	MAR	1986	N/A	Article	B	MAF	U	Biomass of the invertebrate megabenthos from 500 to 4100 r
20	10.3354/meps197121	MAR	2000	EUMELI	Article	B	MAF	U	Variation in structure and biomass of the benthic communitie
21	10.3354/meps319263	MAR	2006	MAR-ECO	Article	B	F	U	Depth zonation and latitudinal distribution of deep-sea scaver
22	10.1016/0967-0637(94)90100-7	MAR	1994	N/A	Article	B	MAF	U	Variations in the invertebrate abyssal megafauna in the North
23	10.1357/002224089785076064	MAR	1989	IFREMER DEEP-	Article	B	MAF	U	Density of the major size groups of benthic fauna and trophic
24	10.1093/icesjms/fsp170	MAR	2009	ECOVUL/ARPA	Article	B	SI	CA	Seabed mapping for selecting cold-water coral protection are
25	10.1016/j.marpol.2011.09.005	MAR	2012	N/A	Article	B	SI	CA	Actions taken by fishing Nations towards identification and pr

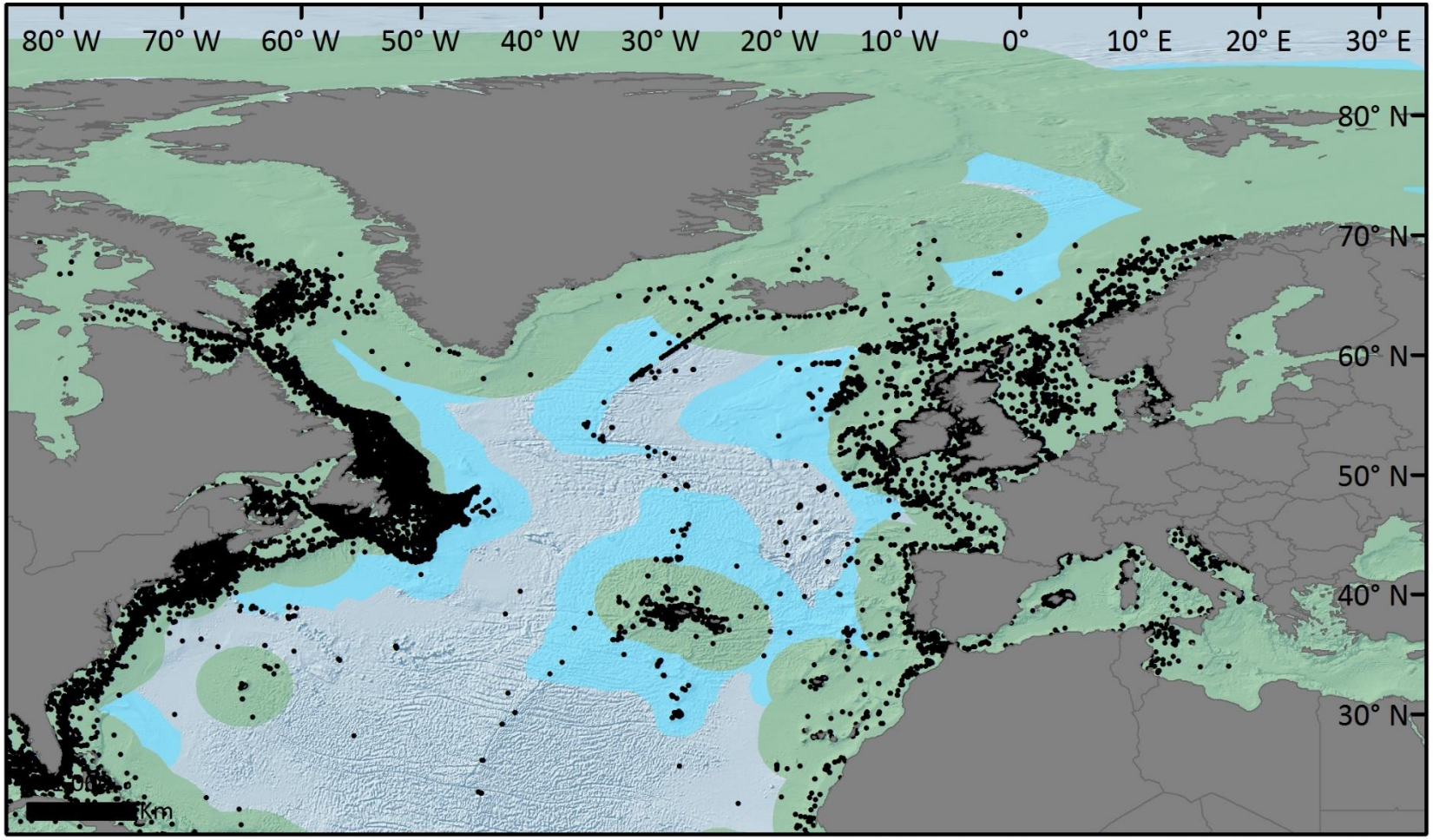
Number of publications



Number of publications per 1x1 degree cell

1 2 3 4 5 >5

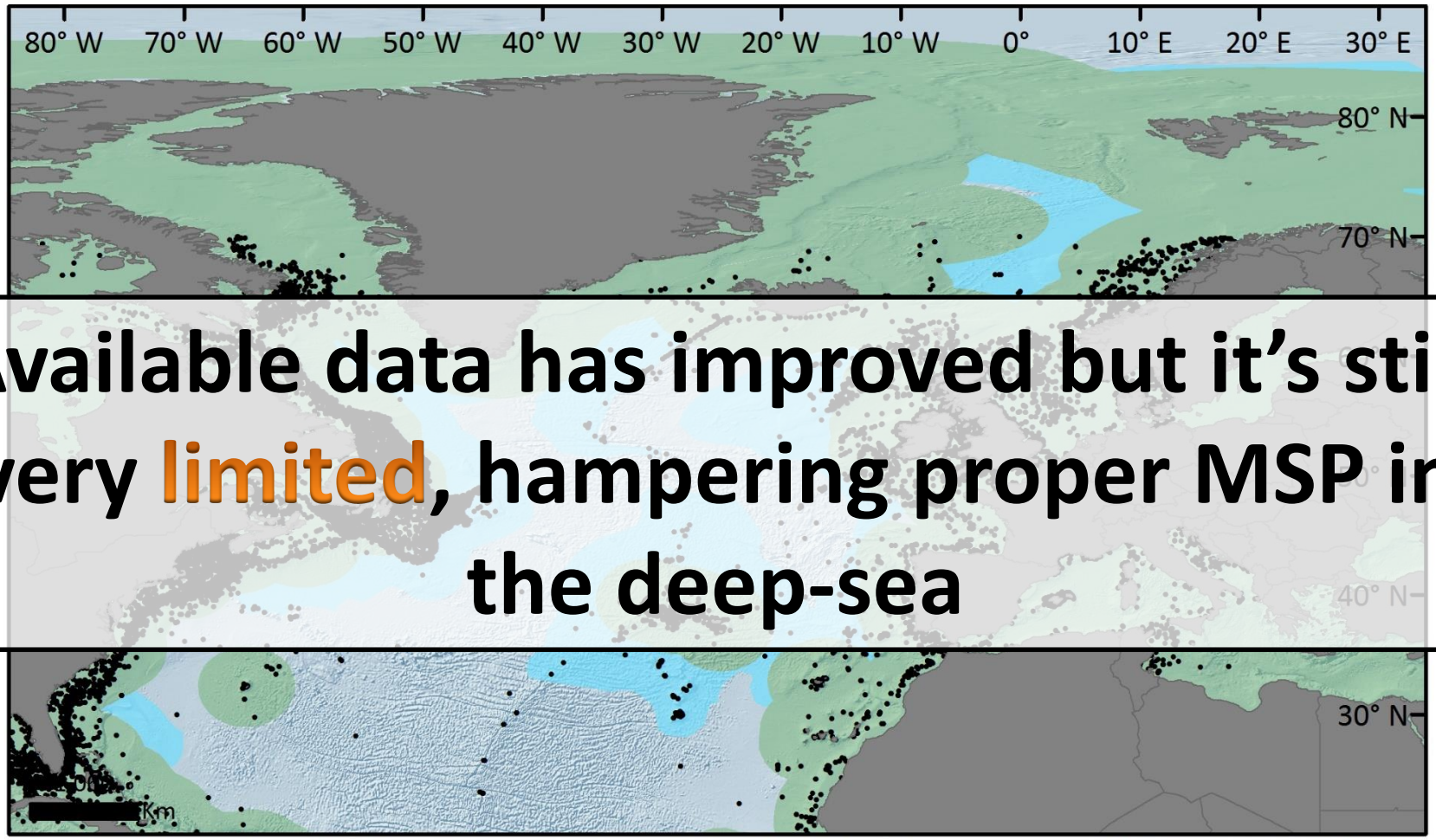
VME indicator spp



OBIS and published data for benthic VME indicator taxa (WGDEC, 2016)

ECS Submissions

World's EEZ



Available data has improved but it's still very limited, hampering proper MSP in the deep-sea

OBIS and published data for benthic VME indicator taxa (WGDEC, 2016)

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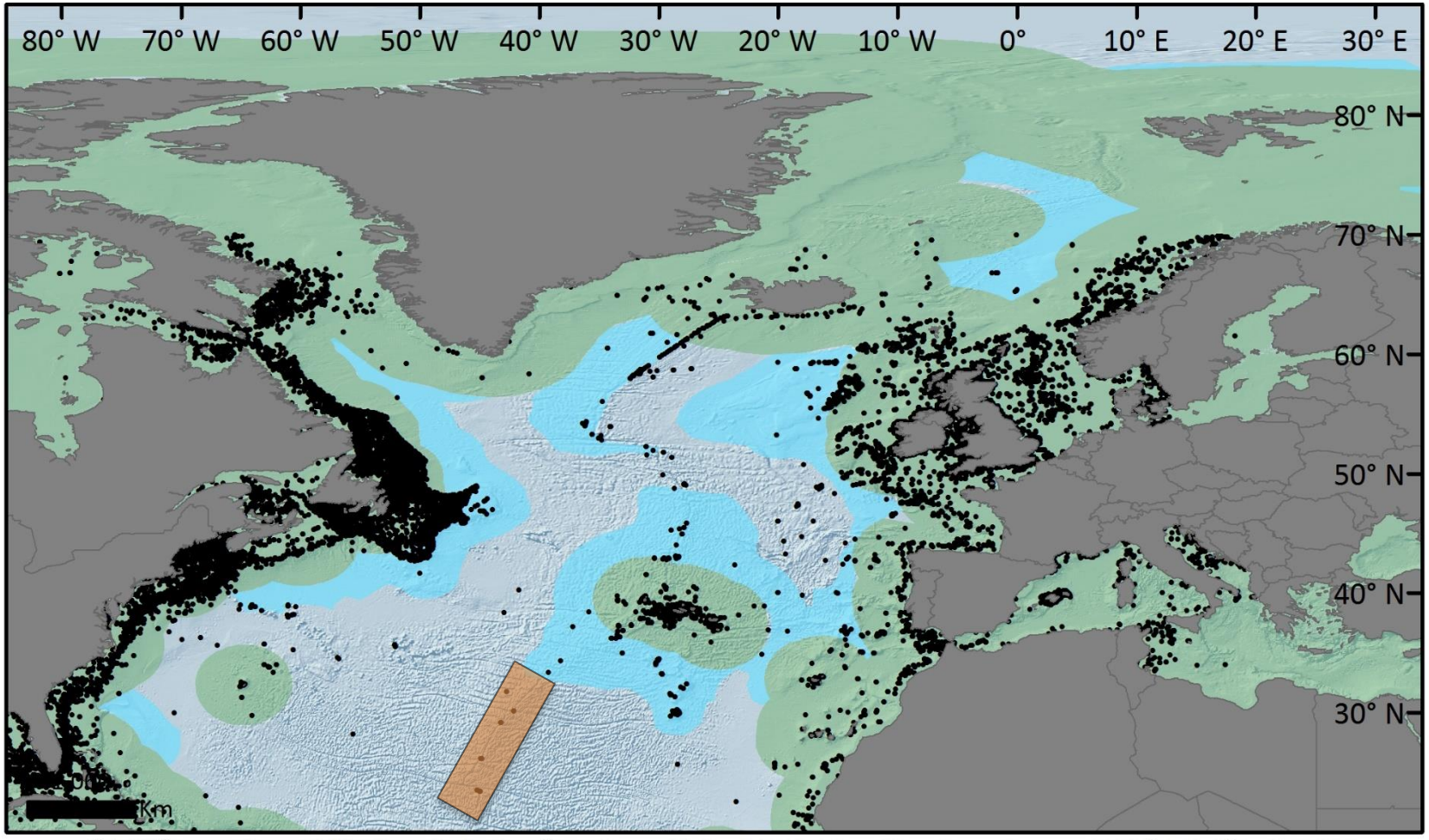
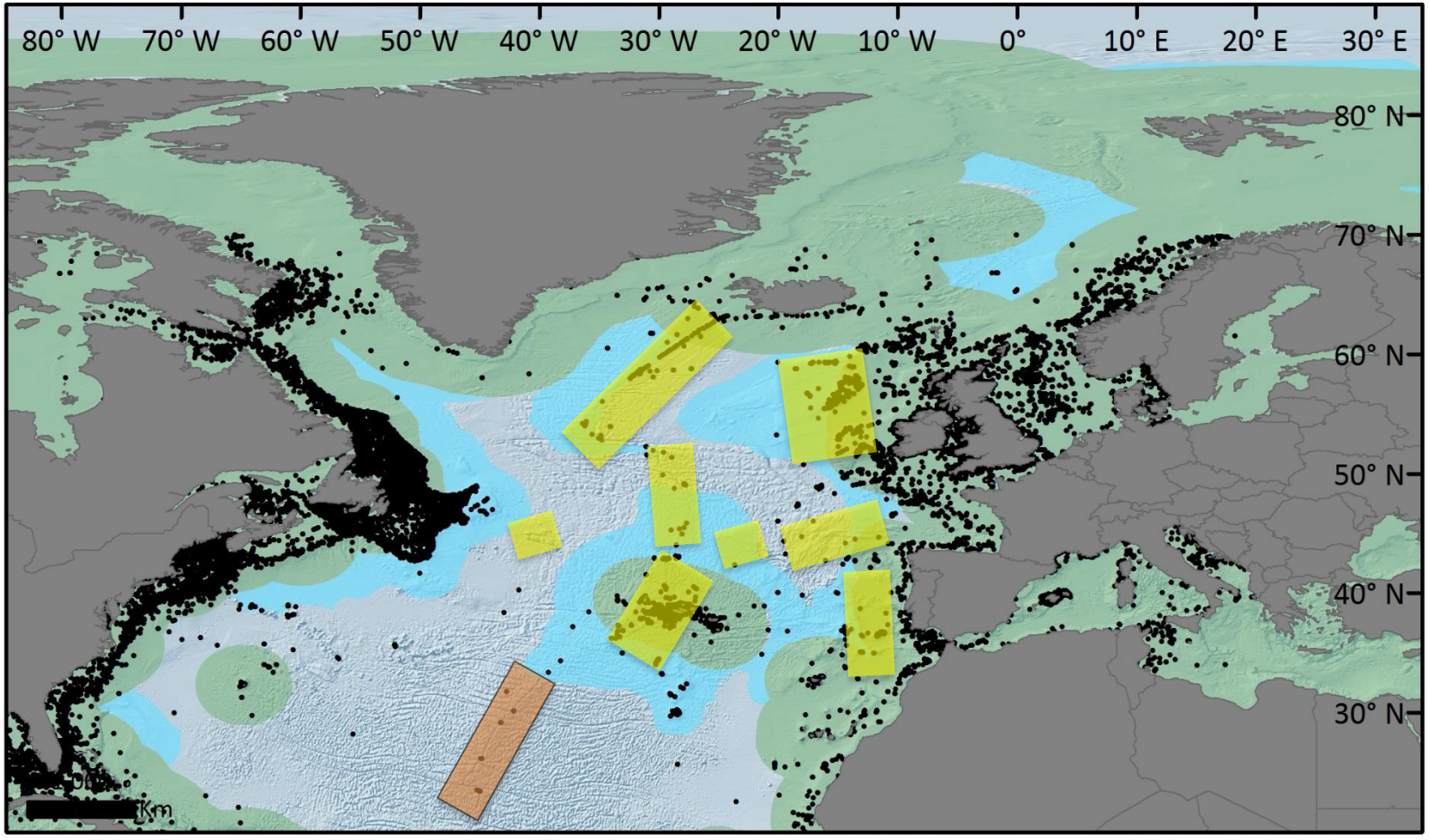
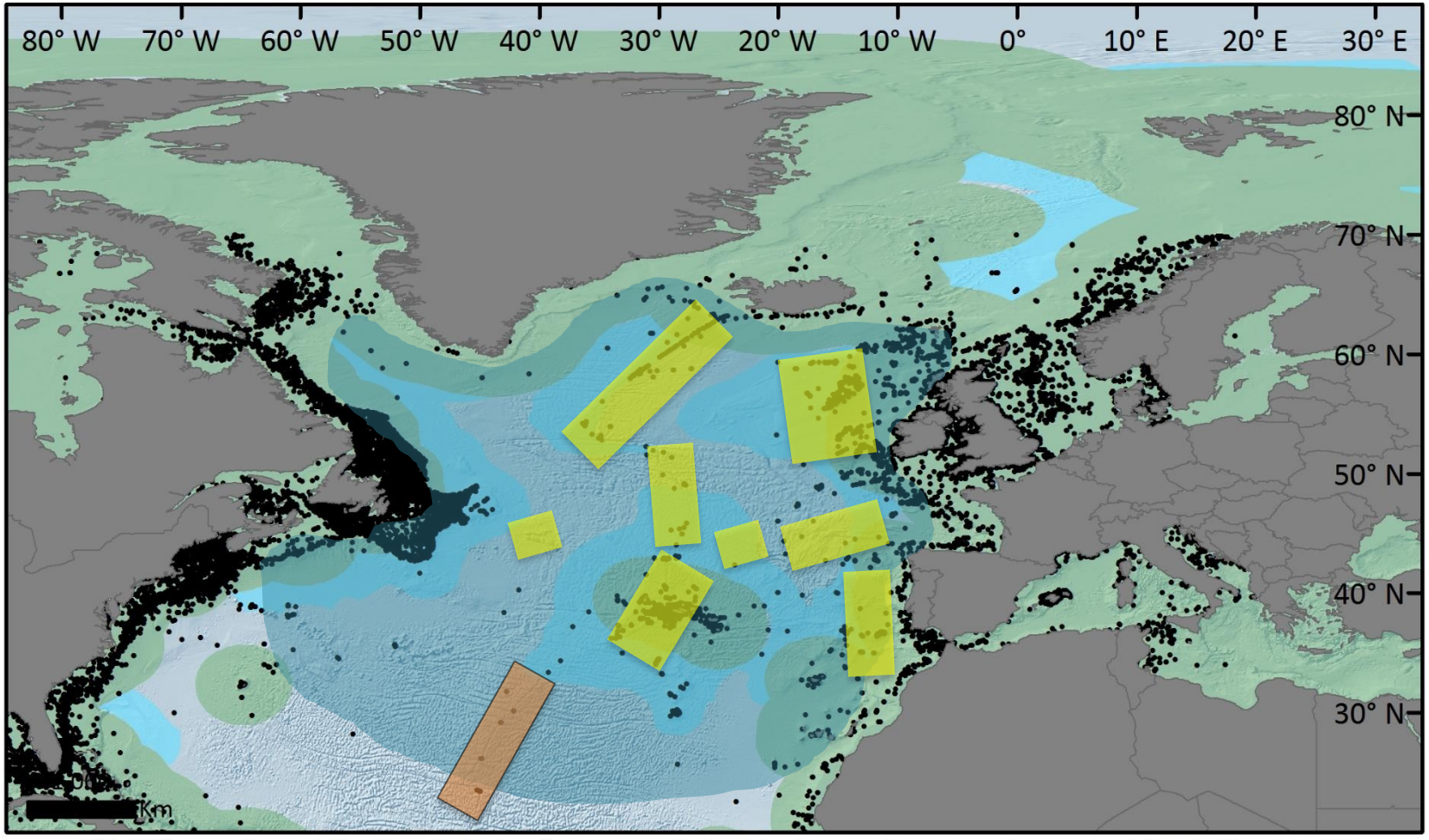


Deep-sea mining opportunities



Deep-sea mining opportunities

Deep-sea fishing opportunities

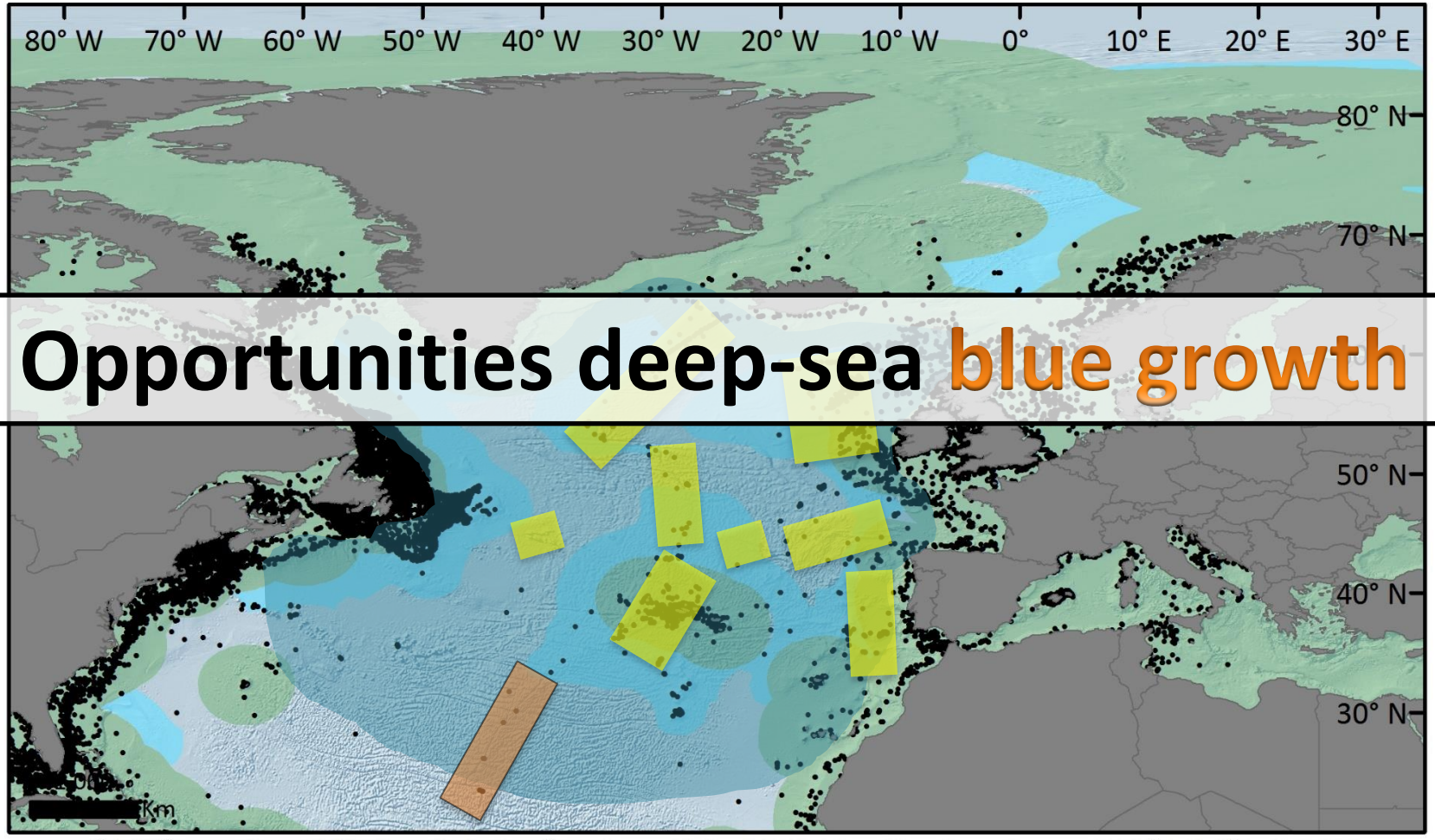


Deep-sea mining opportunities

Deep-sea bioprospecting opportunities

Deep-sea fishing opportunities

Opportunities deep-sea blue growth



Deep-sea mining opportunities

Deep-sea bioprospecting opportunities

Deep-sea fishing opportunities

Using data for recommendations

Using data for recommendations

In the context of MSFD, GES and NEAFC/NAFO

Using data for recommendations

In the context of MSFD, GES and NEAFC/NAFO

"VME index": combines how intrinsically vulnerable to human impacts the VME indicator was deemed to be, and how abundant the VME indicator was

"Uncertainty index" based upon:

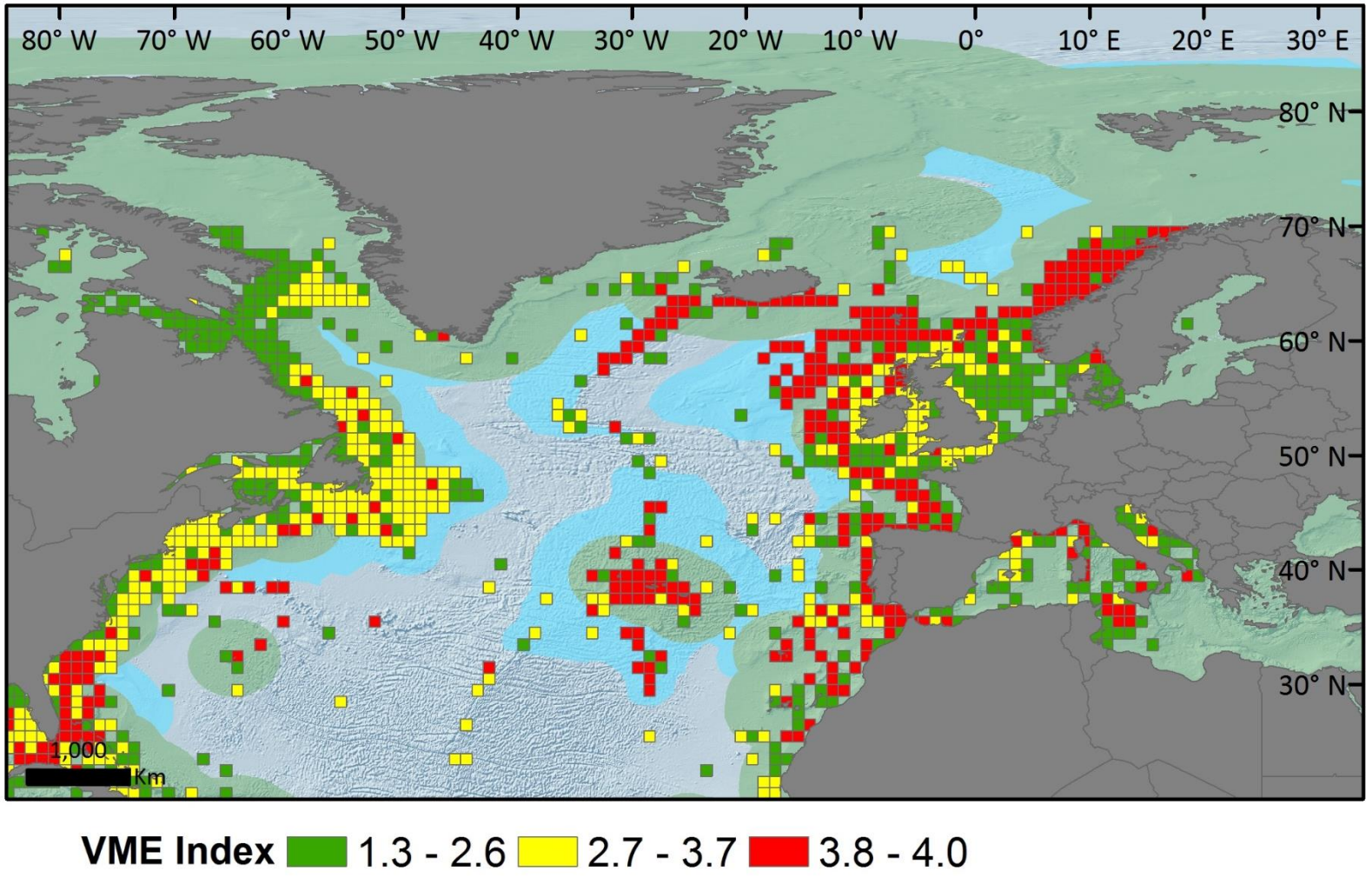
a) the numbers of samples available within the grid cell

b) the provenance of the records in that cell (e.g. visual survey, fisheries data, or inferred from other methods)

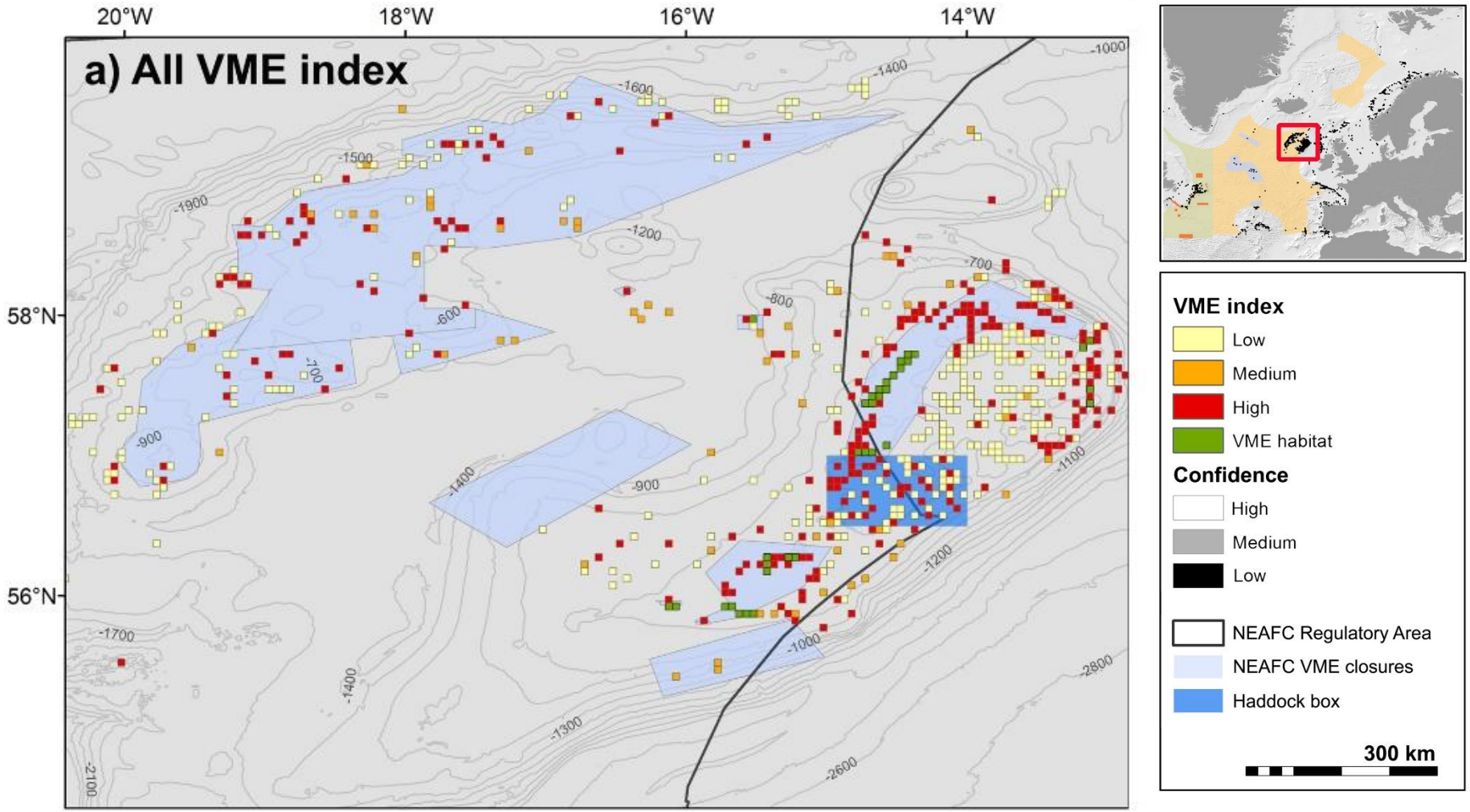
c) the time frame of the data

d) how recent the last survey was

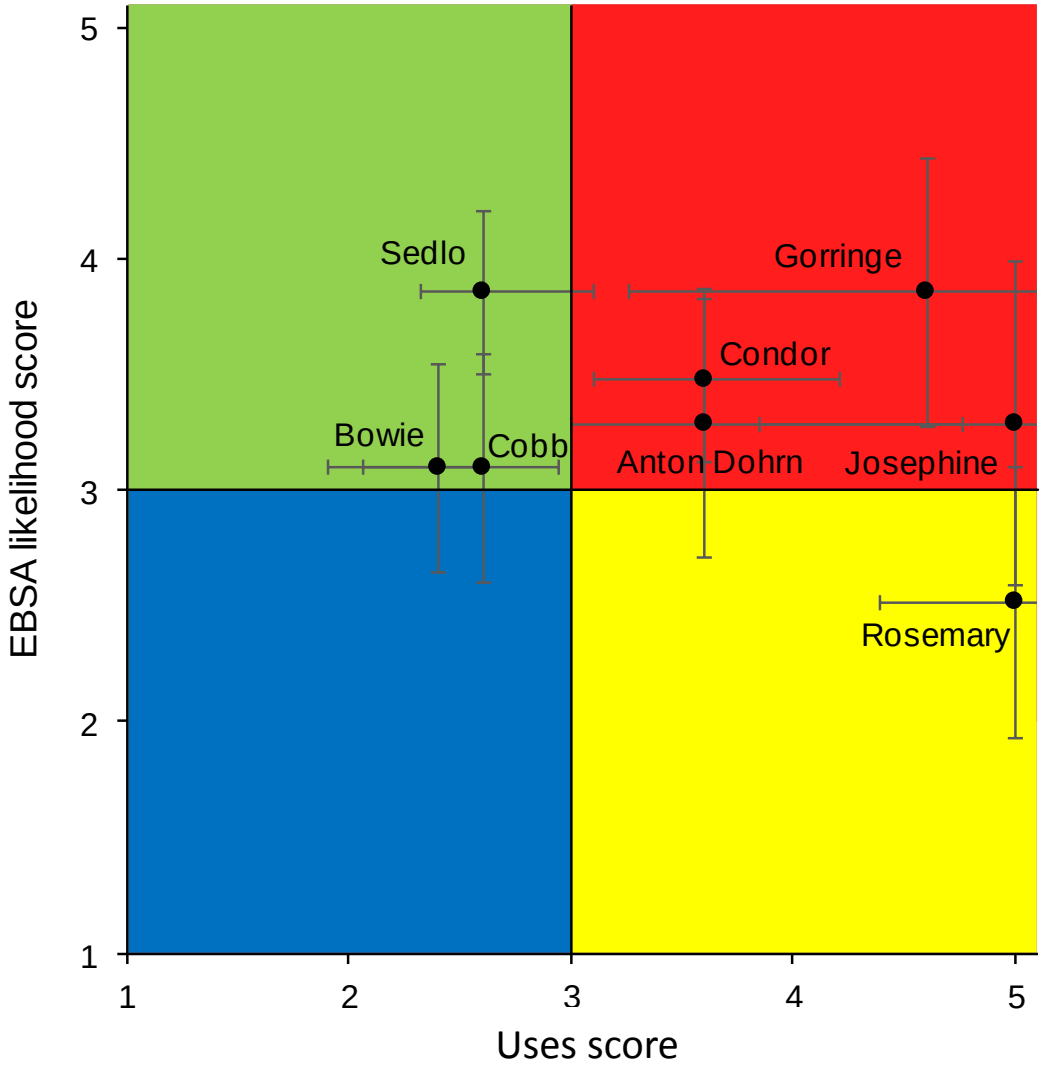
VME Index (Large-scale)



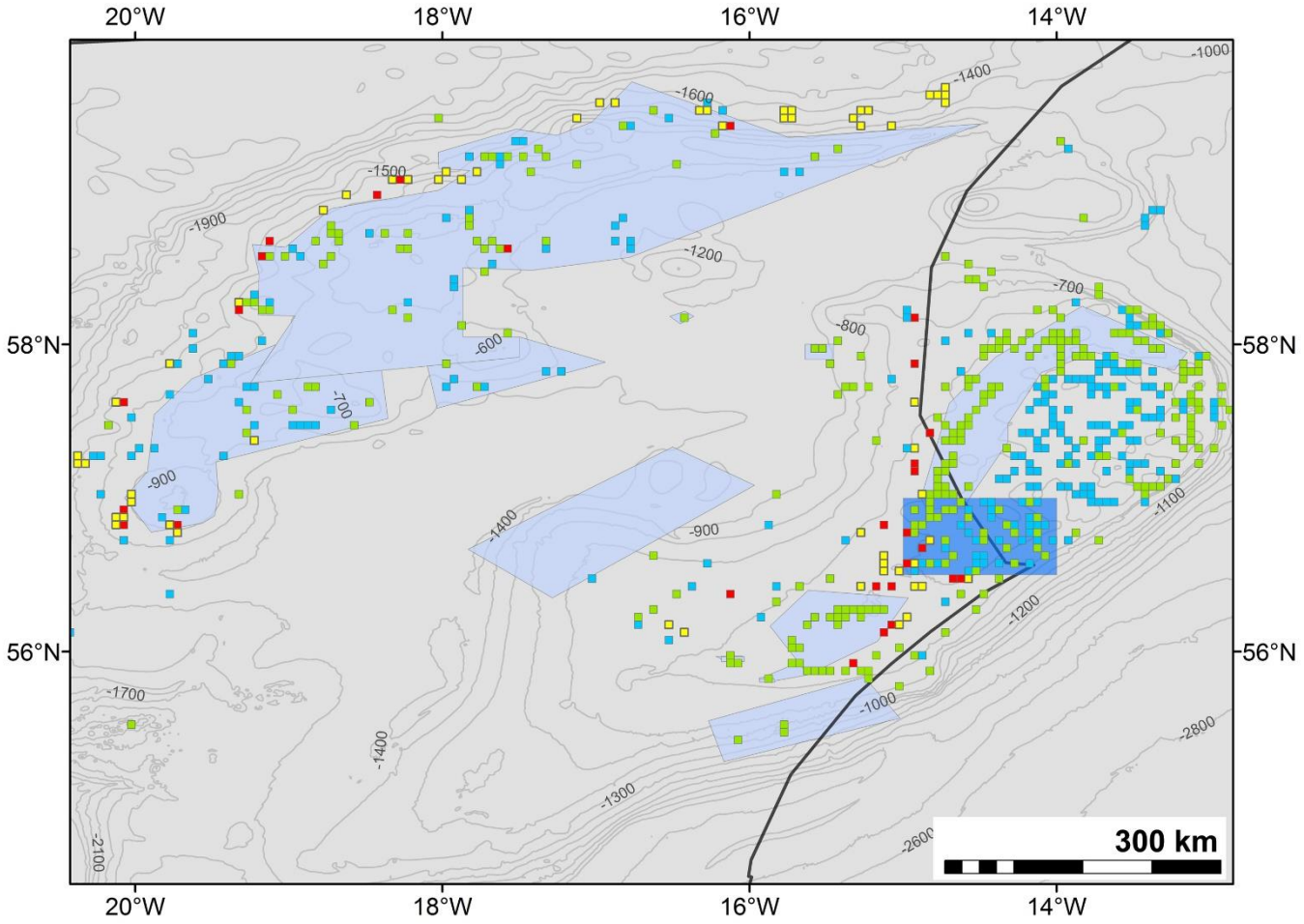
VME Index (Smaller-scale; Rockall Hatton Bank)

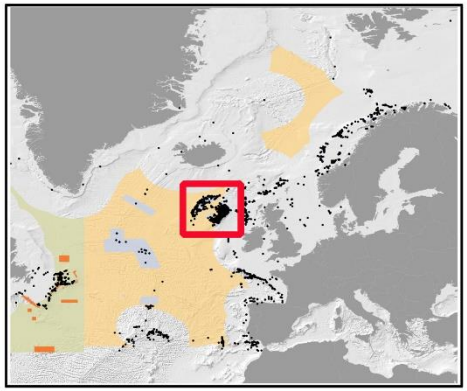


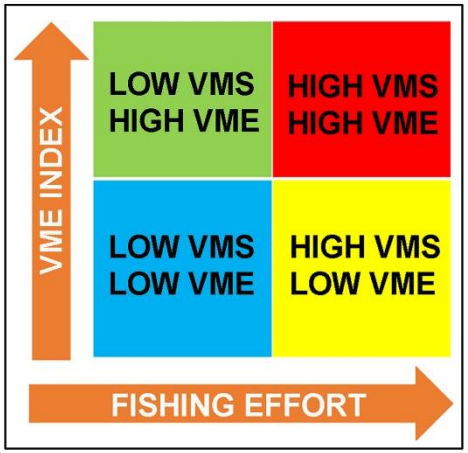
Reconciling conservation with blue-growth



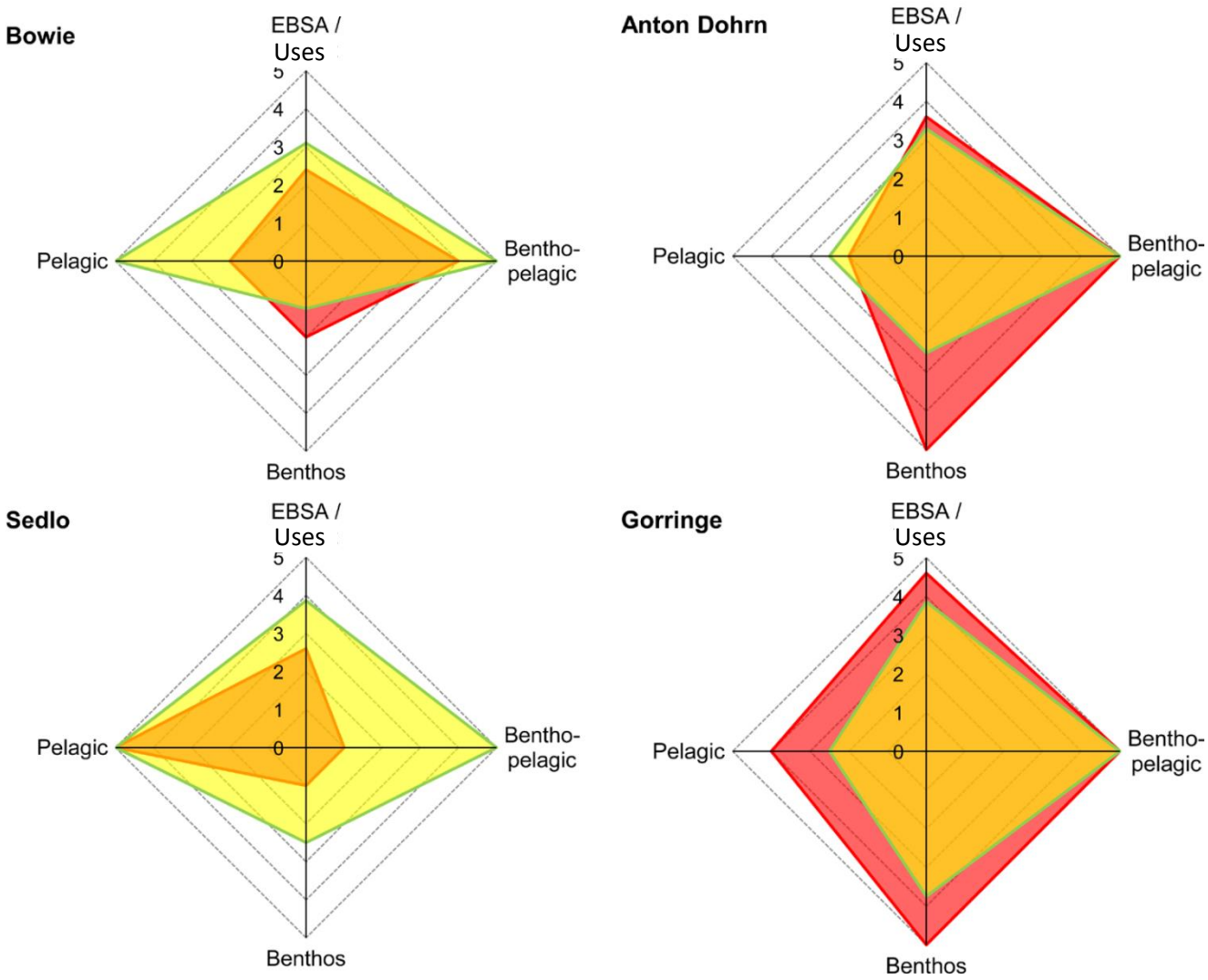
Reconciling conservation with blue-growth



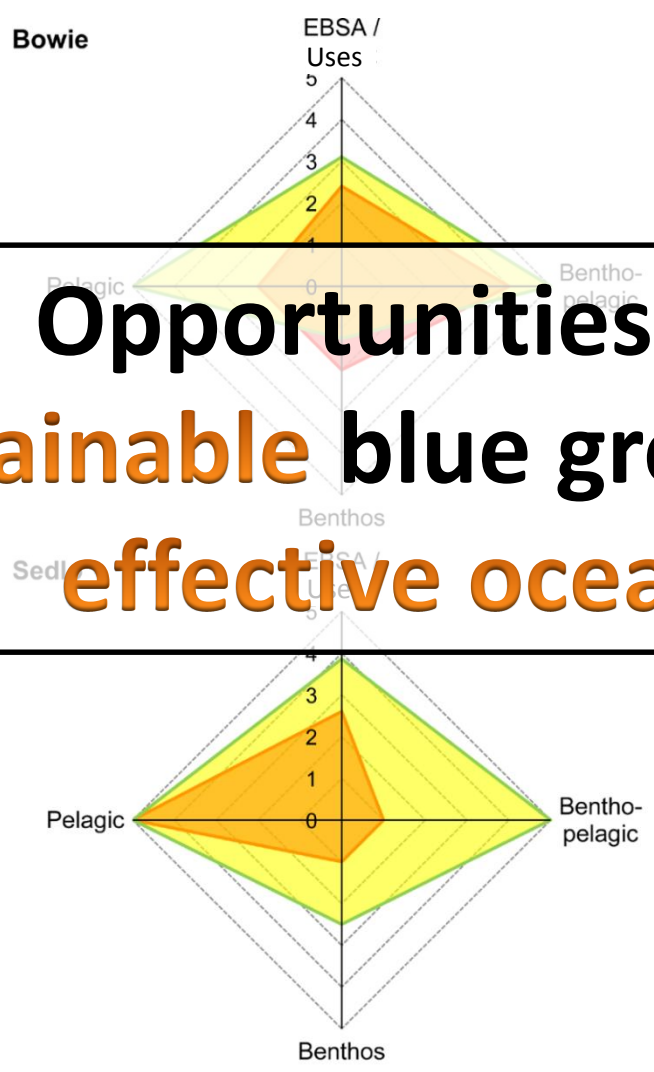




Reconciling conservation with blue-growth



Reconciling conservation with blue-growth



Opportunities for promoting sustainable blue growth and informing effective ocean governance

Food for thought

Deep-sea data available it's still limited

- An agenda for effective long-term transatlantic deep-sea research to complement on-going research initiatives is still needed (e.g. Azores International Research Centre)

Sustainable development of blue growth and informing effective ocean governance it's possible

- Innovative tools may facilitate transforming new understanding into effective ocean governance

Special thanks to all data providers

Maria Palomares, Mauricio Ahumada, Alexander Arkhipov, Manfred Bersch, Marzia Bo, Paula Campos, Bill Chadwick, Bernd Christiansen, Valerie Clouard, Ana Colaço, Ana de la Torriente, Hanna de Lima Fasca, Filippo D'Oriano, Pablo Dúran, Robert Embley, Gilberto Filho, Rui Freitas, Bella Galil, Mauricio Galvez, Amatzia Genin, Patrick Gillet, Jorge Gonçalves, Reinhold Hanel, Folkmar Hauff, Fábio Hazin, Andreia Henriques, Hans-Christian John, Jean-Christophe Joyeux, Kim Juniper, Coral Keehn, Kirsty Kemp, Tony Koslow, José Leal, Lonny Lundsten, Stephan Lutter, Sara Maxwell, Gui Francis Neat, Timothy O'Hara, Daniel Pauly, David Piper and the Geological Survey of Canada, Izaskun Preciado, Dario Rivas, Ashley Rowden, Alan Ruffman, José Andreata, Ricardo Serrão Santos, Katerina Sevastou, Timothy Shank, Sergey Skolotnev, Bradley Steven, Karen Stocks and Seamounts Online, Franz Uiblein, Tony Watts, Eleuterio Yañez

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