

The Sea Study Centre @ University of Genoa

www.mare.unige.it
mare@unige.it



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Centro del
Mare

University of Genoa

- Founded in **1481** in the **Sea Republic of Genoa**
- Nowadays more than **30000** students (bachelor + single cycle programs)
- **22 Departments** organized in **5 Schools (4 Campuses** in Liguria)
- **2500** teaching/research staff members (65% permanent)
- More than **400 staff members** presently carrying out teaching and research activities on **Sea related topics**
- **UNIGE** ranks among the best Universities in the world **on marine topics.**



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Sea Study Centre - The Mission

The **Sea Study Centre (Centro del Mare)** was established in April 2019 as a **Strategic Centre of UNIGE**, in order to:

- Catalyze **teaching and research activities** ongoing at UNIGE in the various subjects related to the sea
- Enforce **interdisciplinary approaches**, enhancing **internal synergies**
- Promote a **global external projection** of the **UNIGE sea-related expertise**
- Stimulate **cooperation with Public Entities and Companies**
- Promote the role of **Genoa and of the Ligurian Region** as references **for the exploitation of Sea Values** on national and international scale



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The Sea Study Centre - Education

- **UNIGE-CdM** offers **5 bachelor and 7 master programs** directly related to the Sea with more than **200 courses** on sea-related topics, with the largest educational offer dedicated to the Sea in Italy
- The **PhD program in Marine Sciences and Technologies**, active within the Sea Study Centre, offers more than **20 PhD positions** (scholarships) per year, being the largest in Italy on the subject.

Bachelor programs

- Product and nautical design
- Maritime Logistics and Transport Economics
- Pleasure Craft Design
- Naval Architecture and Marine Engineering
- Maritime Science and Technology (in English)

Master programs

- Marine biology and ecology
- Vessel and yacht design
- Maritime and port management
- Environmental Engineering (in English)
- Naval Architecture and Marine Engineering
- Safety Engineering for Transport Logistics and Production (in English)
- Yacht Design (in English)

PhD in Marine Sciences and Technology

Curricula:

- Logistics and transport
- Science of the marine ecosystem
- Marine and Nautical Design
- Energy machinery and systems for the sea
- Engineering for Marine and Coastal Environments
- Marine and Nautical Engineering / Marine technologies



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Students Enrolled (sea related programs)

Students Enrolled Academic Year 2022/23*						
Type of Course	Course	F	M	Total	% F	% M
BACHELOR'S DEGREE	DESIGN FOR PRODUCTS AND NAUTICS	363	217	580	63%	37%
BACHELOR'S DEGREE	NAUTICAL PRODUCT DESIGN	20	29	49	41%	59%
BACHELOR'S DEGREE	ECONOMICS OF SHIPPING, LOGISTICS AND TRANSPORT COMPANIES	277	530	807	34%	66%
BACHELOR'S DEGREE	NAUTICAL ENGINEERING	78	259	337	23%	77%
BACHELOR'S DEGREE	SHIP ENGINEERING	112	335	447	25%	75%
BACHELOR'S DEGREE	MARITIME SCIENCE AND TECHNOLOGY	12	59	71	17%	83%
MASTER'S DEGREE	MARINE BIOLOGY AND ECOLOGY	75	42	117	64%	36%
MASTER'S DEGREE	NAVAL AND NAUTICAL DESIGN	42	60	102	41%	59%
MASTER'S DEGREE	MARITIME AND PORT MANAGMENT	59	87	146	40%	60%
MASTER'S DEGREE	ENVIRONMENTAL ENGINEERING	18	23	41	44%	56%
MASTER'S DEGREE	NAVAL ARCHITECTURE & MARINE ENGINEERING	14	42	56	25%	75%
MASTER'S DEGREE	SAFETY ENGINEERING FOR TRANSPORT, LOGISTICS AND PRODUCTION	15	40	55	27%	73%
MASTER'S DEGREE	YACHT DESIGN	35	99	134	26%	74%
	TOTAL	1,120	1,822	2,942	38%	62%
*update: 30/11/2022						



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Graduates (sea related programs)

Graduates Solar Year 2022*						
Type of Course	Course	F	M	Total graduates	% F	% M
BACHELOR'S DEGREE	DESIGN FOR PRODUCTS AND NAUTICS	52	39	91	57%	43%
BACHELOR'S DEGREE	ECONOMICS OF SHIPPING, LOGISTICS AND TRANSPORT COMPANIES	39	70	109	36%	64%
BACHELOR'S DEGREE	NAUTICAL ENGINEERING	12	35	47	26%	74%
BACHELOR'S DEGREE	SHIP ENGINEERING	11	16	27	41%	59%
BACHELOR'S DEGREE	MARITIME SCIENCE AND TECHNOLOGY	1	1	2	50%	50%
MASTER'S DEGREE	MARINE BIOLOGY AND ECOLOGY	21	7	28	75%	25%
MASTER'S DEGREE	SHIP AND NAUTICAL DESIGN	9	14	23	39%	61%
MASTER'S DEGREE	MARITIME AND PORT MANAGMENT	17	28	45	38%	62%
MASTER'S DEGREE	ENVIRONMENTAL ENGINEERING	2	10	12	17%	83%
MASTER'S DEGREE	SHIP ENGINEERING	4	14	18	22%	78%
MASTER'S DEGREE	SAFETY ENGINEERING FOR TRANSPORT, LOGISTICS AND PRODUCTION	7	13	20	35%	65%
MASTER'S DEGREE	YACHT DESIGN	3	13	16	19%	81%
Total		178	260	438	41%	59%
*update: 31/11/2022						



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Sea Study Centre - Research

The Centre carries out research in the following **Thematic Areas**:

- Marine and Coastal Environment
- Marine Biology, Ecology and Biotechnology
- Sea and Maritime Law
- Coastal and Off-Shore Infrastructures
- Sea-going Vessels, Underwater Technology and Robotics
- Energy from the Sea
- Maritime Transport Networks, Logistics, and Port Economics
- Sports and Motion Recreational Activities at Sea
- History and Cultures of the Sea
- Sea Tourism and Cruises



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CdM – focus on the Underwater Domain

UNDERWATER ROBOTICS

Inspection, sampling, mapping, maintenance, safety and security Robotics; Robotic and ICT systems for scuba diving support; Heterogeneous cooperative robots; Swarm robots; Navigation, guidance and control of underwater unmanned units; Surface and underwater marine robots. Path and trajectory planning in a marine environment; Autonomous and distance manipulation; Advanced systems for launch and recovery from land (floating and submersible units); Underwater communication systems; Networking e IoT for underwater monitoring and surveillance.

UNDERWATER VEHICLES

Underwater vehicle design and specialistic studies; Hydrodynamics (motion resistance, appendage study, propulsors, maneuverability); Structural design (materials, innovative structural solutions, shock resistance, maintenance); Plant design (power generation, distribution, storage); Alternative prime movers, fuel cells, hybrid systems, smart grids; Simulation of integrated systems for underwater units dynamics; Underwater units automation; Underwater noise radiation; Underwater acoustics (transducers, propagation and scattering, passive and active sonar systems, underwater localization and communication systems); Signatures.

OFFSHORE INFRASTRUCTURES AND ENERGY RESOURCES FROM THE SEA

Marine renewable energy. Sea energy conversion technologies; Energy storage; Off-shore H2 production, underwater CAES, systems for and plants for aquaculture, self-production for autonomous aquaculture, autonomous vessels recharge, regassification of LNG; Reliability and maintenance of underwater structures and plants; Mooring systems.

MARINE ENVIRONMENT, MARINE BIOLOGY AND BIOTECHNOLOGIES

Environmental and safety monitoring and remote sensing; Environmental Services; Coastal protection; Spills and discharges at sea (including war residuals); Good Environmental Status indicators; Bioindicators; physical, chemical and microbiological pollution risk environmental bio-monitoring; bio- remediation; Micro algae; cyanobacteria; Photosynthetic micro-organisms; CO2 sequestration; microbic growth, innovative bio-materials with marine biogenetic origins.

HUMAN MOTION ACTIVITY IN A MARINE ENVIRONMENT

Safety and accident prevention in a marine environment Human-Technology interfaces in a marine environment; Validation of new tools and new materials; Operational physiological and psychological aspects in an ergonomic marine environment.

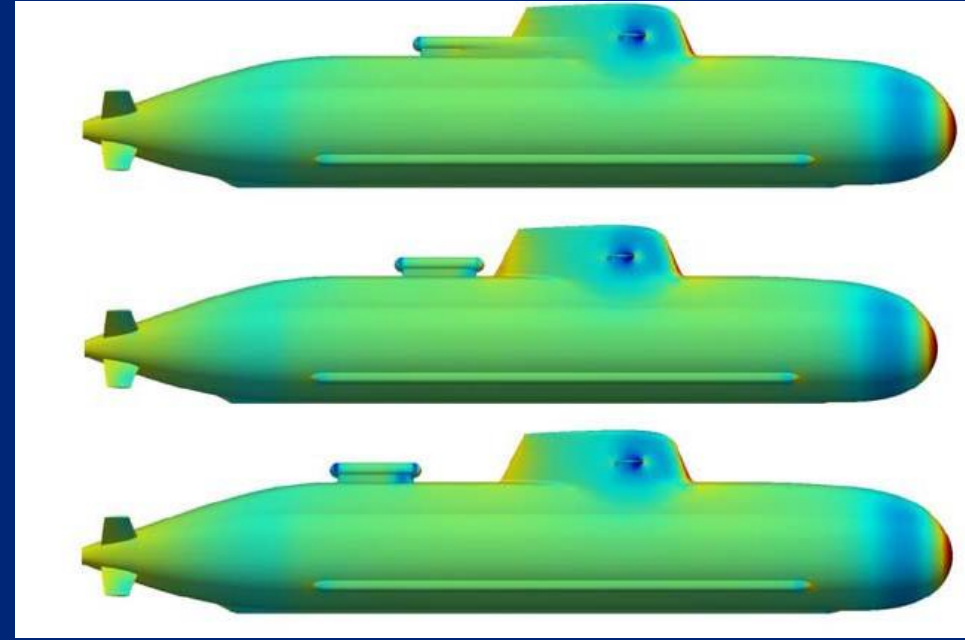


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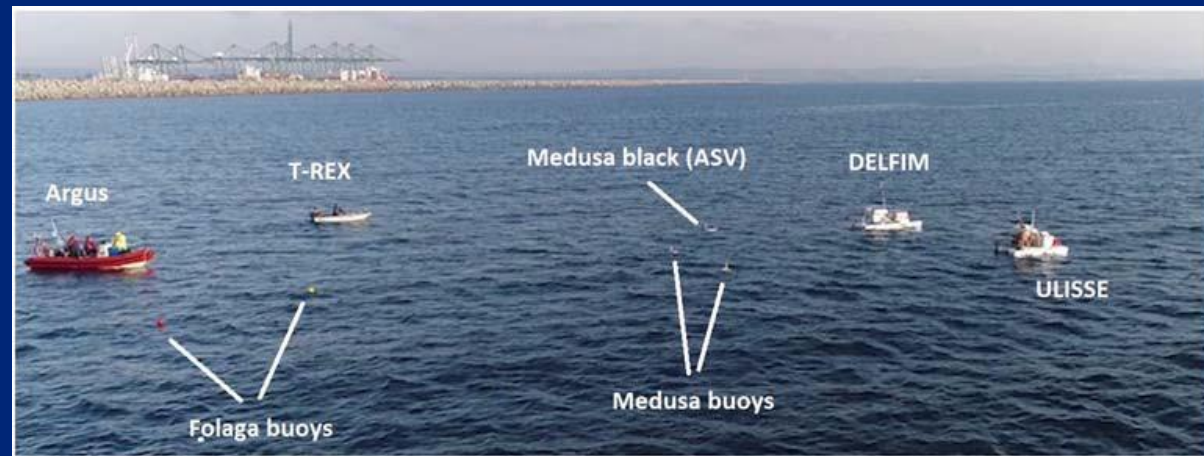


Scuba diving in extreme environment



Underwater vessel design and assessment

On-field operation H2020 Project WiMUST
(co-ordinated by UNIGE)



Working groups on interdisciplinary themes

Aquaculture Working Group of the SSC

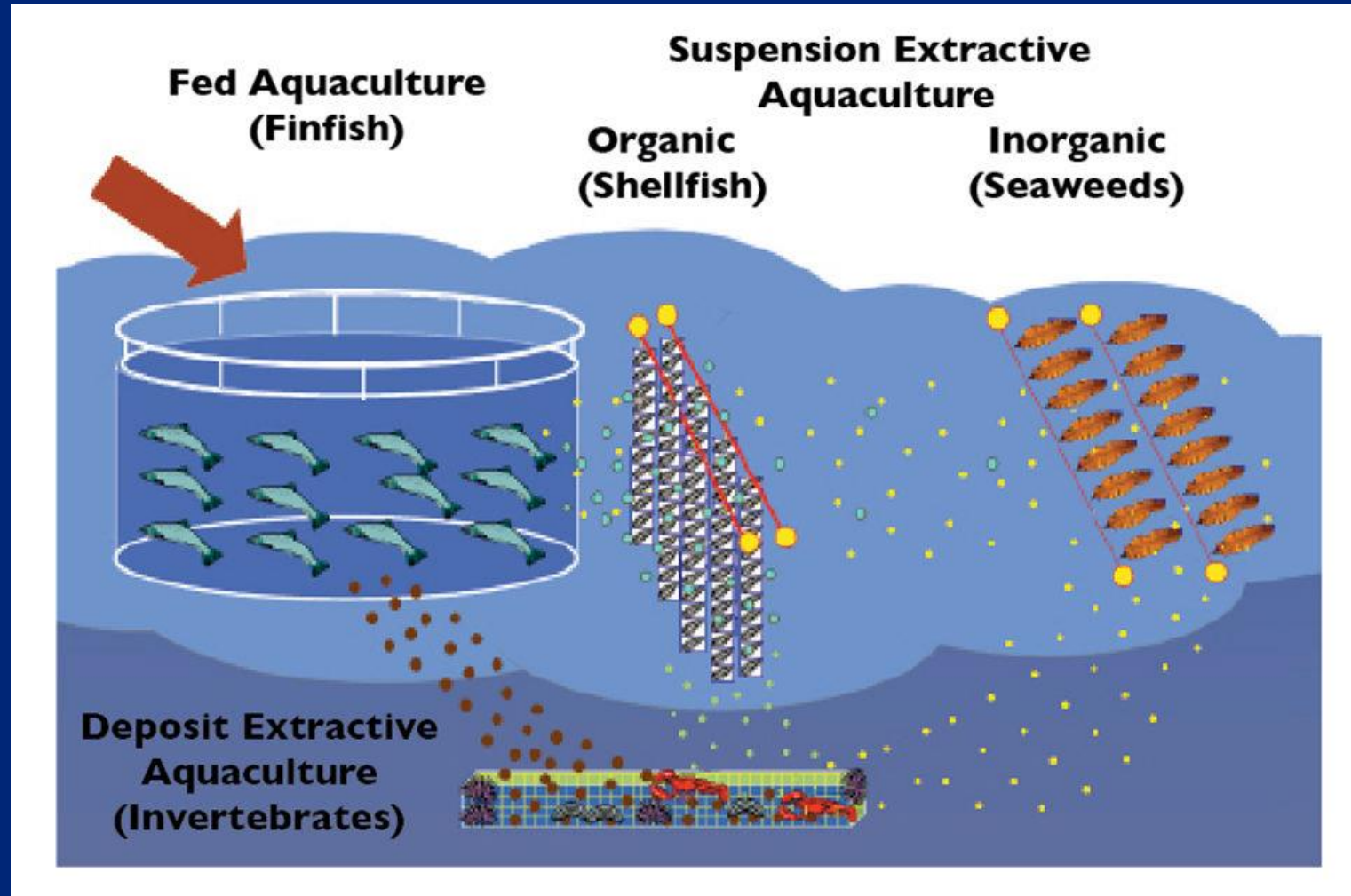
- **Biology**
- **Food science**
- **Marine environment**
- **Engineering**

Multitrophic Integrated Aquaculture



NATIONAL
BIODIVERSITY
FUTURE CENTER

HORIZON CL6-2022-
FARM₂FORK-o2-two-stage



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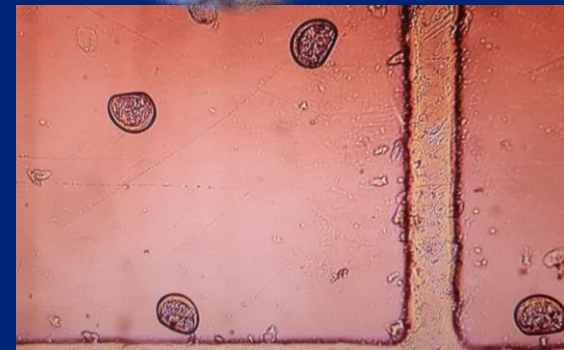
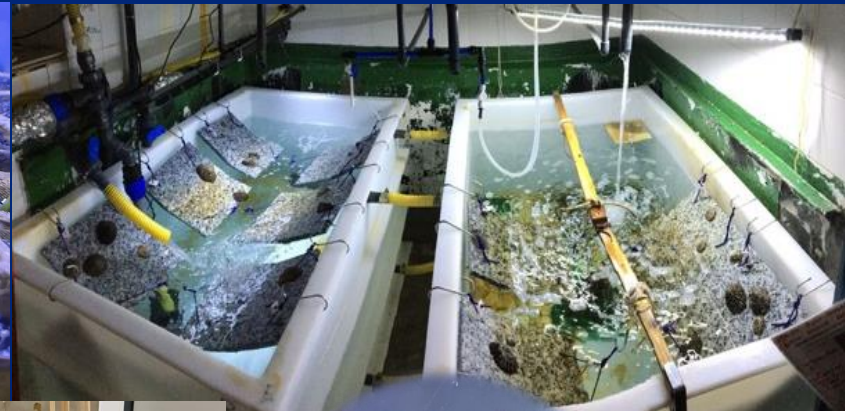


Aquaculture Working Group

Acquaculture for ecological restoration



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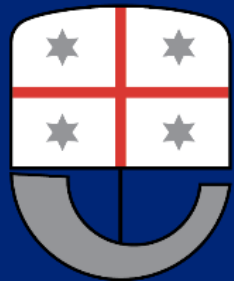
Aquaculture Working Group

ATLANTE DEL MARE

"Studi per l'individuazione di nuove aree per l'acquacoltura *offshore*"

Reg. UE 508/2014/FEAMP Art. 51, Priorità 4-Sviluppo locale di tipo partecipativo

COORDINAMENTO PROGETTO



**REGIONE
LIGURIA**

RESPONSABILE SCIENTIFICO



**Università
di Genova**

PARTNER ISTITUZIONALI



Aquaculture Working Group

Underwater Technology Working Group

- **Underwater robotics**
- **Underwater vessels**
- **Underwater structures & plants**
- **Underwater communication**

UNIGE - Sea Study Centre Membership & Organisation

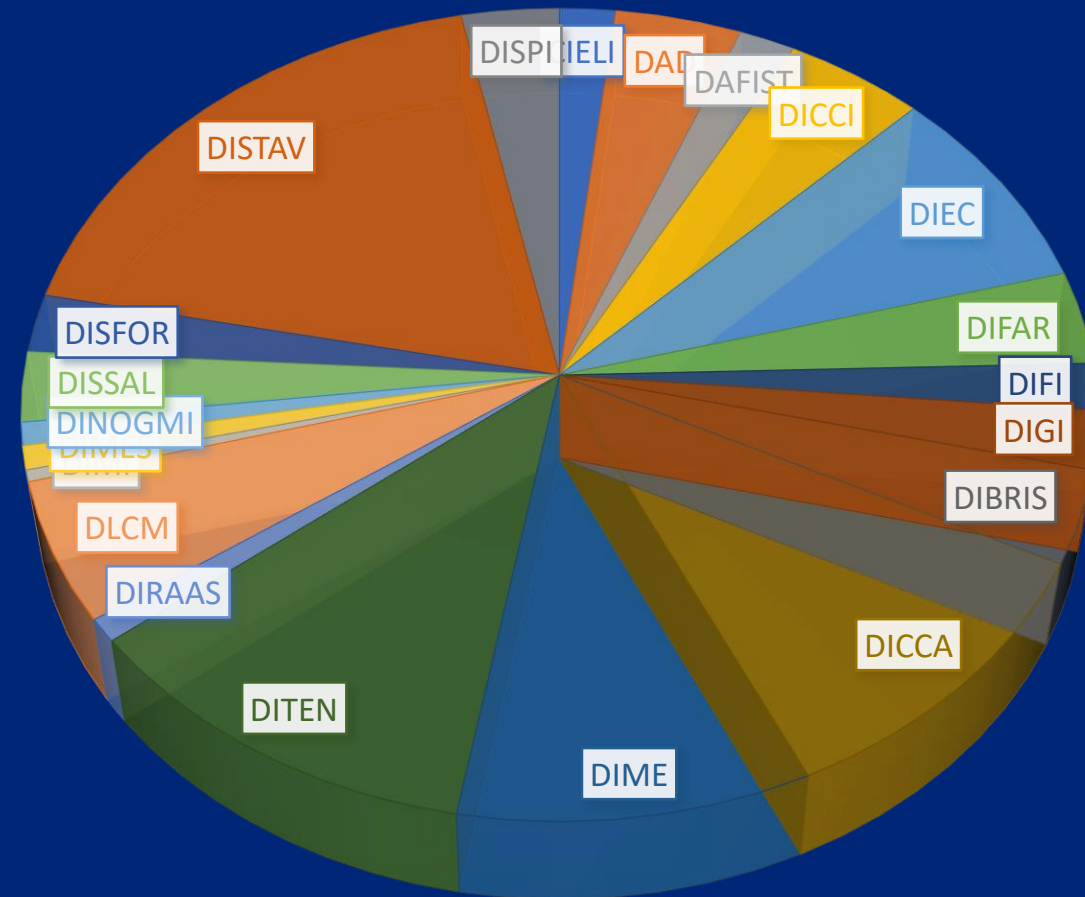


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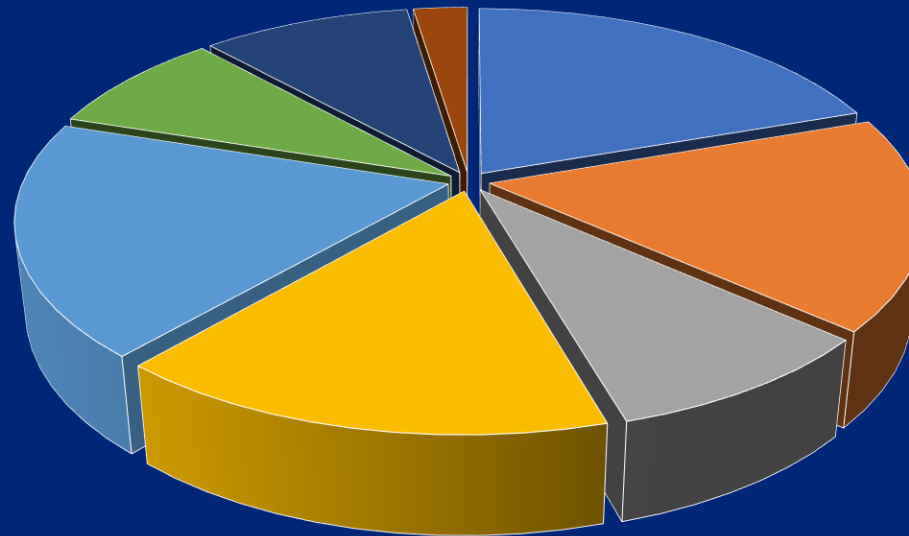
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Sea Study Centre – membership by Dept.



Sea Study Centre – membership by themes

- Mezzi marini, robotica e subacquea
- Sistemi di trasporto marittimo, logistica ed economia portuale
- Infrastrutture costiere e off-shore
- Biologia, ecologia e biotecnologie marine
- Ambiente marino e coste
- Risorse energetiche dal mare
- Turismo e crociere



Sea Study Centre - Scientific and technical committee

Marco Giovine (President)

Enrico Rizzuto (Vice President)

Marco Bove (DIMES)

Michele Iester (DINOOGMI)

Francesco D'Agostini (DISSAL)

Claudio Ferrari (DIEC)

Lorenzo Schiano di Pepe (DIGI)

Nicoletta Varani (DISFOR)

Giuliana Drava (DIFAR)

Giovanni Besio (DICCA)

Cesare Maria Rizzo (DITEN)

Luca Lo Basso (DISPI)

Paolo Calcagno (DAFIST)

Ana Lourdes De Hériz Ramon (DLCM)

Paola Francesca Rivaro (DICCI)

Paolo Prati (DIFI)

Mariachiara Chiantore (DISTAV)

Giovanni Indiveri (DIBRIS)

Mario Ivan Zignego (DAD)

Giovanni Battista Rossi (DIME)



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Sea Study Centre - Advisory Board

Marco Doria – President (UNIGE)

Nicola Bazzurro (IRETI)

Gunnar Brink (ROSEN Group)

Pierangelo Campodonico (Mu.Ma)

Giovanni Caprino (CETENA)

Laura Castellano (Acquario di Genova-Costa Edutainment S.p.A.)

Gabriele Paolo Lanza (Snam)

Eugenio Massolo (Fondazione Accademia Marina Mercantile)

Massimiliano Nannini (Istituto Idrigrafico della Marina)

Gabriele Nardone (ISPRA)

Monica Nolo (Associazione Manager Italia)

Francesco Siccardi (Studio Legale Siccardi Bregante)

Luigi Sinapi (International Hydrographic Organization)



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