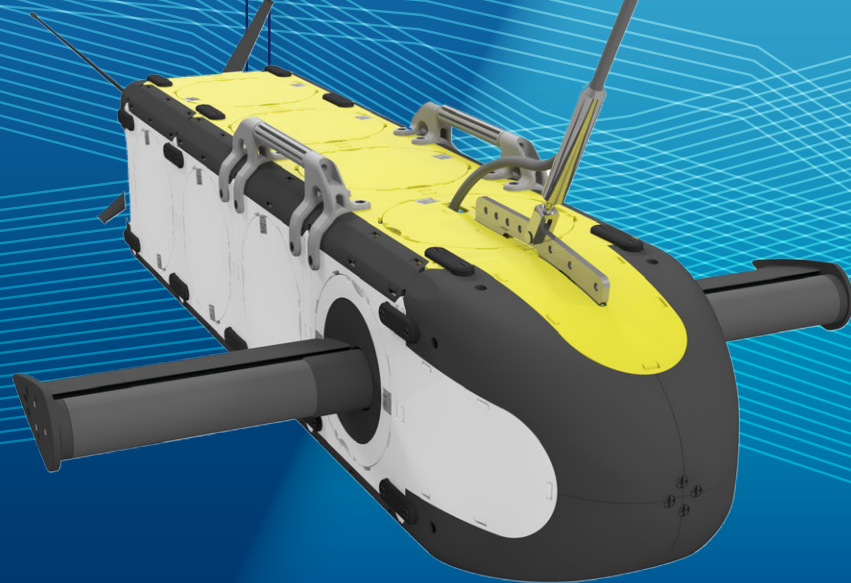


MARINE TECHNOLOGY IN ROSTOCK

The future of subsea technology
at the Ocean Technology Campus

ROSTOCK GOES DEEP

HRO
54° 5' 32.79" N
12° 5' 56.93" E



New subsea technologies.
Made at the Ocean Technology Campus.
Made in Rostock.

Maritime economy in Germany | Facts & Figures



5,884

billion euros turnover in German maritime shipbuilding (2017)



> 81,000

More than 81,000 people work in the maritime industry in shipbuilding and with maritime suppliers.



400,000

About 400,000 jobs in Germany are directly or indirectly dependent on the maritime industry.

Mecklenburg-Vorpommern | Facts & Figures



> 2,000

companies in the maritime sector



> 37,500

employees work in the maritime industry in shipbuilding and with maritime suppliers



Over 6.6

billion euros annual turnover
Added value of 2.5 billion euros

381 km of outer coastline

13 port locations

Rostock | Facts & Figures



14.50 m

Germany's deepest Baltic Sea port,
up to 14.50 meters deep
By 2025: Dredging to a depth of 16.5 meters

200 ha area

at the underwater test field
"Digital Ocean Lab" with depths
of 3 to 5 meters



1x annual

international conference
Rostock Ocean Convention
on the topic of underwater technology

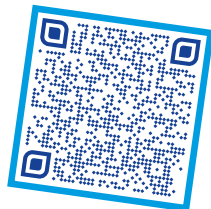
60 ha area

at the Ocean Technology
Campus Rostock - expansion
to 120 hectares planned

Sector focus at the Rostock location

*The Hanseatic and University City
pools various competencies from the
marine technology sector.*

Find out more at:
www.rostock-business.com

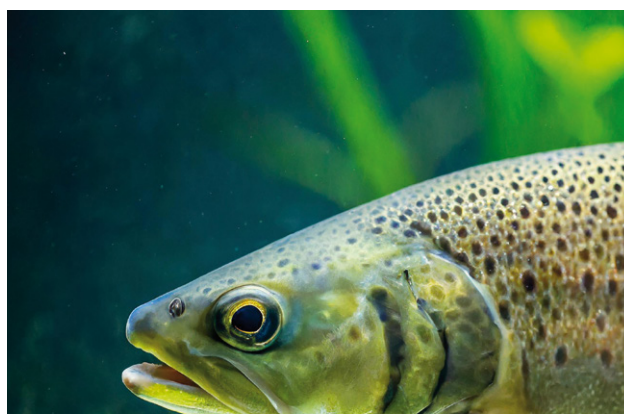


SHIPBUILDING FOR UNDERWATER VEHICLES
Hydroacoustics, pressure resistance, maneuverability



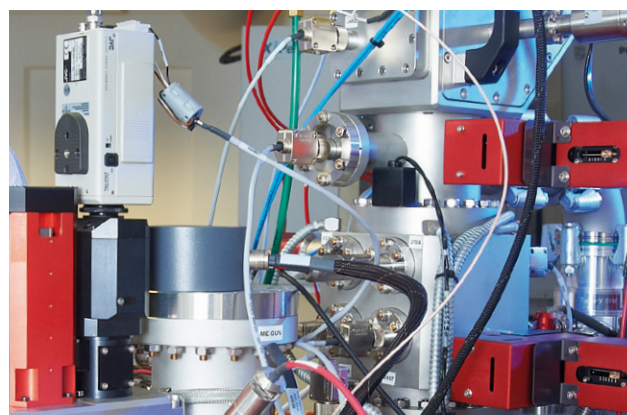
OFFSHORE INDUSTRY

*Offshore wind energy, subsea exploration,
ocean infrastructure*



MARINE CULTURE

*Aquaculture, resource-saving,
economic growth*



MARITIME ENVIRONMENTAL TECHNOLOGY, MEASUREMENT TECHNOLOGY

Sensors, oceanography, data analysis



MARINE RESEARCH

*Deep-sea exploration, ecosystem analysis,
biodiversity*

MARINE TECHNOLOGY IN ROSTOCK

NETWORKS & CLUSTERS



Networks & clusters: drivers of innovation in marine technology

SUBSEA MONITORING NETWORK e. V.

The Subsea Monitoring Network e. V. is a leading business network for sub-sea technologies in Germany and a nationwide contact for marine research and technology. It sees itself as the carrier and manager of the Ocean Technology Campus Rostock. The SMN e. V. is committed to strengthening the industry through active lobbying, networking, pooling of information and know-how. The association is available to answer questions on technology developments and testing and facilitates contact with industry companies, universities, research institutions and politics.



GESELLSCHAFT FÜR MARITIME TECHNIK e. V.

The Society for Maritime Technology was founded in 1983. As a non-profit association, the GMT operates on a national level and supports the interests of companies and research institutions in the field of maritime technology. The aim is to network members from industry and science in order to initiate national and international research and development projects. Furthermore, the association supports the development of innovative products and services, as well as the opening up of new market segments in Germany and abroad.



MARITIMES CLUSTER NORDDEUTSCHLAND e. V.

Five northern German states - one maritime cluster. The Maritime Cluster Northern Germany promotes and strengthens cooperation in the northern German maritime industry. It provides platforms for dialog between the players and promotes interfaces with other sectors. More than 350 companies and institutions from the maritime industry have already joined.





Research diversity on the coast: Rostock as a science location

Rostock, the largest city in Mecklenburg-Vorpommern, is not only known for its historic Hanseatic architecture and maritime location, but also as a dynamic center of scientific research and innovation.

In addition to the university, specialized research institutions such as the Leibniz Institute for Baltic Sea Research Warnemünde (IOW), the Fraunhofer-Gesellschaft and its Smart Ocean Technologies research group and the Thünen Institute of Baltic Sea Fisheries enrich the scientific horizons of the Hanseatic city. Together, they are helping to establish Rostock as a leading location for marine and environmental research in Europe.



university building ship technology

UNIVERSITY OF ROSTOCK

The traditional university in the Hanseatic and university city of Rostock was founded in 1419 and enjoys a reputation as the oldest university in the entire Baltic region. With a diverse study landscape, it currently offers 12,879 students the opportunity to deepen their knowledge and develop their talents at nine faculties and one interdisciplinary faculty.

In the field of marine technology, the Faculty of Mechanical Engineering and Marine Technology, with its various chairs such as Shipbuilding, Marine Technology or Marine Engineering Design, plays an important role.

LEIBNIZ-INSTITUT FÜR OSTSEEFORSCHUNG WARNEMÜNDE

The Leibniz Institute for Baltic Sea Research Warnemünde is a non-university research institute dedicated to interdisciplinary marine research in coastal and marginal seas.

Its work focuses on research into the ecosystem of the Baltic Sea. The four sections of the IOW cover the disciplines of physical oceanography, marine chemistry, biological oceanography and marine geology.



outside view IOW

FRAUNHOFER GESELLSCHAFT

The Fraunhofer-Gesellschaft is the world's leading organization for application-oriented research. With its focus on future-relevant key technologies and the utilization of results in business and industry, it plays a central role in the innovation process. Rostock is home to even 3 Fraunhofer Institutes. The Fraunhofer IGP conducts research in the field of production and manufacturing of large structures.

The Fraunhofer Institute IOSB focuses on optronics, systems engineering and image analysis. The Fraunhofer Institute IGD focuses on the development of software solutions in the field of graphical data processing for the maritime industry and other sectors. All of these institutes are guides and driving forces for innovative developments and scientific excellence in Rostock.



future institute of the Fraunhofer IGD

FRAUNHOFER SOT

The Fraunhofer-Gesellschaft's "Smart Ocean Technologies" research group develops pioneering marine technology and new solutions for using the oceans more sustainably. The subsea technology research group, which is unique in Europe, conducts research into complex system solutions for subsea applications.

The spectrum ranges from autonomous subsea vehicles and unmanned shipping to systems technology and visual computing, sensor technology, simulation and measurement technology through to the use of algae or aquaculture. The interdisciplinary research group combines the expertise of four Fraunhofer Institutes and has been working at the Ocean Technology Campus Rostock since fall 2020.



Ocean Technology Campus Basecamp

THÜNEN-INSTITUT FÜR OSTSEEFISCHEREI

The primary working area of the Institute of Baltic Sea Fisheries is a very special sea: the Baltic Sea, the largest brackish water area on earth. The main task is to analyse the living conditions in the sea and the focus is on questions of climate change, the problem of munitions waste and marine litter pollution. The recipients of the reports are German and European politicians. www.thuenen.de/of



exterior view of the Thünen-Institut für Ostseefischerei



Rostock as a hub for marine research: top-class infrastructure and competence centers

The Hanseatic and University City of Rostock is increasingly developing into a leading center for maritime research and technology in Germany and Europe. With the Ocean Technology Campus and the Digital Ocean Lab (DOL), the city on the Warnow is establishing innovative infrastructures that combine science, research and industry in a unique way.

These competence centers are as a hub for the development and testing of new technologies in the field of marine and underwater technology, focusing on sustainability and the protection of the maritime environment. They are not only a testament to the innovative dynamism of the city, but also a magnet for professionals and investors from all over the world.

OCEAN TECHNOLOGY CAMPUS

The Ocean Technology Campus was launched in 2021 with the support of the Federal Ministry of Education and Research as a future cluster as part of the „Clusters4Future“ competition. It is a unique research, business and training cluster in the field of subsea technology that bundles creative potential and creates structures that promote innovation. The Ocean Technology Campus portfolio ranges from basic research to the development of a new generation of environmentally friendly, autonomous technologies and products for the sustainable use of the oceans. In 2023, more than 50 companies and institutions will already be involved in the campus. The Ocean Technology Campus is set to become an internationally recognized center for innovative maritime technologies and applications, demonstrating that ecology and economy need not be at odds with each other. There are international links with the COVE in Halifax, Canada.



Ocean Technology Campus Basecamp

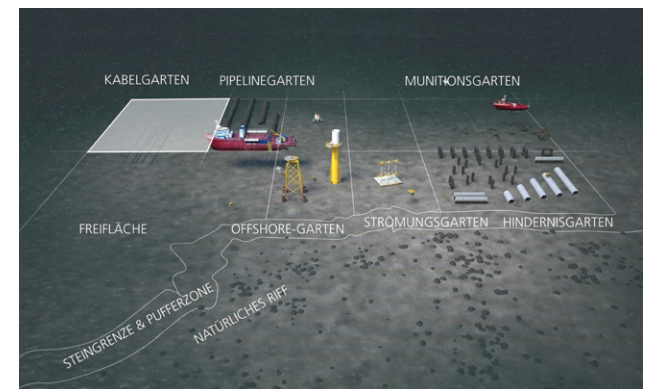
The COVE offers its companies and researchers the necessary conditions for close cooperation in the marine technology sector. There is a further collaboration with the Ocean Innovation Norwegian Catapult Center in Bergen, Norway. Again, the aim is to create an environment for innovative ideas and their development in marine technology.

DIGITAL OCEAN LAB

The Digital Ocean Lab (DOL), operated by the Fraunhofer Institute for Computer Graphics Research IGD in Rostock, is the research test field off the coast of Nienhagen. This artificial reef consists of two test fields for different applications.

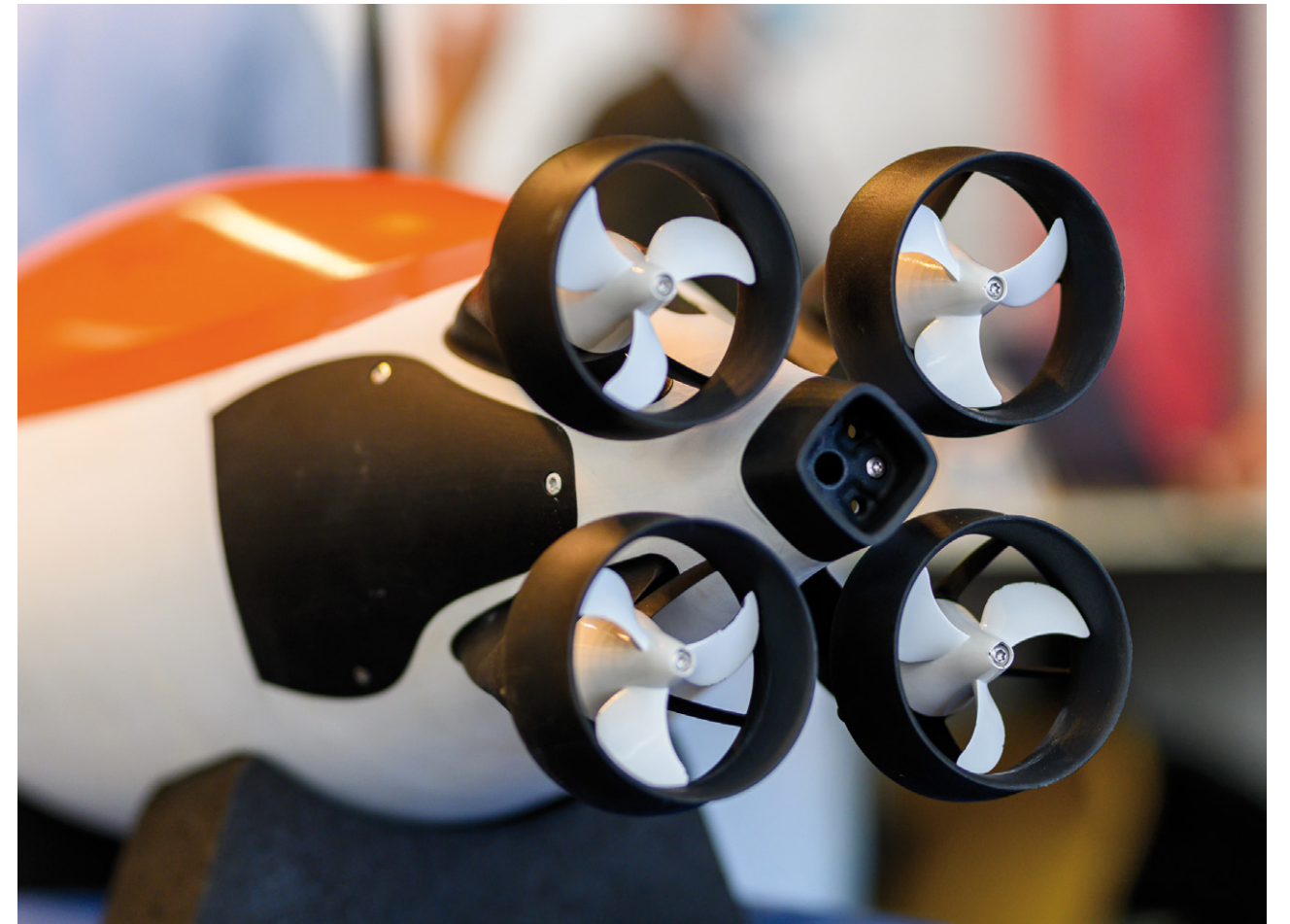
DOL 1 is particularly recommended for environmental research in (shallow) water: the artificial reef is suitable for monitoring and protecting sensitive reef ecosystems.

In addition, a large area is available for technical research, where surveying technology can be tested and calibrated and, for example, the effects of waves on structures can be simulated. There is also an AUV test and UXO training area in the immediate vicinity of the reef.



DOL off the coast of Nienhagen

The DOL 2 is tailored to the detection of old ammunition (UXO) and offers generous areas for testing underwater cables. Nowhere else in the world is there an opportunity to test new subsea technologies so close to the mainland.



remotely operated underwater vehicle

Maritime economic power: Rostock's leading companies in the fields of diving, technology and robotics

A number of specialized companies shape the economic profile of the Rostock region, including Baltic Taucherei- und Bergungsbetrieb Rostock GmbH, Innomar Technologie GmbH, Framework Robotics GmbH, Subsea Europe Services GmbH and Kraken Power GmbH.

These companies represent a broad spectrum of expertise and innovation in the maritime industry and underline Rostock's role as an important hub for maritime business and research in Germany. They not only make a decisive contribution to the local and regional economy, but also set international standards in their respective fields.

BALTIC TAUCHEREI- UND BERGUNGSBETRIEB ROSTOCK GMBH

The Baltic Diver Germany team is specialized on subsea services in inland waters, offshore and deep-sea areas. This includes diving operations to identify and clear old munitions, salvage and wreck removal.

The latest subsea technologies are also used, such as subsea robotics. The company can draw on experience from over 9000 national and international projects since 1993.



Baltic Taucherei- und Bergungsbetrieb Rostock GmbH



Innomar Technologie GmbH

INNOMAR TECHNOLOGIE GMBH

The company develops acoustic subsea systems, marine electronics and software for acoustic seabed surveys. The products offer a wide range of possible applications in different water depths, even in extremely shallow waters. They are used for surveying, dredging, marine archaeology and locating pipelines and cables.



Buddy of the company Framework Robotics GmbH

FRAMEWORK ROBOTICS GMBH

Framework Robotics GmbH consists of a team of experienced marine engineers with a deep connection to the sea. The company develops modular and pressure-neutral hardware components and adaptive software solutions for the innovative subsea system platform and also offers comprehensive service packages.

The aim is to radically simplify the surveying and exploration of the oceans, because the more the marine environment is understood, the better it can be protected. It is precisely this idea of leaving the beaten tracks and finding new and better ways to ensure the sustainable use of marine resources that drives the young entrepreneurs every day.



Subsea Europe Services GmbH

SUBSEA EUROPE SERVICES GMBH

Subsea Europe Services GmbH was founded in Halstenbek in 2019 and has been based at the Ocean Technology Campus since 2023. The company automates complex sensor systems and connects them with unmanned surface and subsea vehicles to create autonomous measurement systems.

The data required, for instance, for offshore wind farms, munitions recovery or the safety of marine infrastructure in the North and Baltic Seas can be collected at a fraction of the cost of using manned survey vessels.



Pressure tank of the Kraken Power GmbH

KRAKEN POWER GMBH

Kraken Power GmbH specializes in the development, manufacture and sale of pressure-neutral drive, power supply and control technology for underwater robots. Therefore, we offer our customers advice in the field of pressure-neutral technology, as well as the development and manufacture of pressure-neutral system solutions.





the fisheries research vessel „Solea“ testing selective trawls

Future-oriented marine technology: growth prospects in Rostock

In the Hanseatic and University City of Rostock, promising prospects and growth opportunities are opening up in the field of marine technology, a sector characterized by innovation and sustainability.

With its geographical location, its infrastructure and the many companies active in the maritime industry, Rostock offers ideal conditions for the maritime economy. Marine technology companies in Rostock are mostly small and medium-sized enterprises with a high potential for innovation and considerable know-how to meet the high technical requirements of the maritime industry.

This makes the networking of the companies involved and close cooperation with the various research institutes all the more important, as demonstrated by the diverse communities of interest and networks such as the Ocean Technology Campus. The challenges include the constantly changing conditions on the global market and the switch to renewable energies, including renewable fuels such as methanol, to which the shipbuilding industry must align its activities.

Again, the University of Rostock is a reliable partner for developing innovations. Particularly marine technology is becoming increasingly important in the search for solutions for the sustainable and environmentally friendly use of the oceans.

Subsea technology and maritime safety technology also have promising growth opportunities in the coming years. Marine technology combines various industrial and technical disciplines and provides innovative solutions for the use of the oceans and can, therefore, continue to offer answers to the pressing questions humanity is facing in the future.





IMPRINT

Editor:

Gesellschaft für Wirtschafts- und
Technologieförderung Rostock mbH
Christian Weiß, Geschäftsführer

Schweriner Straße 10 / 11
18069 Rostock

Telefon: +49 381 37719-0

E-Mail: info@rostock-business.de

www.rostock-business.de

Design:

Kempka&Scholz | www.kempka-scholz.de

Image credits:

Holger Martens | www.holger-martens.com

Leibniz-Institut für Ostseeforschung Warnemünde

Thünen-Institut für Ostseefischerei

Adobe Stock | Nolan

Print:

Altstadtdruck Rostock

www.altstadt-druck.de