

SALONE DELL'ORIENTAMENTO 2026

Minor in Blue engineering and Sustainable Marine Operations

Skills for the Next Industrial Revolution



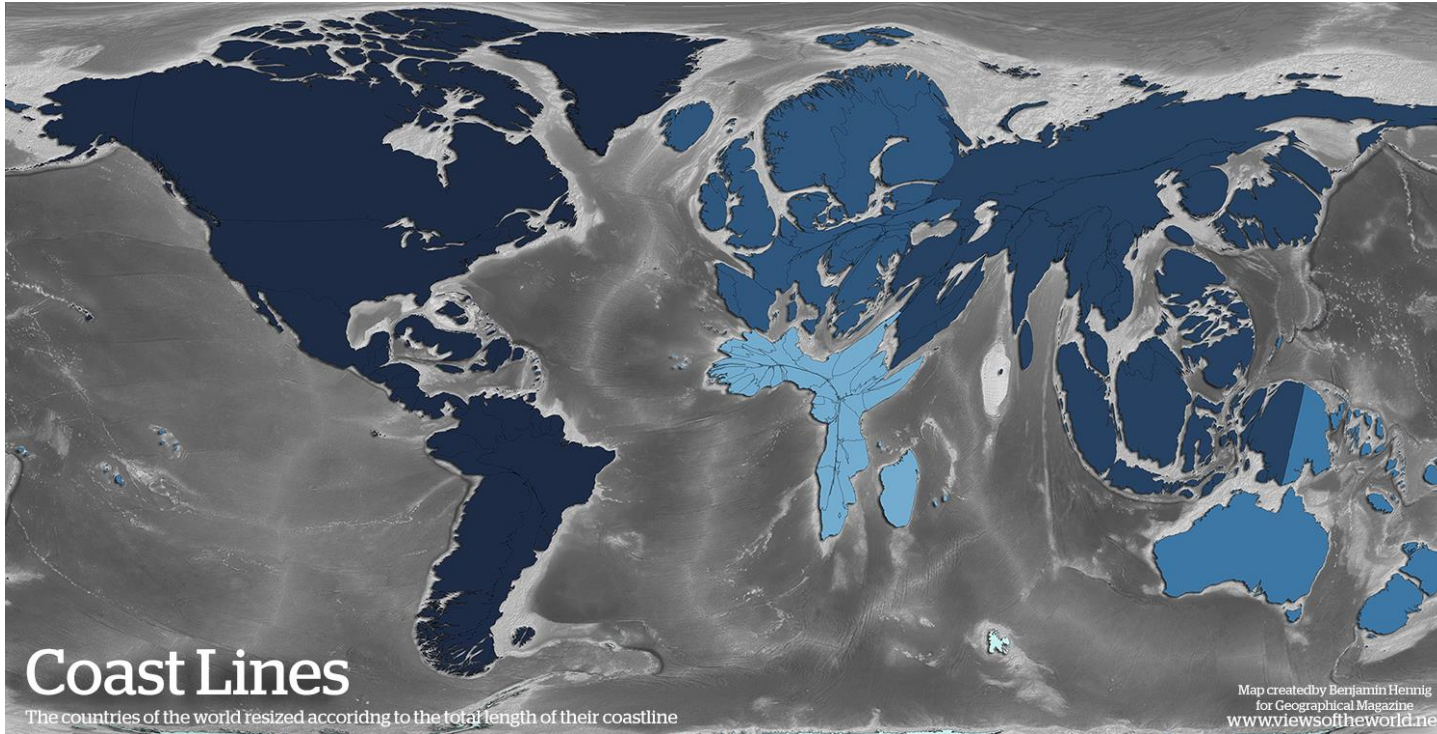
**Politecnico
di Torino**

**SCOPRI TUTTI I SERVIZI
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The ocean



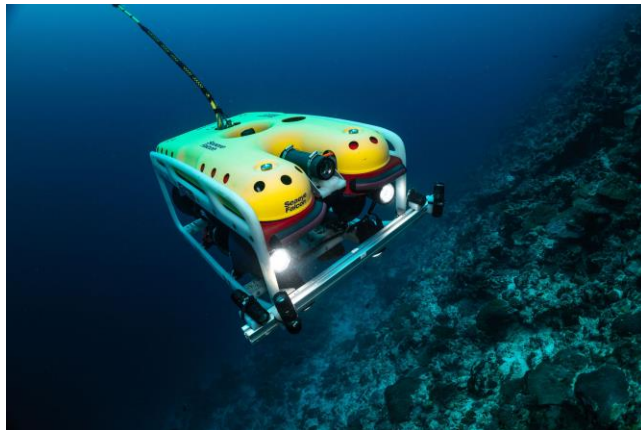
44% of the worldwide population lives within 150 km from the coastline

>7900 km of coasts in Italy



Blue Economy

>250 billion € contribution to EU economy
~ 5 million people currently working in the sector



Blue Economy

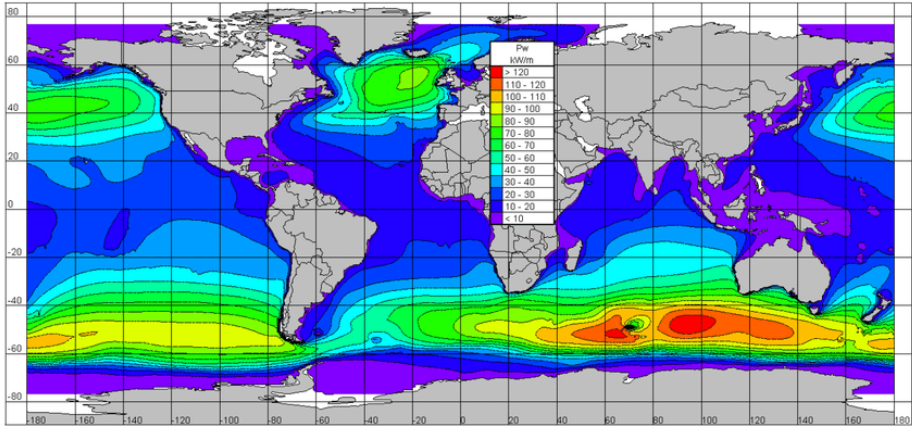


Ekaterina Zaharieva,
European Commissioner for
Startups, Research and
Innovation

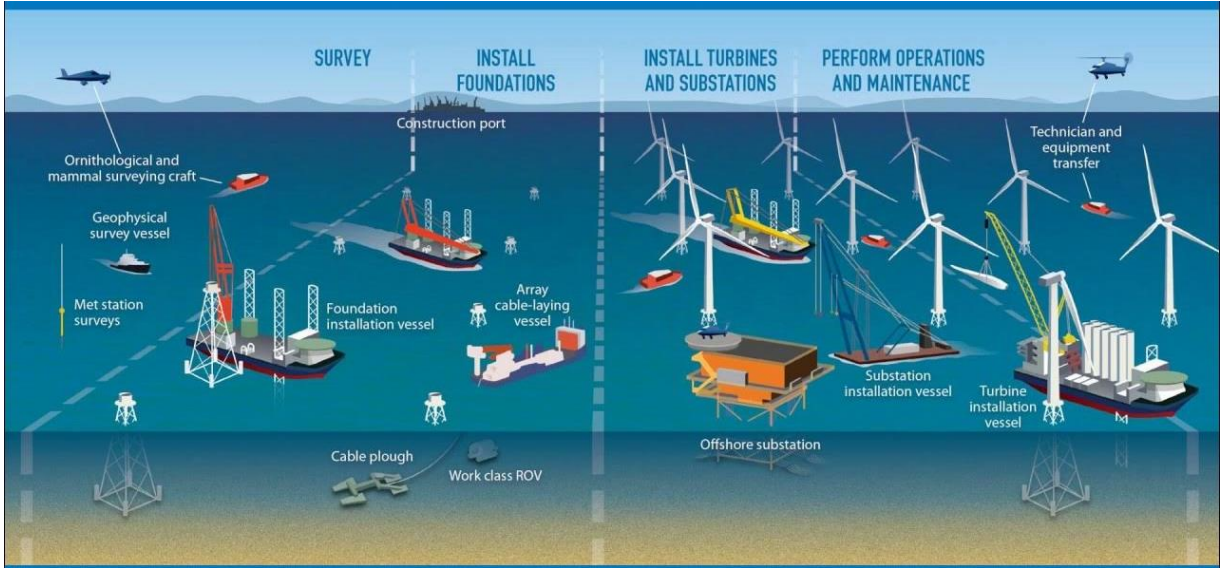
Blue Economy offers a
wealth of opportunities for:

innovation,
economic diversification,
job creation,
competitiveness,
climate neutrality and
sustainability.

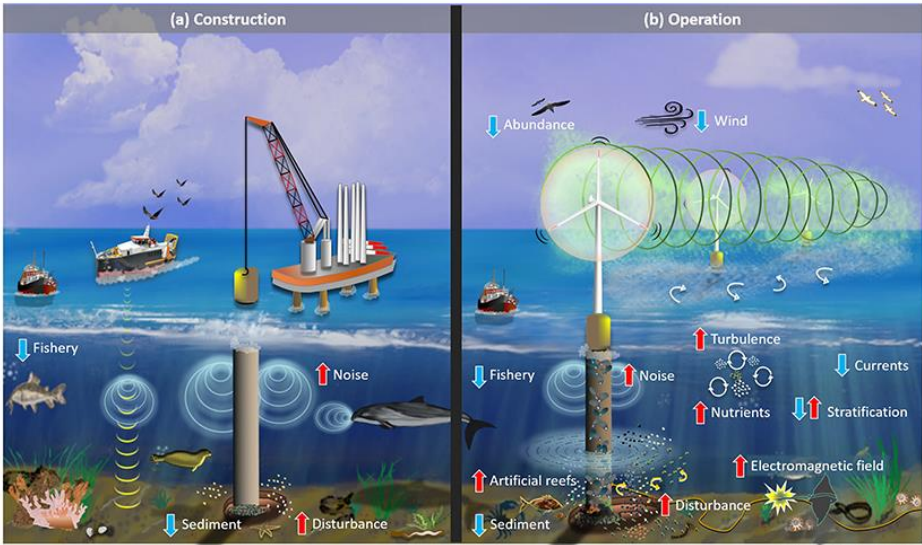
Skills in Blue Engineering



Resource/Metocean Climate assessment

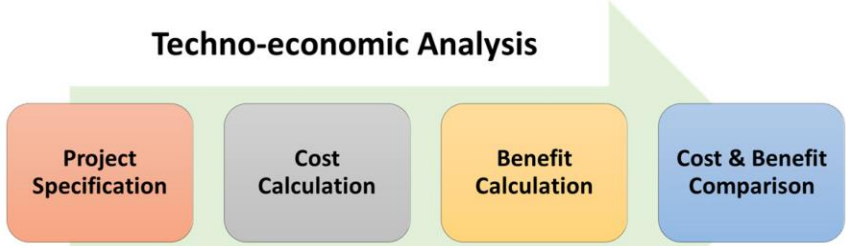


Offshore operation and maintenance



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Environmental Impacts



Techno-Economic Analysis

Minor in Blue engineering and Sustainable Marine Operations



Politecnico di Torino

Wind and Ocean Energy plants – M.Sc. Energy Engineering
Coastal Engineering – M.Sc. Environmental Engineering

	Offshore energy	Coastal protection	Mobility																															
Meteocean data																																		
Operations, Monitoring, Robotics and Digital twin																																		
Techno-economic impact	<table border="1"> <thead> <tr> <th>Traditional oil platform</th> <th>VS</th> <th>New green wind-to-hydrogen platform</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>Comparative</td> <td>High</td> </tr> <tr> <td>\$320</td> <td>Costs</td> <td>\$120</td> </tr> <tr> <td>0.59m</td> <td>Carbon footprint</td> <td>0.20 m</td> </tr> <tr> <td>Yes</td> <td>Carbon Inpacts</td> <td>Yes</td> </tr> <tr> <td>45%</td> <td>Lifecycle impact</td> <td>15%</td> </tr> </tbody> </table>	Traditional oil platform	VS	New green wind-to-hydrogen platform	High	Comparative	High	\$320	Costs	\$120	0.59m	Carbon footprint	0.20 m	Yes	Carbon Inpacts	Yes	45%	Lifecycle impact	15%	<table border="1"> <thead> <tr> <th>Impact score:</th> <th>Impact score:</th> </tr> </thead> <tbody> <tr> <td>High Cost Low Ecology</td> <td>Moderate Cost High Ecology</td> </tr> </tbody> </table>	Impact score:	Impact score:	High Cost Low Ecology	Moderate Cost High Ecology	<table border="1"> <thead> <tr> <th>Comparative analysis</th> <th>VS</th> <th>Diesel ferries</th> </tr> </thead> <tbody> <tr> <td>Fuel cost</td> <td>Emissions</td> <td>Fuel cost</td> </tr> <tr> <td>Emissions</td> <td></td> <td>Emissions</td> </tr> </tbody> </table>	Comparative analysis	VS	Diesel ferries	Fuel cost	Emissions	Fuel cost	Emissions		Emissions
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Curriculum

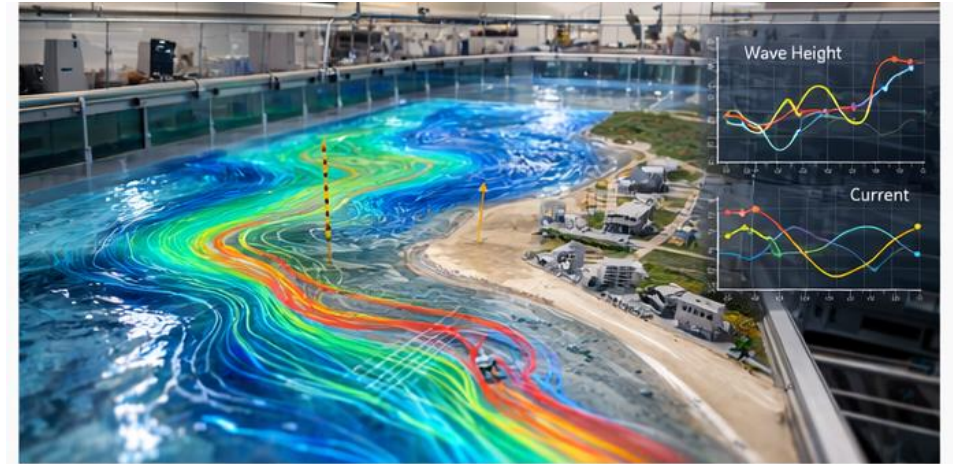
	<i>Metocean Data and Analysis</i>	<i>Reliability and Risk Management in Marine Operations</i>	<i>Environmental, Economic, and Lifecycle Impacts in Blue Engineering</i>
Semester	I	I & II	II
CFU	6	6	6
Course structure and activities	In-class/synchronous lectures and exercises		
	Seminars from industrial experts		
	In-itinere assessments at the end of each module Final quiz exam		
	Pass/No Pass (grade minimum 60% required)		
	Final Hackathon		

Metocean data analysis

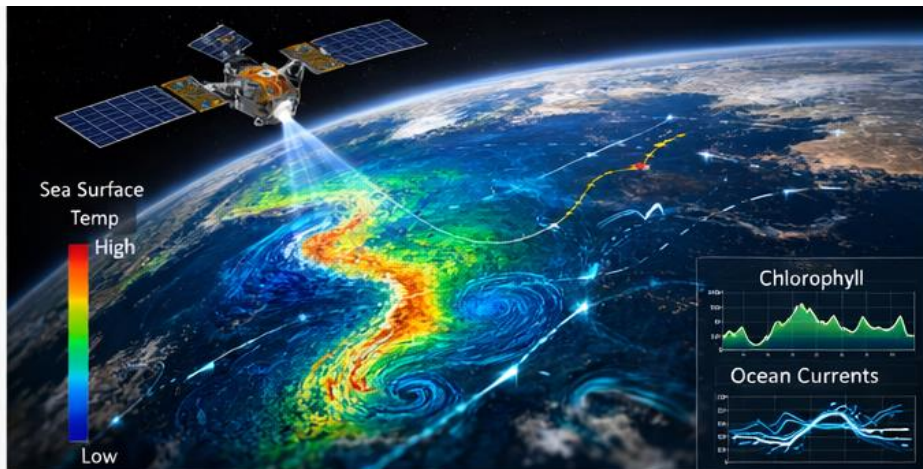
In-situ measurements



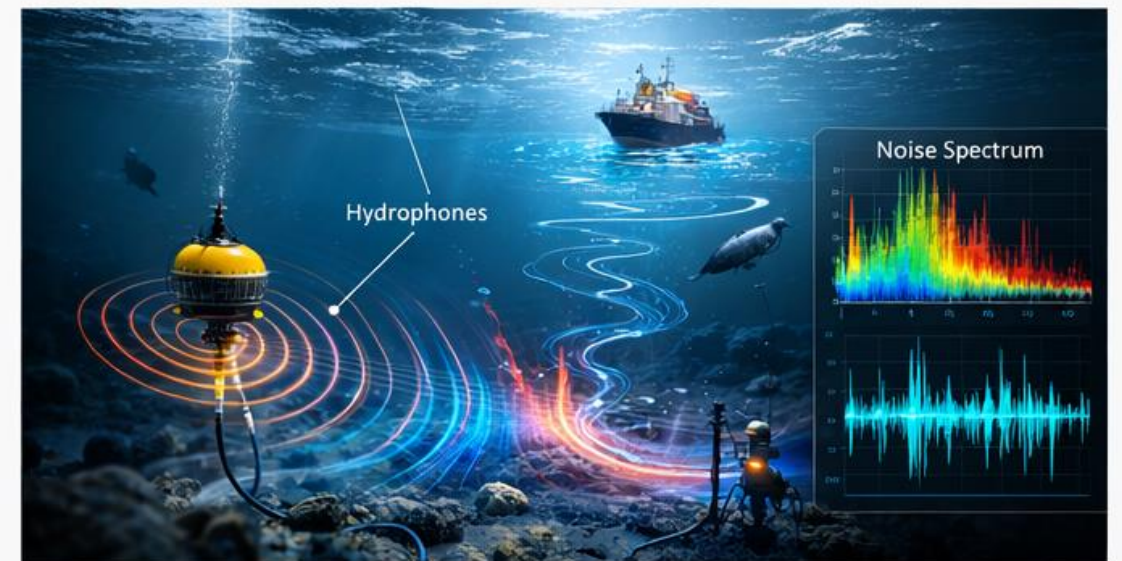
Physical Modelling



Satellite data



Underwater noise



Reliability & Risk Management

Reliability



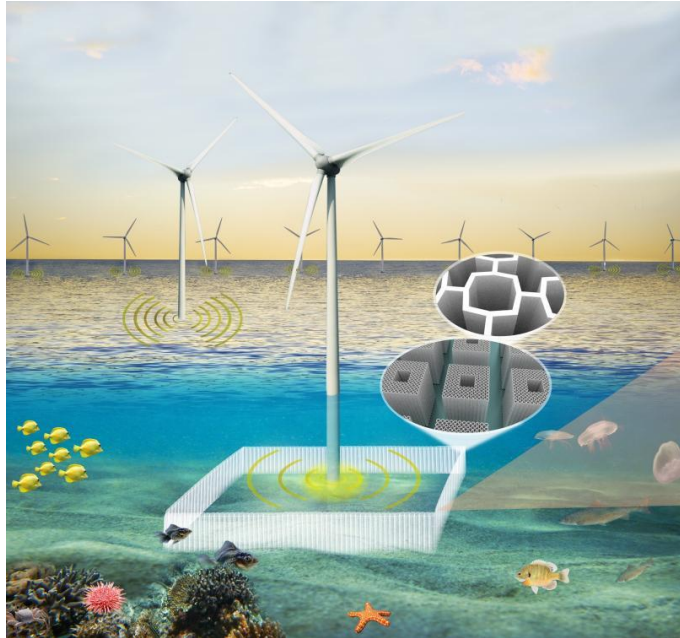
Operation & Maintenance

Direct monitoring and robotics



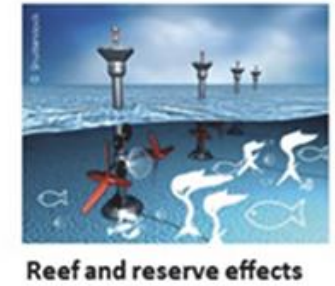
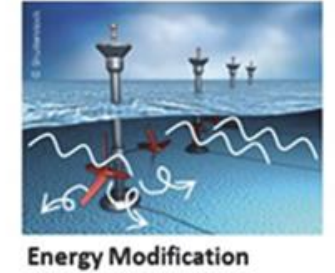
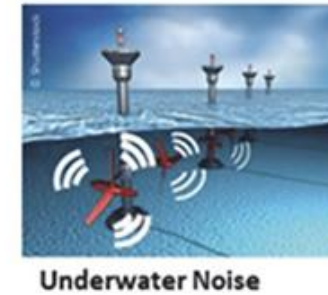
Indirect monitoring and Digital Twin

Environmental, Economic & Lifecycle Impacts



Environmental Impacts and Mitigation

Underwater noise, innovative (meta)materials and nature-based designs



Industry landscape and techno-economic analysis



Teaching Staff



Cristina Archer Lozej

FULL PROFESSOR

15+ years in meteorology
and offshore wind energy
International experience



Vincenzo Nava

ASSOCIATE PROFESSOR

15+ years in R&D+i in the Offshore Sector
International Experience



Marco Miniaci

FULL PROFESSOR

12+ years in wave propagation and metamaterials
International Experience



Giuseppe Giorgi

RTDA

10+ years in R&D in the offshore sector
CTO-Cofunder of MESPAC s.r.l. and I.t.d.
International Experience



Mauro Bonfanti

RTDA

10 years in R&D in the offshore sector
Leader of PoliTO H2Fly
CEO-Cofounder of ElectriFly srl



Fabio Carapellese

RTDA

5+ years in R&D in the offshore sector
and robotics
CEO-Cofounder of SEAMORPH