Sustainability science and management for resilient coastal communities and fishing stocks
November School under CBHE Erasmus+ projects

The Summer School is organised under Erasmus+ CBHE projects MARE "Marine Coastal and Delta Sustainability for Southeast Asia" and URGENT "Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions"

The November school **SMART** will be run in a hybrid format, with teachers and resources persons mostly present at the school venue in Mazara del Vallo (Italy) and most of the audience participating online. It will include lectures, online discussions and skill training, and two group projects involving the students working at the school venue as well as ones following this online and exploring cases in Malaysia and Vietnam.

The topics the school will explore are:
-        **Resilience of coastal communities** – socioeconomic and biophysical drivers, including the trade-offs between the multiple uses of marine and coastal resources
-        Planning perspective on **coastal sustainable development**, including the tourism related urban sprawl, accounting for competing multiple uses, and coastal defense
-        **Bioeconomics** on the interface of the sea and terrain
-        **Integrative sustainable coastal management and governance**
-        **Sustainability indicators** for coastal communities, and coastal and marine ecosystems
-        Field methods for **coastal ecological research**
-        **Marine biological resources**, their stocks and sustainable management
-        **Remote sensing methods** for exploring coastal and marine sustainability

Projects:
-        **"Kind city"** as a model for sustainable development of a coastal urban community
-        Management of **fishing stock** for sustainable yield

The main teaching period is November 1-7, 2021, and a post-school of November 8-14 allocated for tutoring, independent project work and the graduation. We expect a large international audience to attend online. Our capacity is limited to 50 participants; most of the audience is expected to represent MARE and URGENT Erasmus+ projects, including both the representatives of EU universities as well as India, Malaysia and Vietnam.

The November School is prepared by **Istituto per lo studio degli impatti Antropici e Sostenibilità in ambiente marino** (Capo Granitola, Italy), **Istituto per le Risorse Biologiche e le Biotecnologie Marine** (Mazara del Vallo, Italy), **University of Catania** (Italy), **University of Bremen** (Germany), **Estonian Life Science University** (Tartu, Estonia), and **the city of Mazara del Vallo** in cooperation with international partners.

Program overview

The **SMART** school consists of the following **periods**:

In-class period is open from November 1 to 7, 2021 in Mazara del Vallo (Italy), when the main program of the School takes place (see more in the detailed School agenda). During the in-field period we will offer a number of lectures and highly interactive sessions designed to familiarise the online audience with the state of art in coastal and marine science and policies, as well as the field and analytical tools. This will be followed by supervised group research involving comparisons with cases in Malaysia and Vietnam. The exact topics for group research will be identified by students with a help of the School faculty. The task of student groups would be to identify the particular problem they want or are capable to analyse and address given time and resource constraints, to develop research proposals containing the research question, its justification and research methodology, and to perform the research.

After-class period (November 8-14, 2021), that is the time for semi-independent group work, online consultations, and making presentations of research findings to the school faculty (see the detailed Agenda). We will collect research reports and make them available to all the participants, stakeholders and partner universities for curriculum development and learning purposes. We will encourage the students and supervising faculty to re-develop their research reports to academic papers; subject to the quality and number of quality papers, we will consider a special issue of an international peer-reviewed journal.

Eligibility, conditions, logistics

The SMART School target audience are PhD and MSc students, junior researchers, faculty members and practitioners interested in the development and management of resilient coastal communities and marine biological resources.

The SMART School working language is English.

Connection will be via ZOOM, links to main sessions and parallel break out group sessions will be distributed beforehand. The link is

https://us06web.zoom.us/j/86002824442?pwd=MzF4c1NLZ0JHT3JOY01XSFlsMnZXZz09

In addition, each student will have an individual account in the e-learning system of the School - https://projects.zmml.uni-bremen.de/portal/site/mares. The details will be provided on the first session on November 1. For some in-hand practical exercises students will need to install software on their computers in order to be able to follow the exercise. Any apps required to be installed will be freeware.

We will do our best to create intellectually stimulating, creative and stress-free working and living environments. It is of utmost importance to us that the School participants not only receive useful knowledge and add new contacts to their networks, but also enjoy local cultural diversity and scenic landscapes of Sicily. We will work on providing the participants insights into the research location.

School faculty

Dr. Gaspare Buffa, National Research Council, CNR-IAS (Torretta Granitola, Italy)

Dr. Francesco Filiciotto, National Research Council, CNR-ISP (Messina, Italy)

Dr. Fabio Fiorentino, National Research Council, CNR-IAMC (Mazara del Vallo, Italy)

Dr. Enrico Foti, University of Catania (Italy)

Dr. Anne Kull, Estonian University of Life Sciences (Tartu, Estonia)

Dr. Vincenzo Maccarrone, National Research Council, CNR-IAS (Mazara del Vallo, Italy)

Raul Sampaio de Lima, Estonian University of Life Sciences (Tartu, Estonia)

Prof. Hans-Peter Nachtnebel, University of Natural Resources and Life Sciences (Vienna, Austria)

Dr. Rossana Parrinello, 'Mazara Del Vallo Kind City' project

Dr. Daniele La Rosa, University of Catania (Italy)

Dr. Pietro Scandura, University of Catania (Italy)

Prof. Kalev Sepp, Estonian University of Life Sciences (Tartu, Estonia)

Dr. Marco Torri, National Research Council, CNR-IAS (Torretta Granitola, Italy)

Coordinating team

Dr. Vincenzo Maccarrone, MARE focal point for the National Research Council

Dr. Anton Shkaruba, Vice-Coordinator of the Erasmus+ MARE project

Dr. Daniele La Rosa, MARE focal point for Italy

Contacts, information and updates

- logistics, accommodation, applications and enrolment: Vincenzo Maccarrone, vincenzo.maccarrone@cnr.it
- academic planning and research: Anton Shkaruba, anton.shkauba@emu.ee

Updated information will be available on project website:

- MARE – Marine Coastal and Delta Sustainability for Southeast Asia (https://blogs.uni-bremen.de/mare/)

Detailed agenda of the SMART School

November 1, Monday

9.00 – 10.00 – Vincenzo Maccarrone, Anton Shkaruba and Daniele La Rosa, Introduction to the School and the local research context

10.00 – 12.00 – Anton Shkaruba, Introduction to sustainability indicators

Coffee break

12.30 – 13.30 – Raul Sampaio de Lima, Drone-based Remote Sensing and its applications in environmental management

13.30 – 15.30 – tutoring, consultation and independent work time

November 2, Tuesday

9.00 – 11.00 – Raul Sampaio de Lima, Demonstration of Remote Sensing Tools

Coffee break

11.30 – 13.00 – Anne Kull, Spatial development plan for the coastal area in Estonian western coast (online)

13.00 – 15.30 – tutoring, consultation and independent work time

November 3, Wednesday

9.00 – 10.00 – Vincenzo Maccarrone, Integrated coastal zone management: tools, methods and actions for sustainable uses of marine resources

10.00 – 11.00 – Hans-Peter Nachtnebel, Climate Change and water resources: the outcome of cosmic cycles, tectonic shocks, and industrial development (online)

Coffee break

11.30-13.00 – Rob Jongman, International cooperation in planning and management for the North Sea (online)

13.00 – 15.30 – tutoring, consultation and independent work time

November 4, Thursday

9.00 – 10.30   Fabio Fiorentino, Assessment and management of fishery resources

Coffee break

11.00 – 12.30   Francesco Filiciotto, Underwater noise and impact on marine animals

12.30 – 13.30 – Rossana Parrinello, The impact of Kindness as a sustainable value: Mazara del Vallo and Italia Gentile

13.30 – 15.30 – tutoring, consultation and independent work time

November 5, Friday

9.00 – 10.30 – Marco Torri and Gaspare Buffa, Exploring marine biological resources: research methods and applications to Mediterranean case studies

Coffee break

11.00 – 12.30 – Anne Kull, QGIS for flood area research and map design

12.30 – 14.00 – Pietro Scandura, Hydrodynamics of the coastal area: experimental and numerical approaches

14.00 – 15.30 – tutoring, consultation and independent work time

November 6, Saturday

9.00 – 11.00 – Enrico Foti, Navigation locks and their integration into project MoSE aimed at protecting Venice Lagoon

Coffee break

11.30 – 12.30 – Daniele La Rosa, Ecosystem Services trade-offs in coastal areas

12.30 – 13.30 – Vincenzo Maccarrone, Anton Shkaruba and Daniele La Rosa, Identification of group research topics and consultations

13.30 – 15.30 – tutoring, consultation and independent work time

November 7-15

9.00 – 11.00 – consultations regarding research plans and methods

11.00 – 15.30 – reading and independent group work time

November 16, Tusday

9.00 – 11.00 – Presentation of group projects

11.00 – 15.30 – consultation and feedback time, including the elaboration on follow-ups

Group research

The central component of the **SMART** School is supervised group research. The research groups (4-8 participants) will be expected to address one of the issues related to coastal resilience and/or sustainability of fishing stocks. The expectation is that local (e.g. Indian, Malaysian, Vietnamese) case studies will be picked up, compared against the Italian case and reflected upon in terms of management actions to take to promote local sustainability, and/or methods and analytical tools and approaches offered during taught sessions will be picked up by participants. The following key themes are suggested for the projects:

- **"Kind city"** as a model for sustainable development of a coastal urban community
- Management of **fishing stock** for sustainable yield

The research will be implemented according to research plans prepared during case study introduction and brainstorming sessions at the beginning of the School. Consultations from the school faculty will be available during the whole School period. On November 12 the participants will report back their findings, and on the following days they will be offered an opportunity to discuss with the academic faculty follow ups, e.g. potential journal papers.

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Information about School organisers

The School **Sustainability science and management for resilient coastal communities and fishing stocks** is co-organised and co-funded by a consortium of international partners financed by the **CBHE projects MARE** - *Marine Coastal and Delta Sustainability for Southeast Asia* by the EU Erasmus+ programme (https://blogs.uni-bremen.de/mare/) and **URGENT** - *Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions* (https://urgent-project.net/en/php/index.php): National Research Council – CNR (Italy), University of Catania (Italy), Estonian University of Life S-ciences (Estonia), and University of Bremen (Germany).