

Geohab2022 - 16<sup>th</sup>-20<sup>th</sup> May Venice, Italy

# GEHAB 2022

Marine Geological & Habitat Mapping - Venice, Italy



San Servolo Island, 16<sup>th</sup>-20<sup>th</sup> May 2022

## PROGRAM

### Golden Sponsors



### Bronze Sponsors



**HYPACK**  
a xylem brand

**NORBIT**  
- explore more -

**QPS.**

**MacArtney**  
UNDERWATER TECHNOLOGY



**Monday 16<sup>th</sup> May 2022 - Workshop**  
**“Ocean mapping in the Anthropocene: new technologies and Artificial Intelligence (AI) tools”**

- 9.30 Welcome and introduction
- 09:40 Francisco Gutiérrez (GeoAcustics Ltd., U.K.)  
THE POTENTIAL OF ARTIFICIAL INTELLIGENCE IN PHASE-MEASURING BATHYMETRIC SONAR. PRACTICAL DEMONSTRATION WITH HISTORICAL DATA.
- 10:15 Knut Hartmann, Kim Knauer and Constantin Sandu (EOMAP)  
SHALLOW WATER BATHYMETRY FOR EVERYONE – HANDS ON WORKSHOP ON THE NEW SDBONLINE SOLUTION AND SCIENCE BACKGROUND. PRACTICAL DEMONSTRATION (PLEASE BE READY WITH YOUR LAPTOP AND A GIS SOFTWARE)
- 11:00 Coffee Break**
- 11: 30 KONGSBERG  
KONGSBERG’S TECHNOLOGIES FOR REMOTE SURVEYING (PRESENTATION AND REAL TIME DEMONSTRATION FROM LITUS VESSEL)
- 12: 15 Dear Iason-Zois (GEOMAR)  
THE EFFECT OF SPATIAL AUTOCORRELATION IN MACHINE LEARNING-BASED MODELING OF DEEP-SEA POLYMETALLIC NODULES SPATIAL DISTRIBUTION
- 13:00 Lunch**
- 14:00 Mike Brissette (R2SONIC)  
R2SONIC MULTISPECTRAL DATA - COLLECTION & PROCESSING OVERVIEW
- 14:45 Tim W Nattkemper (Bielefeld University)  
MARINE IMAGE ANALYSIS: FROM MANUAL IMAGE ANNOTATION TO MARINE COMPUTER VISION, FROM THERE TO MARINE DATA SCIENCE
- 15:30 Coffee Break**
- 16: 00 Federica Fogliani (CNR-ISMAR), Fantina Madricardo (CNR-ISMAR) and Fulvio Marelli (Space42)  
RELIANCE PROJECT - INNOVATIVE AND INTERCONNECTED SERVICES TO SUPPORT THE MANAGEMENT OF THE RESEARCH LIFECYCLE WITHIN THE MARINE COMMUNITY. PRACTICAL DEMONSTRATION AND “HANDS ON EXERCISES”
- 17:00 Discussion and Conclusions
- 17:30 END**

## Tuesday 17<sup>th</sup> May 2022

### WELCOME

- 8:30 Registration Open  
9:10 R.Santoleri (CNR-ISMAR Director) Opening Remarks  
9:30 **Key note** by H. Gary Greene and Vaughn Barrie  
BENEFITS OF HABITAT MAPPING IN AN URBAN SEA – THE  
NE PACIFIC MARGINAL SALISH SEA  
9:50 Golden Sponsor Welcome: KONGSBERG



### Session 1 Part A

#### Shelf and Deep Sea habitats

Chair: P. Harris and M. Dolan

- 9:55 G.R. Cochrane, A. Cole, M. Sherrier, S. Hallahan, A. Roca-Lezra, R. Kvittek  
BENTHIC HABITAT IN CALIFORNIA STATE WATERS  
OFFSHORE OF MORRO BAY
- 10:10 L.H De Clippele, J. Gafeira, V.A.I. Huvenne, S.A. Ragnarsson, S.H. Ólafsdóttir, T. Kutti, J.A.A. Perez, P. Sumida, D. Sowers, J.M. Roberts  
MAPPING AND MORPHOLOGICALLY CHARACTERIZING COLD-  
WATER CORAL MOUNDS ACROSS THE ATLANTIC OCEAN
- 10:25 J.C.L.G. Fonseca, P. Vannucchi, D. Iacopini, D. Maestrelli, H. Vital, Y.R. Perez  
SEABED MAPPING USING 3D SEISMIC DATA TO INVESTIGATE  
CONTINENTAL SLOPE MORPHOLOGY AT THE BRAZIL  
EQUATORIAL MARGIN
- 10:40 M. Kanari, M. Tom, M. Rubin Blum, B. Herut, A. Giladi, O. Bialik, A. Meilijson, A. Neuman, G. Antler, Y. Makovsky  
DEEP SEA HABITAT MAPPING AND CHARACTERIZATION OF A  
SEEPAGE COMPLEX USING MULTIBEAM DATA, AUV AND ROV  
SURVEYS AT THE PALMAHIM DISTURBANCE, ISRAEL
- 10:55 Break (with demonstration by Kongsberg)**
- 11:40 T.R.R. Pearman, P.E. Brewin, F. Skeljo, P. Brickle  
MAPPING VULNERABLE MARINE ECOSYSTEMS IN THE SOUTH-  
WEST ATLANTIC DEEP-SEA
- 11:55 M. Schumacher, V. A.I. Huvenne, C. Devey, P. Martínez Arbizu, A. Biastoch, S. Meinecke  
THE ATLANTIC MARINE LANDSCAPE: A BASIN-WIDE CLUSTER  
ANALYSIS OF NEAR-SEAFLOOR PHYSICO-CHEMICAL  
CONDITIONS
- 12:10 D.J.B. Swanborn, V.A.I. Huvenne, S.J. Pittman, A.D. Rogers, M.L. Taylor, L.C. Woodall  
MAPPING SEASCAPE SPATIAL HETEROGENEITY AS DRIVER OF  
SEAMOUNT-ASSOCIATED FISH - A CASE STUDY FROM THE  
SOUTHWEST INDIAN RIDGE SEAMOUNTS
- 12:25 F. Foglini, J.A Trotter, M. Taviani, C. Mazzoli, A. Remia, M. McCulloch, P. Montagna  
HABITAT MAPPING OF SOUTHWESTERN AUSTRALIAN

*Ron  
McDowell  
Student  
Talk*

Light talk

SUBMARINE CANYON SYSTEMS

**12:30 Lunch**

**Session 1**  
**Part B**  
**Shelf and Deep Sea habitats**  
**Chair: G. Castellan and L. Angeletti**

- |       |  |              |
|-------|--|--------------|
| 14:00 | K.T. Bigham, A.A. Rowden, D.A. Bowden, D. Leduc<br>BENTHIC COMMUNITY RESILIENCE TO HABITAT ALTERATION CAUSED BY AN EARTHQUAKE-TRIGGERED TURBIDITY FLOW IN KAIKŌURA CANYON, AOTEAROA NEW ZEALAND" | Virtual talk |
| 14:15 | M. Jeffers, H.C. Bostock, D. Gürer, R.J. Beaman<br>INTERMEDIATE AND DEEP WATER MASSES AND CIRCULATION IN THE TASMAN AND CORAL SEAS USING CTD AND MULTIBEAM DATA FROM R/V FALKOR VOYAGES 2020-21  | Virtual talk |
| 14:30 | T. Kwasnitschka, K. Koeser, A. Bernstetter<br>INCREASING SITUATIONAL AWARENESS IN SEAFLOOR RESEARCH FROM SURVEYING TO VISUALIZATION – AN UPDATE OF THREE PROJECTS                                | Virtual talk |
| 14:45 | V.P. Mahale, P. Dewangan, B. Chakraborty<br>BACKSCATTER IMAGERY REVEALS FEATURE RICH CONTINENTAL SLOPES OF CENTRAL WESTERN CONTINENTAL MARGIN OF INDIA   |              |
| 15:00 | M.A. Lisniewski, V. Harlamov, V H.R. Lopes, E.P. Frazão, A. A. Neto<br>MAPPING POTENTIAL MARINE HABITATS ON THE RIO GRANDE RISE  | Light talk   |

**Session 2**  
**Coastal and shallow water habitats**  
**Chair: F. Madricardo, A. Kotilainen**

- |       |   |                                  |
|-------|---|----------------------------------|
| 15:05 | J. Berglund, M. L. Rasmussen, C. Paz Von Friesen, M. Åkerholm, S. Huber, L. B. Hansen, P-O. Moksnes<br>NATIONWIDE MONITORING OF SUBMERGED AQUATIC VEGETATION IN SWEDEN USING A COMBINATION OF DRONE AND SATELLITE IMAGERY |                                  |
| 15:20 | M.C. Espriella, V. Lecours<br>OPTIMIZING THE OBSERVATION SCALE FOR COASTAL HABITAT MAPPING  | <i>Ron McDowell Student Talk</i> |

**15.35 Break**

- |       |   |                     |
|-------|---|---------------------|
| 16:00 | L. Fallati, A. Savini, A. Giulia Varzi, V. Bracchi, P. Bazzicalupo, A. Rosso, M. Muzzupappa, D. Basso<br>3D UNDERWATER PHOTOGRAMMETRIC INVESTIGATION OF PECULIAR COLUMNAR CORALLIGENOUS BIOCONSTRUCTIONS OFFSHORE MARZAMEMI (SOUTHEASTERN SICILY, IONIAN SEA) |                     |
| 16:15 | S. Joshi<br>INTEGRATING SEDIMENT DYNAMICS INTO HABITAT MAPPING APPROACHES USING SEDIMENT MOBILITY INDICES AND SEABED CLASSIFICATION IN GALWAY BAY, IRELAND  |                     |
| 16:30 | M.A.H. Muhamad, R. Che Hasan, N. Md. Said, J. L. S. Ooi<br>SEAGRASS MAPPING USING SPECIES DISTRIBUTION  | <i>Ron McDowell</i> |

	MODELING AND MULTIBEAM ECHOSOUNDER AROUND REDANG ARCHIPELAGO	<i>Student Talk</i>
16:45	H. Vital, A.C. Bastos, J.M.L. Dominguez, T.C.M. Araujo	
	ADVANCES IN THE STUDY OF GEOHABITATS ON THE BRAZILIAN CONTINENTAL SHELF: IMPORTANCE OF INCT AMBTROPIC	
17:00	C. Roelfsema, M. Lyons, K. Markey, C. Say, E. Kovacs, E. Kennedy, S. Phinn, N. Murray, H. Fox, B. Bambic, P. Gerstner, M. Skone, G. Asner	Virtual talk
	INNOVATIONS ON GLOBAL CORAL REEF GEOMORPHIC AND BENTHIC HABITAT MAPS: THE ALLEN CORAL ATLAS	
17:15	L. Janowski, R. Wroblewski, M. Rucinska, A. Kubowicz-Grajewska, P. Tysiac	Virtual Light talk
	UTILIZATION OF HIGH-RESOLUTION AIRBORNE LIDAR BATHYMETRY FOR AUTOMATIC MAPPING OF SHALLOW SEAFLOOR, A CASE STUDY FROM THE SOUTHERN BALTIC	
17:20	K. Robert, K. Charmley, R. Command, K. Baker, F. de Leo	Virtual Light talk
	SPATIO-TEMPORAL MAPPING AND MONITORING OF A SUB-ARCTIC INLET	
17.25	D. S. Galvez, G. M. Scarpa, A. Petrizzo, F. Braga, I. Guarneri, T. Lahami, L. Zaggia, A. Berton, F. Madricardo. INTEGRATION OF MULTI-BEAM AND UAV DATA TO MONITOR MORPHOLOGICAL CHANGES IN TIDAL SALT MARSHES OF THE VENICE LAGOON	Light talk
<b>17:30</b>	<b>BSWG Meeting</b>	
<b>18:30</b>	<b>END</b>	

## Wednesday 18<sup>th</sup> May 2022

<b>Session 3</b>	<b>Submerged landscapes and cultural heritage</b> Chair: F.Foglini, G. Green	
09:00	F. Madricardo, M. Bassani, G. D'Acunto, A. Calandriello, A. Petrizzo, I. Guarneri, D. Galvez, A. Kruss, J. Lowag, F. Foglini	
	UNDERWATER CULTURAL HERITAGE HIGH-RESOLUTION MAPPING: CASE STUDY FROM THE VENICE LAGOON	
09:15	H.C. Cawthra, I.E. Esteban, J. Pargeter, E.C. Fisher	Virtual talk
	ANCIENT LAND-SEA CONNECTIONS IN MPONDOLAND, ON THE SOUTH AFRICAN WILD COAST	
<b>Session 4</b>	<b>The Anthropocene and the effect of human footprint on marine habitats</b> Chair: F. Foglini, G. Green	
9:30	<b>Key note</b> by F. Trincardi	
	MAPPING THE GLOBAL SEAFLOOR DETECTING HUMAN IMPACTS ON IT	
9:50	P.T. Harris and T. Maes	
	FATE OF PLASTIC POLLUTION IN BENTHIC MARINE ENVIRONMENTS – A MASS BALANCE APPROACH	



- 10:05 A.T. Kotilainen, M.M. Kotilainen, S. Jokinen, J.J. Virtasalo, A.M. Kaskela  
COASTAL ESTUARIES – BALTIC SEA HABITAT TYPES UNDER THREAT
- 10:20 M.A. Young, K. Critchell, A.D. Miller, E.A. Trembl, M. Sams, R. Cavalho, D. Ierodiaconou  
MAPPING THE IMPACTS OF MULTIPLE STRESSORS ON THE DECLINES IN KELPS ALONG THE GREAT SOUTHERN REEF, AUSTRALIA  
Virtual
- 10:35 A.J. Atchia, V. Lecours, A.E. Braswell, A.H. Altieri  
USING GEOGRAPHIC OBJECT-BASED IMAGE ANALYSIS AND SPECTRAL INDICES TO MAP CHANGES IN COASTAL HABITAT HEALTH FOLLOWING AN OIL SPILL IN MAURITIUS  
*Ron McDowell Student Talk*
- 10:50 L. Fulton, C.J. Brown, J. McIntyre, A. Smith, T. Walke  
EVALUATING THE BENEFITS OF SIDE SCAN SONAR AS A DETECTION METHOD FOR ABANDONED, LOST, OR OTHERWISE DISCARDED FISHING GEAR  
*Ron McDowell Student Talk*
- 11:05 S. Terracciano, F. De Giosa, C. Donadio, G. Mastronuzzi, A. Rizzo, G. Scardino, G. Scicchitano  
MAPPING THE ANTHROPOGENIC IMPACT ON SEAFLOOR IN THE TARANTO AREA (SOUTHERN ITALY)  
Light talk
- 11:10 **Break**

**Session 5 (part A) New approaches from coast to deep water habitat mapping**  
Chair: C. Brown, V.Lecours

- 11:30 C. Fusca, L. Fallati, A. Savini, C. Argentino, B. Ferrè, G. Panieri  
CLASSIFICATION OF ARCTIC SEAFLOOR BASED ON OBJECT-BASED IMAGE ANALYSIS (OBIA) TECHNIQUES  
*Ron McDowell Student Talk*
- 11:45 L.M.C de Oliveira, A. Lim, L.A. Conti, A.J. Wheeler  
3D PHOTOGRAMMETRIC CLASSIFICATION OF COLD-WATER CORAL REEFS WITH MACHINE LEARNING – PRELIMINARY RESULTS FROM PIDDINGTON MOUND, NE ATLANTIC  
*Ron McDowell Student Talk*
- 12:00 R.V. Garone, T.I. Birkenes Lønmo, F. Tichy, M. Diesing, T. Thrones, A. Schimmel, L. Løvstakken  
DEEP LEARNING FOR SEAFLOOR SEDIMENT MAPPING: A PRELIMINARY INVESTIGATION USING U-NET  
Virtual light
- 12:05 R. Arosio, B. Hopley, A. J. Wheeler<sup>1,3</sup>, A. Lim, F. Sacchetti, L. A. Conti, T. Furey  
FULLY CONVOLUTIONAL NEURAL NETWORKS APPLIED TO MARINE GEOMORPHOLOGY MAPPING ON THE IRISH CONTINENTAL SHELF DELIVER SATISFACTORY RESULTS FOR A MODEST EFFORT
- 12.20 E. Alevizos, A. Makris, V. C. Nicodemou, I. Oikonomidis, A. Roussos, D. D. Alexakis. A DEEP LEARNING APPROACH FOR SHALLOW SEAFLOOR MAPPING USING DRONE-BASED IMAGERY – INSIGHTS FROM ACTYS PROJECT
- 12:35 Lunch**
- 13:30 P. Feldens, J.S. von Deimling, P. Held, L. Bramanti, F. Espino, F. Otero-Ferrer  
Virtual talk

- ACOUSTIC FINGERPRINT OF THE BLACK CORAL ANTHIAPATELLA WOLLASTONI IN MULTIBEAM ECHO SOUNDER DATA
- 13:45 I.Z. Gazis, J. Greinert  
THE EFFECT OF SPATIAL AUTOCORRELATION IN MACHINE LEARNING-BASED MODELING OF DEEP-SEA POLYMETALLIC NODULES SPATIAL DISTRIBUTION
- 14:00 O. Pizarro, J. Shields, G. Wakeham, B. Leighton, J. Lee, G. D'Urso, S. Williams, R. Fitch  
SCALABLE BENTHIC CHARACTERIZATION USING MULTIPLE BOTTOM-FOLLOWING IMAGING DRIFTERS Virtual talk
- 14:15 J. Shields, O. Pizarro, S.B. Williams  
FEATURE SPACE EXPLORATION FOR PLANNING INITIAL BENTHIC AUV SURVEYS Virtual talk
- 14:30 V. Lecours, A. Oxtou  
OPTIMIZING ENSEMBLE MODELS TO IDENTIFY SUITABLE HABITAT OF COLD-WATER CORAL SPECIES IN THE NORTHERN GULF OF MEXICO
- 14:45 B. Misiuk, C.J. Brown, V. Ferrini, S.C. Lowe, T. Trappenberg  
COMPARING MANUAL AND AUTOMATED FEATURE ENGINEERING APPROACHES FOR MAPPING SEABED SEDIMENTS IN THE BAY OF FUNDY, CANADA
- 15:00 R. Nanson, D. Dove, R. Arosio, J. Guinan, L.R. Bjarnadóttir  
ADVANCEMENT OF A TWO-PART SEABED GEOMORPHOLOGY MAPPING SCHEME FOR MULTIDISCIPLINARY APPLICATIONS: PART 2 - GEOMORPHOLOGY
- 15:15 M. Roche, T. van Dijk, C. Mesdag, X. Lurton, L. Berger, R. Fezzani, P. Fietzek, S. Gastauer, S. Simmons, D. Parsons, M.K. Breteler  
THE BACKSCATTER IN FLUME PROJECT (BSiF): MEASUREMENTS OF SEDIMENT BACKSCATTER IN A FLUME – PRELIMINARY EXPERIMENT RESULTS AND PROSPECTIVE"
- 15.30 Break**

Session 5 (part B)	New approaches from coast to deep water habitat mapping	
	Chair: L. R. Bjarnadottir, M. Roche	
16.00	J.S. von Deimling, P. Held, J. Friedrich, C. Straßburger FROM INTERPOLATED SURFACES TO 3D POINT CLOUD ANALYTICS FOR BETTER HABITAT MAPPING	
16:15	M. Troup, D. Barclay, C. Brown, E. Bushev, K. Davies, A. Comeau, R. Davis CLASSIFYING SURFICIAL SEDIMENT USING A GLIDER-MOUNTED SINGLE-BEAM SONAR	<i>Ron McDowell Student Talk</i>
16:30	M. Di Stefano A LAYBACK MODEL FOR GEOREFERENCING UNDERWATER IMAGERY FROM A TOWED CAMERA SYSTEM	
16:45	A.R. Ilich, B. Misiuk, V. Lecours, S.A. Murawski DEMONSTRATING THE UTILITY OF THE MULTISCALE DTM PACKAGE	<i>Ron McDow</i>

FOR SEAFLOOR HABITAT MAPPING

		<i>ell Student Talk</i>
17:00	M.F.J. Dolan, R.E. Ross, G. Gonzalez-Mirelis, P. Buhl-Mortensen LESSONS LEARNED FROM AN EVER-EXPANDING BIOTOPE MAP	Light talk
17:05	T. McClinton IMPROVED BENTHIC GEOLOGIC MAPPING USING OBJECT-BASED AND MACHINE-LEARNING TECHNIQUES	Light Virtual talk
17:10	F.J. Gutiérrez, R. Dowdeswell, B. Milner, W. Wang, D. Websdale THE POTENTIAL OF ARTIFICIAL INTELLIGENCE IN PHASE-MEASURING BATHYMETRIC SONAR DATA PROCESSING	Light talk
<b>17:15</b>	<b>Poster session Flash Presentation (1 minute each poster)</b>	
<b>17:40</b>	<b>Poster session “Grecale Room” with refreshment</b>	
<b>19:00</b>	<b>END</b>	

**Thursday 19<sup>th</sup> May 2022**

9:10 Golden sponsor: R2Sonic



**Session 5 New approaches from coast to deep water habitat mapping**

**(part C)**

Chair: T. Le Bas, G. Cochrane

9:15	<b>Virtual Key note</b> by Steve Hall THE NIPPON FOUNDATION / GEBCO SEABED 2030 PROJECT – DELIVERING THE DEFINITIVE GLOBAL MAP OF THE OCEAN FLOOR.	
9:35	C. Marques, M. Ribeiro, A. Moura, C. Monteiro, L. Veiga, H. Leonor, K.K. Knut USING SATELLITE-DERIVED BATHYMETRY DATA FROM 4S PROJECT TO MONITOR SHALLOW WATER AREAS – THE CASE OF BUGIO (PORTUGAL)	Light talk
9:40	D. Mallace, J. Wheeler COLLECTING HABITAT DATA DOESN'T HAVE TO IMPACT THE HABITAT – USING USVs TO COLLECT OCEAN DATA IN A CARBON NEUTRAL & ENVIRONMENTALLY SAFE MANNER	Light talk
9:45	B. McCormack, M. Borrelli USING UNCALIBRATED REFLECTIVITY BACKSCATTER FROM THE BATHYMETRIC DATA STREAM OF A PHASE- MEASURING SIDESCAN SONAR: OBJECT DETECTION AND BOTTOM CLASSIFICATION	Light talk
9:50	A.C.G. Schimel, M.F.J. Dolan, S. Chand, T. Thorsnes, L. Bjarnadottir ISKAFFE: A TOOL FOR BACKSCATTER DATA QUALITY	Light talk



CONTROL

- 9:55 M. Steinsiek, K. Hartmann, K. Knauer, C. Kleih, M. Siegmann  
AI MEETS SEABED: MAKING THE BENTHIC ANALYSIS OF VIDEO RECORDS, AIRBORNE AND SATELLITE DATA MORE EFFECTIVE Light talk
- 10:00 K. Trzcinska, J. Tegowski, P. Pocwiardowski, L. Janowski, J. Zdroik, A. Kruss, M. Rucinska, Z. Lubniewski, J. Schneider von Deimling  
CHARACTERIZATION OF BENTHIC HABITATS USING ACOUSTICALLY CALIBRATED MBES AND ANGLE VARYING GAIN CORRECTION OF BACKSCATTER- AS A PART OF ECOMAP PROJECT Light talk
- 10:05 H. Van Rein, E. Manca, A. Cordingley, G. Lourenço, A. Audsley, T. Hooper, L. Molloy, J. Day, P. Walker, M. Hartley, L. Robinson  
NOVEL APPLICATION OF EUNIS-BASED MAPPING PRODUCTS TO DEMONSTRATE THE POTENTIAL FOR MARINE SPATIAL PLANNING PROCESS USING A NATURAL CAPITAL-BASED APPROACH IN THE UK Light talk
- 10:10 P. Wintersteller, K. Karantzalos, J. Quintana, P. Nomikou, R. Neville, K. Baika, D. Lampridou, and NEANIAS team members  
THE NEANIAS CLOUD-BASED UNDERWATER SERVICES Virtual Light talk
- 10:15 R. Devillers, L. ElMoussaoui, E. Lebreton, A. LeQuilleuc, A. Aubry, T. Claverie, A. Collin, Y. Lubac, T. Schmitt, M. Jasinski  
IMPROVING SEAFLOOR AND MARINE HABITAT MAPPING IN DATA POOR REGIONS USING ICESAT-2 SATELLITE-BASED LIDAR AND VERY-HIGH RESOLUTION IMAGERY FUSION
- 10:30 K. Hartmann, K. Knauer, C. Kleih, J. Wenzel, J. Berglund, C. Paz von Friesen, R. Santos, V. Marques, A. Moura, M. Filippone, D. Adhiwijna, M. Stender, J. Banton, E. Mondon, J. Beaudoin, D. Urdaneta, M. Rovere, C. Pellegrini, V. Funari, A. Mercorella, L. Vigliotti, F. Madricardo, A. Remia, I. Conese, V. Drakopoulou, V. Kapsimalis, S. Reizopoulou, D. Sakellariou, G. Rousakis, M. Salomidi  
SHALLOW WATER MAPPING AND MONITORING IN THE BROWSER – SDB-ONLINE
- 10:45 G. Summers, A. Lim, A., A.J. Wheeler  
A GEOMORPHOLOGICAL OBJECT-BASED IMAGE ANALYSIS APPROACH TO INVESTIGATE THE HYDRODYNAMICS SURROUNDING COLD-WATER CORAL MOUNDS  
*Ron McDowell Student Talk*

**11:00 Break**

11:15 M. Papaelias, F. P. García Márquez, S. Marini, F. Foglini, F. Madricardo, Pedro José Bernalte Sánchez; V. Jantara Junior  
LONG-TERM AUTONOMOUS ROBOTIC SOLUTIONS FOR COASTAL TO DEEP SEAFLOOR ENVIRONMENT MAPPING AND MONITORING

### **Session 6 Habitat mapping and climate change**

Chair: A. Bastos, B. Todd

11:30 J.V. Barrie, H.G. Greene  
CLIMATE CHANGE AND AN URBAN SEA – IMPACT OF THE EVENTS OF 2021 ON THE SALISH SEA

11:45 C. J. Brown, B. Misiuk, B. DiTrollo, T. Trappenburg, S. C. Lowe, K. Robert  
BENTHIC ECOSYSTEM MAPPING FOR SUSTAINABLE OCEAN STEWARDSHIP IN A SHIFTING OCEAN CLIMATE

12:00 J. Harff, J. Dudzińska-Nowak, Wenyan Zhang, F. Foglini, Jakub Miluch, J. Zhang  
MARGINAL SEAS TASK GROUP OF THE DEEP-TIME DIGITAL EARTH (DDE), IUGS BIG SCIENCE PROGRAM

Virtual

12.15 **Lunch**

### **Session 7 Habitat mapping for maritime spatial planning (MSP) within an ecosystem based approach (Part A)**

Chair: A. Bastos, B. Todd

13:15 A. Fedorovska, M. Kostanda, I. Barda, I. Andersone  
INVESTIGATION OF NATURA 2000 MARINE BENTHIC HABITATS IN THE LATVIAN EEZ: IDENTIFICATION, CHALLENGES AND DESIGNATION OF NEW MPAS

13:30 S.L. Goode, A.A. Rowden, D.A. Bowden, M.R. Clark, F. Stephenson  
USING PATCH CHARACTERISTICS OF BENTHIC COMMUNITIES DERIVED FROM HABITAT SUITABILITY MODELLING TO INFORM SPATIAL MANAGEMENT OF THE MARINE ENVIRONMENT

Virtual

13:45 A. Giladi, M. Kanari, T. Katz, G. Tibor  
MONITORING SEDIMENT TRANSPORT AND GRAIN SIZE DYNAMICS ALONG THE ISRAELI CONTINENTAL SHELF USING MULTIBEAM BATHYMETRY AND BACKSCATTER

14:00 K. Ismail, A. Ali, Z. Bachok, C.D.M. Safuan, R. Che Hasan, A.A. Chan, N.M. Said  
A STEP TOWARDS EFFECTIVE ECOSYSTEM-BASED MANAGEMENT IN MALAYSIA MARINE PARKS: STANDARDISED BENTHIC CLASSES USING MARINE LANDSCAPE APPROACH

14:15 F. McGrath, B. Picton, C. Morrow, L. Scally, N. Pfeiffer

SYNTHESIS AND DEVELOPMENT OF 'SENSITIVE ECOSYSTEM ASSESSMENT AND ROV EXPLORATION OF REEF' (SEAROVER) SURVEY OUTPUTS FOR RESEARCH AND POLICY SUPPORT

14:30 P. S. Menandro, F.V. Vieira, A.C. Lavagnino, G.C. Boni, T. Franco, A.C. Bastos

WHY DOES BENTHIC HABITAT MAPPING MATTER FOR BRAZILIAN SCIENCE AND MANAGERS? A MULTI-SCALE APPROACH IN THE SOUTHEAST BRAZILIAN SHELF

14:45 S. Millán, N. Rivas, J. Cortina, D.F. Morales, L. Chasqui

BENTHIC HABITAT MAPPING UNDER MULTILEVEL APPROACH IN THE ARCHIPELAGO OF SAN ANDRÉS, PROVIDENCIA AND SANTA CATALINA, COLOMBIAN CARIBBEAN

15:00 **Break**

**Habitat mapping for maritime spatial  
Session 7 planning (MSP) within an ecosystem based  
(Part B) approach**

Chair: B. Misiuk, T. Pearman

15:30 C. Murray, C. Brown, M. Bailey, S. Denney, S. Iverson, Mills-Flemming, V. Gazzola, B. Muisik, F. Whoriskey

COMBINING SATELLITE IMAGERY AND ACOUSTIC DATA TO SUPPORT HABITAT CHARACTERIZATION OF THE BRAS D'OR LAKE ESTUARY TO SUPPORT STEWARDSHIP OF CULTURALLY, ECOLOGICALLY, AND COMMERCIALY IMPORTANT SPECIES

*Ron McDowell  
Student  
Talk*

15:45 T. Thorsnes, B.N. Borrevik, N. Tengs-Hagir, H. Welde, G. L. Taranger

TOWARDS THE BEST MAPPED COASTAL ZONE IN THE WORLD? THE NORWEGIAN MARINE BASEMAPS INITIATIVE

16:00 B. Vinha, V.A.I. Huvenne, A. Gori, K. A. Barnhill, C. Wardell, M. Schumacher, S. Piraino, J. M. Roberts, T. H. Hansteen, C. Orejas

MAPPING OF VULNERABLE MARINE ECOSYSTEM (VME) INDICATOR TAXA OFF CABO VERDE (EASTERN EQUATORIAL ATLANTIC OCEAN)

*Ron McDowell  
Student  
Talk*

16:15 C. Wardell, J. Strong, A. Haïssoune, A.L. Jones, L. Coals

MARINE HABITAT MAPPING TO SUPPORT THE USE OF CONSERVATION AND ANTI-TRAWL STRUCTURES IN KEP PROVINCE, CAMBODIA

16:30 G. Castellan, L. Angeletti, F. Foglini, V. Grande, P. Montagna, M. Taviani

TO WHAT EXTENT ARE MESOPHOTIC COMMUNITIES IN THE MEDITERRANEAN SEA PROTECTED BY THE

Light talk

CURRENT CONSERVATION NETWORK?

16:35 H. Vital, J.E.L. Oliveira, A.G. Aquino da Silva, F.E. Silva, V.C. Fontes

SENSING, INTEGRATION AND ANALYSIS OF DIGITAL INFORMATION IN THE MARINE GEOLOGICAL MAPPING – SEABEDMAP PROJECT. PHASE I

Light talk

16:40 T.F. Wanda, E.A. Wiles H.C. Cawthra and A. de Wit  
MULTIBEAM BATHYMETRY AS THE BASELINE FOR MARINE RESEARCH: APPLICATION IN MARINE HABITAT MAPPING, SOUTH AFRICA

Light talk

**16:45 GEOHAB Annual Meeting**

**18:00 End of meeting**

## Friday 20<sup>th</sup> May 2022 - Field Trip "To the origins of Venice"

9:00 START FROM SAN SERVOLO ISLAND

9:30 LIDO INLET: THE MOSE SYSTEM

10:0 TREPORTI CHANNEL: A ROMAN ROAD UNDER THE WATER?

0 THE SCOURS AT THE TIDAL CHANNEL CONFLUENCES

10:1  
5 SAN FELICE SALT MARSHES

10:3  
0 SCANELLO CHANNEL

11:0  
0 TORCELLO ISLAND: GUIDED TOUR TO THE BASILICA AND MUSEUM

**13:0  
0** LUNCH BREAK

15.0  
0 GUIDED TOUR IN THE LAZZARETTO NUOVO ISLAND

17:0  
0 TRAVEL BACK TO SAN SERVOLO

18.0  
0 ARRIVAL TO SAN SERVOLO

### BIBLIOGRAPHY

Madricardo, F., Bassani, M., D'Acunto, G., Calandriello, A., & Foglini, F. (2021). New evidence of a Roman road in the Venice Lagoon (Italy) based on high resolution seafloor reconstruction. *Scientific Reports*, 11(1), 1-19.

Ferrarin, C., Madricardo, F., Rizzetto, F., Kiver, W. M., Bellafiore, D., Umgiesser, G., ... & Trincardi, F. (2018). Geomorphology of scour holes at tidal channel confluences. *Journal of Geophysical Research: Earth Surface*, 123(6), 1386-1406.

Sigovini, M., et al. "Habitat mapping in coastal lagoons: first results on a tidal channel and future prospects/habitat mapping nelle lagune costiere: primi risultati su un canale di marea e prospettive future." *Biologia Marina Mediterranea* 21.1 (2014): 363.

Toso, C., Madricardo, F., Molinaroli, E., Fogarin, S., Kruss, A., Petrizzo, A., ... & Trincardi, F. (2019). Tidal inlet seafloor changes induced by recently built hard structures. *PloS one*, 14(10), e0223240.

Tognin, D., D'Alpaos, A., Marani, M. et al. Marsh resilience to sea-level rise reduced by storm-surge barriers in the Venice Lagoon. *Nat. Geosci.* 14, 906-911 (2021).  
<https://doi.org/10.1038/s41561-021-00853-7>

Tognin, D., Finotello, A., D'Alpaos, A., Viero, D. P., Pivato, M., Mel, R. A., ... & Carniello, L. (2022). Loss of geomorphic diversity in shallow tidal embayments promoted by storm-surge barriers. *Science Advances*, 8(13), eabm8446.

**OTHER INTERESTING READING MATERIAL AND LINKS**

M. Mazzucco La lunga attesa dell'angelo/The long wait for the angel

E. Canal 2013 Archeologia della Laguna di Venezia

The MOSE System: <https://www.mosevenezia.eu/?lang=en>

La Venezia Romana <https://www.nationalgeographic.it/video/tv/la-veneziana-romana>



## Poster Session

### Session 1

#### Shelf and Deep Sea habitats

- 1 F. Butschek, R. Arosio, T. Furey, A.J. Wheeler  
THE ABC CELTIC SEA PROJECT – ACOUSTIC SEABED CHARACTERISATION AND BENTHIC HABITAT ASSOCIATIONS IN THE CELTIC SEA
- 2 F. Di Giovanna, J. A. Trotter, P. Montagna, M. McCulloch, G. Castellan, V. Grande, M. Taviani, F. Foglini  
HABITAT SUITABILITY MODEL OF THE BREMER CANYON SYSTEM (AUSTRALIA) COLD-WATER-CORAL GROUNDS
- 3 S. Medelytė, A. Šiaulyš, E. Vaičiukynas, K. Buškus, S. Olenin  
BENTHIC BIOTOPE IDENTIFICATION AND CLASSIFICATION IN THE CHALLENGING ENVIRONMENTS: SE BALTIC SEA REEFS AND ARCTIC BAYS IN SVALBARD

### Session 2

#### Coastal and shallow water habitats

- 4 F. Butschek, J. Appah, A.J. Wheeler  
MAPPING LOCAL AND SPECIES CONTRIBUTIONS TO BETA DIVERSITY IN THE PORCUPINE BANK CANYON
- 5 L. Fallati, A. Savini, C. Argentino, S. Bünz, G. Panieri  
SEAFLOOR LANDFORMS OF THE CENTRAL PART OF HAAKON MOSBY MUD VOLCANO (BARENTS SEA) RECONSTRUCT THROUGH ROV VIDEO PHOTOGRAMMETRY
- 6 A. Gasparotto, C. Bertolini, J. Da Mosto  
CREATING A MAPPING TOOL TO ESTABLISH BEST PRACTICES FOR SALT MARSH RECONSTRUCTION IN THE VENETIAN LAGOON
- 7 S. Innangi, M. Innangi, M. Di Febbraro, G. Di Martino, M. Sacchi, R. Tonielli  
AN ACCURATE METHOD FOR HIGH-RESOLUTION AND CONTINUOUS MAPPING OF LOOSE SEDIMENTS IN THE CONTINENTAL SHELF: TWO CASE STUDIES IN THE MEDITERRANEAN SEA, BAGNOLI-COROGGIO AREA (GULF OF NAPLES, ITALY) AND LAMPEDUSA ISLAND (SICILY CHANNEL, ITALY)
- 8 T. Lahami, I. Guarneri, A. Petruzzo, D. Galvez, V. Grande, F. Foglini, F. Madricardo  
BENTHIC HABITAT MAPPING USING MULTIBEAM ACOUSTICS AND GROUND-TRUTHING TECHNIQUES IN THE TIDAL CHANNELS OF THE NORTHERN VENICE LAGOON
- 9 Le Bas T., Durán R., Bialik O., and Micallef A.  
CARBONATE REEFS AT MESOPHOTIC DEPTHS: OFFSHORE SOUTH-EAST MALTA
- 10 G. Montereale Gavazzi, D. A. Kapasakali, F. Kerckhof, V. Van Lancker, E. Pecceu, K.  
EXPLORING NATURAL HARD-SUBSTRATE HABITAT IN BELGIAN WATERS: CASE STUDY ON A RECENTLY DISCOVERED HOTSPOT
- 11 M. Prampolini, V. Grande, P. D'Ambrosio, G. Di Martino, F. Foglini, S. Innangi, M. Sacchi, C. Silvestrini, R. Tonielli, S. Frascchetti  
A NEW BENTHIC HABITAT MAP OF THE CAMPANIA REGION (ITALY) MERGING DATASETS WITH DIFFERENT SOURCE, SPATIAL RESOLUTION AND TIME-PERIOD
- 12 B.J. Todd  
Seafloor mapping in a hypertidal setting: Minas Basin, Nova Scotia, Canada

- 13 R. Tonielli, S. Innangi, M. Contiero, G. Di Martino, F. Molisso, L. Monti, M. Conti, A. Fiorentino, F. Papasodaro, Marco Sacchi  
PRELIMINARY RESULTS FROM NEW DATA ACQUISITION OFF THE INNER SHELF OF GULF OF GAETA, EASTERN TYRRHENIAN SEA, FOR THE GEOLOGICAL MAPPING OF SHEET N° 429 MONDRAGONE, 1:50.000 SCALE (CARG PROJECT)
- 14 A.G. Varzi, L. Fallati, A. Savini, V. A. Bracchi, P. Bazzicalupo, A. Rosso, R. Sanfilippo, M. Bertolino; M. Muzzupappa, D. Basso  
HIGH-RESOLUTION MAPPING OF THE SEAFLOOR OFFSHORE MARZAMEMI VILLAGE (SOUTHEASTERN SICILY, IONIAN SEA): EXTENT AND DISTRIBUTION OF CORALLIGENOUS REEFS

**Session 3 Submerged landscapes and cultural heritage**

- 15 I. Guarneri, A. Petrizzo, D. Galvez, D. Tagliapietra, F. Madricardo  
UNDERWATER ARCHAEOLOGICAL STRUCTURES AS BIODIVERSITY HOTSPOTS: CASE STUDY FROM THE TIDAL CHANNELS OF THE NORTHERN VENICE LAGOON, ITALY

**Session 4 The Anthropocene and the effect of human footprint on marine habitats**

- 16 A. Petrizzo, I. Guarneri, D. Galvez, T. Marčeta, V. Moschino, N. Nesto, M. Sigovini, D. Tagliapietra, D. Sallé, M. Rodriguez, F. Madricardo  
MAPPING OF SEAFLOOR MARINE MACROLITTER DISTRIBUTION IN THE VENICE COASTAL AREA

**Session 5 New approaches from coast to deep water habitat mapping**

- 17 S. Bigelli, V. Ferrero, M. Marro, R. Nardini, M. Demarte, R. Ivaldi  
HYDROGRAPHIC AUTOMATIC TOOL FOR SEDIMENT ANALYSIS AND THEMATIC MAP CASE HISTORY OF GARDA LAKE
- 18 F. Foglini, S. Aracri, M. Belgacem, G. Castellan, J. Chiggiato, F. Falcini, V. Grande, F. Madricardo, P. Montagna, A. Petrizzo, K. Schroeder  
INTEGRATING THE EUROPEAN OPEN SCIENCE CLOUD (EOSC) INFRASTRUCTURE TO PURSUE THE OPEN SCIENCE PRINCIPLES: THE RELIANCE SERVICES PORTFOLIO AND THE USE CASE SCENARIOS OF THE SEA MONITORING COMMUNITY
- 19 V. Grande, F. Foglini, L. Lisciani, S. Frascchetti  
THE AMARE PLUS GEOPORTAL, A TOOL FOR IMPLEMENTING NETWORKS OF MARINE PROTECTED AREAS IN THE MEDITERRANEAN SEA
- 20 R. Nanson, R. Arosio, D. Dove  
PROGRESSION OF A TWO-PART SEABED GEOMORPHOLOGY CLASSIFICATION SCHEME WORKSHOP: PART 2 (MORPHOLOGY)
- 21 S.F. Rende, A. Bosman, A. Annunziatelli, S. Agnesi, L. Rossi, A. Pazzini, M. Angilillo<sup>1</sup>, A. Izzi, M. Giusti  
UNDERWATER PHOTOGRAMMETRY: FULL MOTION VIDEO AND INTEGRATION OF MACHINE LEARNING ALGORITHMS – A CASE STUDY APPLIED TO MSFD SEABED HABITAT MONITORING
- 22 A. Recouvreur, A.J. Wheeler, R. Strachan, P.A. Meere, R.P. Unitt, A. Lim  
OFFSHORE BEDROCK MAPPING: APPLICATIONS FOR REGIONAL OUTCROP AND POTENTIAL REEF HABITAT MAPPING ON THE IRISH CONTINENTAL MARGIN

**Session 6 Habitat mapping and climate change**

- 23 A.C. Bastos, G.C. Boni, F.V. Vieira, P. M., M.D. Leite, A.C. Lavagnino, N.

Oliveira, P.H. Cetto

FROM INCISED VALLEYS TO SUBMERGED REEFS: THE QUATERNARY LEGACY IN HABITAT DISTRIBUTION

**Session 7 Habitat mapping for maritime spatial planning (MSP) within an ecosystem based approach**

- 24 H. Lillis, E. O'Keeffe, A. Annunziatelli, S. Agnesi, H. Allen, L. Castle, J. Pinder, A. Audsley.  
EMODNET SEABED HABITATS: COLLECTING HABITAT MAPS ONCE, USING MANY TIMES
- 25 R. Sayre, K. Butler, K. Van Graafeiland, S. Breyer, D. Wright  
ECOLOGICAL COASTAL UNITS - STANDARDIZED GLOBAL SHORELINE CHARACTERISTICS