

Table of contents

Preface	XV
Organizing Authorities	XVII
Scientific Committee	XIX
Presentation of Proceedings	XXI
Introduction by Symposiarch <i>M. Catelani</i>	XXIII
Keynote: Effects of climate change on the Mediterranean Sea <i>P. Sottocorona</i>	XXIX
SESSION: FLORA AND FAUNA OF COASTAL ECOSYSTEMS: PROTECTION, MANAGEMENT, MONITORING	1
Chairperson: D. Travaglini	
Checklist of amphipods of Italian seas: baseline for monitoring biodiversity	7
<i>A. Badalucco, R. Auriemma, A. Bonifazi, R. Cimmaruta, E. De Matthaeis, C. G. Di Camillo, V. Esposito, D. Iacofano, T. Krapp, L. Latella, L. Lattanzi, M. Lezzi, M. Lionello, E. Mancini, A. Marchini, V. Marusso, E. Prato, F. Scapini, M. B. Scipione, M. Targusi, F. Tiralongo, B. Trabucco, A. Ugolini, S. Lo Brutto</i>	
Mapping of Benthic Rocky Shore Habitats of Algerian Coast (South- Western Mediterranean)	14
<i>L. Bahbah, B. Bensari, K. Chabane, H. Seridi, S. Mariani, E. Ballesteros</i>	

The <i>ex-situ</i> adaptative power of the blue crab <i>Callinectes sapidus</i> Rathbun, 1896 <i>F. Becir, A. Leulmi, M. Nessaiġfa, S. Bouanani, M. Beniddir</i>	39
Monitoring and assessment of the environmental quality of transitional waters in Sicily (Italy) <i>G. Bellissimo, F. Galfò, P. Balistreri, B. Sirchia</i>	48
Controlling the expansion of invasive <i>Halimeda incrassata</i> in the Cabrera natural park using marine robots and photo-mosaics <i>F. J. Bonin Font, B. M. Nordfeldt Fiol, C. Muntaner Gonzalez, A. Martorell Torres</i>	69
Monitoring gelatinous zooplankton and its dynamics in the eastern Adriatic (2018-2023) <i>A. Budiša, N. Iveša, P. Burić, G. Millotti, M. Buršić, E. Pustijanac, A. Žunec, I. Kovačić, M. Štifanić, N. Milovan, P. Paliaga</i>	80
Monitoring the mediterranean monk seal in the Central Mediterranean Sea <i>L. Bundone, A. Panou, G. Hernandez-Milian, G. Pojana</i>	92
Ecological Zonation and Abiotic Variability in an enclosed nature park: the case of the Salini saltworks in Malta <i>M. Busuttill R. Caruana Montaldo, L. Ehmcke, E. Bartl, F. Giacalone, A. Giuffrida, S. Hilke, G. Lembo, A. Li Vorsi, S. Murphy, E. Ponte, N. Szklarczyk, K. Debono, B. Gambin, S. Lanfranco</i>	101
Using multispectral UAV imagery and ground truthing to assess the success of vegetation reinforcement in a coastal area – the case of Inwadar National Park, Malta <i>L. Camilleri, S. Lanfranco</i>	112
Environmental issues affecting loggerhead turtles <i>Caretta caretta</i> : a study on the presence of inorganic pollutants in organs, tissues and eggs <i>S. Canzanella, A. Pepe, D. Iaccarino, D. Ricupero, L. Curcio, E. Esposito, G. Picazio, F. Maffucci, F. Di Nocera, G. Lucifora, P. Gallo, M. Esposito</i>	124
Enhancing Biodiversity Monitoring in Mediterranean MPAs: eDNA and Strategic Solutions <i>G. Capurso, K. A. Stewart</i>	134
Monitoring phenological traits of a coastal mediterranean maquis area through automated systems <i>C. Cesaraccio, A. Piga, A. Ventura, A. Arca, P. Duce</i>	144
Estimation of gross and net primary production in a coastal forest area undergone to clearcuts <i>M. Chiesi, P. Battista, L. Bottai, L. Fibbi, F. Manetti M. Pieri, B. Rapi, F. Maselli</i>	156

Mapping <i>Yucca gloriosa</i> in coastal dunes: Evaluating the cost and time efficiency of photointerpretation, machine learning and field detection approaches	168
<i>E. Cini, F. Marzialetti, M. Paterni, A. Berton, A. T. R. Acosta, D. Ciccarelli</i>	
Cryptic diversity of the widespread scorched mussel <i>Brachidontes pharaonis-variabilis</i> species complex	179
<i>T. Curatolo, M. Battiata, S. Lo Brutto</i>	
Analysis of the <i>amphipod</i> syntaxon on hard bottoms anti-trawling structures	188
<i>M. De Simone, A. Di Cosmo, O. Nonnis, G. Franceschini, B. Catalano, P. Tomassetti, L. Ciaralli, E. Monfardini, B. Trabucco</i>	
Monitoring <i>Toumeyella parvicornis</i> (Cockerell) (Hemiptera: Coccidae) infestation on coastal and urban <i>Pinus pinea</i> L. stands through integration of remote sensing and in situ data	197
<i>V. Falanga, S. Francini, F. Parisi, G. Chirici, M. Ottaviano, M. Marchetti</i>	
Stability of epibiotic communities on the metal surfaces of shallow-water wrecks in the Maltese islands	208
<i>P. Galatolo, P. Schembri</i>	
TurtleTosca: drone monitoring of the <i>Caretta caretta</i> nests in the Migliarino San Rossore Massaciuccoli Park	218
<i>Y. Galletti, A. Dini, F. Logli, C. Mancusi, S. Merlino, M. Paterni, M. A. L. Zuffi</i>	
Monitoring and assessment of the ecological status of coralligenous cliffs by a standardized protocol	228
<i>P. Gennaro, L. Piazzzi, E. Cecchi, C. Morri, C. N. Bianchi, M. Montefalcone</i>	
Development of a framework to modelling stand evapotranspiration at a local scale in a coastal Mediterranean forest under climate change	240
<i>D. Lombardi, K. Micalizzi, M. Vitale</i>	
The Amphipoda and Cumacea assemblage response to LNG terminal installation in Adriatic Sea (Mediterranean Sea)	252
<i>V. Marusso, B. Trabucco</i>	
A methodological approach to assessing the conservation status of coastal habitats: the case study of Calabria (Southern Italy)	265
<i>A. Morabito, C. M. Musarella, G. Caruso, G. Spampinato</i>	
Mapping submerged vegetation and water quality using multi- and hyperspectral imagery of Oristano Gulf (Italy)	274
<i>M. Pinardi, S. Mangano, A. Pellegrino, A. Fabbretto, C. Giardino, A. Taramelli, A. Satta, M. Bresciani</i>	

Empowering student engagement and environmental understanding: the Coastal Health Monitoring Scheme (CHMS) in the Balearic Islands, Spain	282
<i>S. Pinya, S. Guasch-Martínez, J. Gil-Perelló, L. Brunet-Coll, A. Borrás, G. Mateu-Vicens, P. Ferriol, L. Gil, S. Tejada, A. Sureda</i>	
Objective quantitative parameters to evaluate reproductive activity in <i>Engraulis encrasicolus</i> L.	288
<i>A. Rahmani, M. Iguer-Ouada</i>	
The role of rebreather divers in the study of a marine deep-water cave ecosystem	296
<i>V. Resaikos, M. Papageorgiou, C. Jimenez</i>	
Effects of abiotic (salinity) and biotic (ectoparasite) stressors on <i>coris julis</i> (Linnaeus, 1758) in Ibiza, Balearic Islands: A biomarker analysis	307
<i>A. Sureda, A. Cohen-Sánchez, G. Mateu-Vicens, P. Ferriol, L. Gil, A. Box, S. Pinya, S. Tejada</i>	
Fish immune and oxidative stress reaction to emerging parasite in the Balearic Islands	313
<i>S. Tejada, A. Cohen-Sánchez, J. M. Valencia, A. Box, L. Gil, S. Pinya, A. Sureda</i>	
Flora and habitats on Algier's coastline (Algeria): state of knowledge and conservation issues	320
<i>N. Yahy, S. Ahmed-Zaid, I. Kafí, N. Souyad</i>	
SESSION: GEOGRAPHY, TOURISM AND LANDSCAPE OF THE COASTAL AREAS. ENHANCEMENT, SAFEGUARDING AND DYNAMICS OF THE TERRITORY	333
Chairperson: D. Privitera	
Agricultural terraced systems of the Tuscan Archipelago: typological analysis and recovery possibilities of drystone walls	339
<i>P. Armanasco, L. Conti, M. Moretta, A. Masoni, S. Camiciottoli, E. Palchetti</i>	
Unravelling the offshore wind energy tourism	353
<i>Y. Baulaz, R. Fofack-Garcia</i>	
Gaiola Underwater Park: small-scale fisheries monitoring and mitigation of illegal fishing within the FEAMP Project	366
<i>G. Di Pace, M. Simeone, L. Appolloni, F. Fabrizi, A. Tommasi, M. Defina</i>	
From a lovely coast to a designated bathing beach: steps, challenges, legislative framework	376
<i>M.A. Efstratiou</i>	

Economic valuation of coastal blue carbon stock's dynamics. A study in NW Spain using land cover transitions and InVEST <i>D. Hervés-Pardavila, M. L Loureiro</i>	385
Coastal landscape and “disappearing” territories <i>A. Ivona, D. Privitera</i>	397
Visibility analysis in wetland protection processes <i>V. Martelliano, N. Denaro</i>	409
Sea level rise projections: risk and impacts on populations in the Mediterranean basin <i>F. Martellozzo, F. Randelli, M. Dalle Vaglie, C. Falaguasta</i>	420
The European Charter for Sustainable Tourism (ECST) as a model of best practices and participatory governance. The case study of the Asinara National Park <i>M. G. Masia, V. Gazale, S. Malvica, N. Pinna, D. Carboni</i>	429
Fishing tourism in Tuscany: current situation and future developments <i>A. Massaro, M. Sartini, F. De Carlo, I. Rossetti</i>	440
“Lighthouse families” in Greece: their contribution to forming and preserving coastal cultural identities <i>P. Moira, D. Mylonopoulos, P. Kakaroucha</i>	448
Sustainable development in vulnerable coastal zones: the case of Abruzzo <i>C. Montaldi, G. Di Pietro, C. Cattani, F. Zullo</i>	459
Ecosystem services as support tool of urban planning activities in coastal areas <i>A. Palermo, L. Chieffallo, N. Rispoli</i>	473
Living in a fragile and dynamic territory: the contribution of environmental and artistic mediation to the appropriation of new ways of living in coastal areas <i>C. Provendier</i>	484
Assessing beaches attendance and practices in a large coastal city. A case study in Marseille (France) <i>S. Robert, M.L. Trémélo</i>	496
Monitoring transformations of urban and natural landscape in Mediterranean cities by promoting landscape setting archetypes <i>A. Sopina, B. Bojanić Obad Šćitaroci</i>	508

SESSION: UNDERWATER AND COASTAL CULTURAL HERITAGE	521
Chairperson: M. Pasquinucci	
Coastal archaeological evidence in the Bay of Naples: vulnerability and issues of conservation and enhancement	529
<i>C. Aveta</i>	
Ancient navigation and Mediterranean coastal meteorology	541
<i>F. Benincasa, M. De Vincenzi, G. Fasano</i>	
The historic lighthouses of the Italian Coasts	557
<i>F. Benincasa, M. De Vincenzi, G. Fasano</i>	
The quarries in the coastal municipalities of western Liguria: reflections on landscape protection with a view to their recovery	573
<i>L. Comino, S. G. Lanza</i>	
Archaeological markers below the lagoon waters	589
<i>E. Costa, C. Lucarini</i>	
When geology becomes cultural wealth: Praia a Mare, town of caves	601
<i>G. D'Ecclesiis, A. Pellettieri</i>	
The Latium coast from Ostia to Circeo: settlement dynamics in a peculiar context	614
<i>A. M. Jaia, L. Ebanista</i>	
The exploration of the coasts of Perinthos: what does the multibeam bathymetry survey tell us?	626
<i>B. Karadoller, C. Imren, Z. Koçel-Erdem</i>	
Coastal cultural landscapes of the tonnare of southeast Sicily: analysis and visualization of data	636
<i>L. Repola, J. Leidwanger, E. Greene, F. Sgroi, V. Morra</i>	
The building materials of the Lorenese forts of the Tuscan coast	648
<i>S. Rescic, F. Fratini, M. Mattone</i>	
Diagnostics and conservation of coastal archeological sites: the case study of the Roman Villa of Casignana, Reggio Calabria (Italy)	660
<i>M. A. Zicarelli, D. Barca, M. F. La Russa, A. Macchia, L. Randazzo, M. Ricca, S. A. Ruffolo</i>	

SESSION: MORPHOLOGY AND EVOLUTION OF COASTLINES AND SEABEDS	667
Chairperson: G. Sarti	
One-year evolution of a mediterranean sandy beach with <i>Posidonia Oceanica</i> Banquettes (Arborea, Sardinia, Italy) <i>P. Cabrita, R. Brunetta, J. Montes, S. Terracciano, E. Duo, P. Ciavola, C. Armaroli</i>	671
Riccione's study case: experimentation of innovative artificial reef for coastal defense and increase marine biodiversity <i>D. Cleo, R. Santi</i>	683
Identifying cliffs morphodynamics: a 3D GIS approach for a better hazard management. Examples in Croatia <i>O. Cohen, K. Pikelj, E. Blaise</i>	695
Machine learning for sustainable land management: A focus on Italy <i>M. Dalle Vaglie, F. Martellozzo</i>	707
Monitoring beach erosion along the Central Adriatic coast: the case study of Molise Region <i>G. Di Paola, G. Dilauro, C. Caporizzo, C. M. Roskopf</i>	719
Evaluating the impact of sand fences on foredune recovery in Sant Pere Pescador Beach (Costa Brava, Spain) <i>C. Garcia-Lozano, W. Meredith, M. M. Tonda, J. Pintó, C. Martí-Llambrich, V. Campillo, F.X. Roig-Munar</i>	730
The ESA Ulysses project and the exploitation in the Mediterranean area of soil sealing products and indicators <i>D. Iasillo, V. De Pasquale, P. Di Lauro, S. Haouet, A. Truffier, L. Faucqueur, L. Congedo, M. Munafò, O. Arino</i>	741
Modeling of wave height, currents and sediment transport at Locos beach (Torrevieja, Spain) before and after nourishment <i>I. López, J. I Pagán</i>	750
Uncrewed aerial vehicles: an investigation of the parameter influences for coastal monitoring <i>M. Luppichini, M. Paterni, M. Bini</i>	761
Remote Sensing for reconstruction of Ombrone river delta beach ridges <i>I. M. Mammi, L. Rossi</i>	773
Mapping coastal vulnerability against erosion along the Alicante coastline, Spain <i>J. Pagán, P. Ortíz, I. López</i>	784

Cliff failure processes and longshore dispersal of sediments, Vrgada Island (Croatia): input from SFM photogrammetry and sediment characteristics	794
<i>K. Pikelj, N. Furčić, F. Marković</i>	
A multiscale analysis of the morphological setting along the susceptible coastal area of the Agri river (Southern Italy)	804
<i>A. Rizzo, G. Corrado, G. Di Paola, A. Minervino Amodio, D. Gioia</i>	
Shoreline detection by applying semiautomatic algorithms for hyperspectral and multispectral satellite imagery on the beaches of the gulf of Oristano (Sardinia, Italy)	815
<i>S. Terracciano, J. Montes-Pérez, R. Brunetta, P. Cabrita, E. Duo, P. Ciavola, C. Armaroli</i>	
SESSION: COASTAL AND OFFSHORE ENGINEERING: ENERGY PRODUCTION AND TRANSPORT, PORT AND OFFSHORE STRUCTURES, WATER QUALITY, MEASUREMENTS AND MONITORING, DATA PROCESSING AND SERVICES, DIGITAL TWINS, ECONOMIC-ENVIRONMENTAL ASSESSMENT, REGULATORY CONTEXT	829
Chairperson: L. Cappietti	
Numerical Wave Tanks for Wave Energy Converters Using High-Performance Computing	835
<i>M. Abdollahpour, F. Domenichini L. Cappietti</i>	
AI and Machine Learning to extend meteo-marine station observations into the future	846
<i>J. Azzopardi</i>	
Plastic pollution on Tuscan coasts: environmental measures municipalities can put in place to reduce it	858
<i>T. Ballerini, Y. Galletti, D. Tacconi</i>	
Network Analysis of Marine Litter Impacts on Coastal Ecosystems	872
<i>M. Compa, A. Sureda</i>	
Citizen Science and Machine Learning to forecast <i>Ostreopsis cf. ovata</i> blooms in the Italian southern Adriatic Sea	881
<i>M. de Virgilio, P. Borrello, E. Spada, P. Cataldo, S. Cifarelli, G. Garofoli, G. Lamberti, B. Degryse, E. Ottaviani</i>	
The Italian Coast Guard Surveillance and Specific Environmental Activities. Results of the National Campaign	892
<i>F. Galeano, C. Legari, L. Patrizio, A. Villapiano, T. Sinesi, M. Pisconti</i>	

Wave transmission of Fixed Bottom-detached Breakwaters in Numerical Wave Flume <i>Z. Liu, A. Esposito, L. Cappiotti</i>	901
Modeling the high-impact low-probability oil spills in the Mediterranean <i>S. Liubartseva, G. Coppini, P. Daniel, M. Hoxhaj</i>	911
Modeling of flow patterns and microbiological parameters for hazard assessment of bathing waters affected by combined sewer overflows <i>G. Locuratolo, E. Armenio, E. Barbone, C. Giannuzzi, A. Porfido, N. Ungaro</i>	923
Salination of springs in the Bakar Bay <i>Da. Mance, L. Brevulj, Di. Mance</i>	934
Assessment of the quality of marine bathing waters using different methods of percentile calculation <i>Di. Mance, Z. Vrcek, A. Cenov, M. Glad, Da. Mance, D. Vukic Lusic</i>	946
Renewable energy and Sardinian coastal areas: market and environmental issues <i>M. Marini, A. Sulis</i>	956
μ -Nautilus, an autonomous lightweight profiler with depth control and configurable sampling time <i>I. P. Morales-Aragón, R. Torres-Sánchez, J. Gilabert, F. Soto-Valles</i>	967
Estimating the amount of ballast water from ships in the Mediterranean: Antalya Bay case study <i>Ö. H. Özkaynak, G. T. İçemer</i>	977
EMODNet Data Ingestion a key resource for the marine science community <i>L. Pecci, P. Diviaco, B. Mihai</i>	988
Monitoring the phenomenon of seawater intrusion in the estuary area of the river Magra and in the alluvial plain of the lower Val di Magra (SP) <i>M. Sabattini, F. Ronchetti, D. Arosio, G. Brozzo, A. Panzani</i>	999
The sea level rise of the next hundred years. The case study of Miami as a paradigmatic example for Mediterranean coasts <i>C. Simoncini</i>	1011
Towards a Guide for Building Digital Twins of Port Infrastructure <i>C. N. Tsaimou, V. K. Tsoukala</i>	1019

Adaptation of the coastal protection system at Marina di Pisa, to extreme sea conditions: experimental analysis of the submerged breakwater and gravel beach	1030
<i>A. Zanella, A. Esposito, I. Simonetti, L. Cappiotti</i>	
Index of Authors	1039