European Commission

All aboard for better marine stewardship through research and innovation

EU Framework Programmes support marine, maritime and inland aquatic research and innovation for sustainable growth in a variety of sectors. This is done through the responsible management of marine resources for healthy, productive, safe, secure and resilient seas and oceans, each of which is essential for thriving ecosystems, climate regulation, global food security, human health, livelihoods and economies.

Marine and maritime research and innovation is possible through a strategic, cross-sectorial coordinated approach across disciplines and priorities. They support the implementation of relevant Union policies for a sustainable Blue Economy across Europe and globally. The EU's Seventh Framework Programme for Research and Development (FP7) and Horizon 2020 have funded over 1 200 Blue Economy-related projects. The following projects are a small 'drop in our Oceans and Seas', showcasing research results relevant for aquaculture, fisheries management, or new integrated approaches to monitor and observe, coupled with new sensors. The projects illustrate their advances in marine biotechnologies, the impact of climate change or marine litter on our oceans and seas, whilst advocating healthy oceans for a healthy life through ocean literacy activities.


© Sadasivam Kaushik

ARRAINA | (Advanced Research Initiatives for Nutrition & Aquaculture), coordinated in France

This project investigated the nutrient requirements of the five most commonly farmed fish species in Europe and used this information to develop sustainable plant-based aquaculture feeds tailored to the requirements of each species, but containing lower levels of fish meal and fish oil.

HTTP://WWW.ARRAINA.EU/


© TasfotoNL, Shutterstock

BENTHIS | (Benthic ecosystem fisheries Impact Study), coordinated in the Netherlands

Researchers for the BENTHIS project have shown that the damage caused by trawling is directly related to the penetration depth of equipment. These findings will help inform the fishing industry about its potential impact, the habitats most affected, and the fishing gear that causes the most damage.

HTTP://WWW.BENTHIS.EU/EN/BENTHIS.HTM


© Trieu Tuan, Shutterstock

BRAAVOO | (Biosensors, Reporters and Algal Autonomous Vessels for Ocean Operation), coordinated in Switzerland

The BRAAVOO project has developed a unique device using biological sensors, deploying multiple technologies that make it possible to simultaneously identify antibiotics, toxins from algal blooms, endocrine-disrupting chemicals from paints, oil-derived compounds, and toxic heavy metals, thus providing a new weapon in the fight against ocean pollution.

HTTP://WWW.BRAAVOO.ORG


© IDREEM

IDREEM | (Increasing Industrial Resource Efficiency in European Mariculture), coordinated in the United Kingdom

This project has created waste management strategies that convert waste streams into high value products. Its integrated multitrophic aquaculture system reduces net environmental emissions and increases productivity and profitability for European aquaculture businesses.

HTTP://WWW.IDREEM.EU/CMS/ABOUT-PROJECT/


© Andreas Müller

INAPRO | (Innovative model and demonstration based water management for resource efficiency in integrated multitrophic agriculture and aquaculture systems), coordinated in Germany

The INAPRO project has successfully implemented new technological approaches to aquaponics, with fish waste providing an organic food source for plants and evaporated water returned to fish tanks reducing the need for additional daily freshwater to less than 3 % of total volume.

HTTP://WWW.INAPRO-PROJECT.EU/

OCEANFISH | (Open Ocean Fish Farms), coordinated in Israel

This project, led by an SME, has pioneered a system to enable fish farming far out at sea. Its innovative solution harnesses ocean currents to lessen environmental impact and can even submerge beneath the surface to avoid winter storms.


© Gili Ocean Technologies


© Damsea, Shutterstock

PHARMASEA | (Increasing Value and Flow in the Marine Biodiscovery Pipeline), coordinated in Belgium

PHARMASEA has succeeded in developing a robust pipeline capable of processing marine microbial genomes from strain collections held by project partners, as well as new strain collections retrieved from extreme ocean environments (deep, cold and hot vent habitats).

HTTP://WWW.PHARMA-SEA.EU/

SEACHANGE | (Sea Change), coordinated in the UK

The three-year SEACHANGE project has brought together a consortium of 16 ocean-linked organisations around Europe and the United Nations Educational, Scientific and Cultural Organisation (Unesco) to help European citizens become more 'ocean literate'.


© vectorman1978, Shutterstock

HTTP://SEACHANGEPROJECT.EU/


© Yuri Turkov, Shutterstock

SEA-ON-A-CHIP | (Real time monitoring of SEA contaminants by an autonomous Lab-on-a-chip biosensor), coordinated in Spain

SEA-ON-A-CHIP has developed a miniaturised, autonomous, remote and flexible immune-sensor platform based on a fully integrated array of micro/nano-electrodes and a microfluidic system in a 'lab-on-a-chip' configuration. Combined with electrochemical detection, it provides real-time analysis of marine waters in multi-stressor conditions.

HTTP://WWW.SEA-ON-A-CHIP.EU/V1/SOC50V4_MAIN.PHP


© Rich Carey, Shutterstock

SEA LITTER CRITTERS | (A compact, unmanned, renewables-powered and self-sufficient vessel able to pick up marine litter and to treat it on board for volume reduction and energy recovery), coordinated in Italy

With more than 150 million tonnes of plastic accumulated in the world's oceans, the SEA LITTER CRITTERS team has examined the market appeal of a small automated waste collection vehicle called the 'Sea Litter Critter', which not only picks up waste but also treats it on board.


© Rachel Juliet Lerch, Shutterstock

SMS | (Sensing toxicants in Marine waters makes Sense using biosensors), coordinated in Italy

SMS brought together scientists, SMEs and environmental agencies to develop a cost-effective, easy to use monitoring device installed on an ocean buoy that can analyse seawater quality and deliver alerts through a wireless connection in around two hours.

HTTP://WWW.PROJECT-SMS.EU/


© TARGETFISH

TARGETFISH | (Targeted disease prophylaxis in European fish farming), coordinated in the Netherlands

The TARGETFISH project has focused on the vaccination of farmed fish in order to reduce disease outbreak. The project has already helped to improve *in vitro* read out systems and *in vivo* procedures, as well as succeeded in producing improved vaccines and new vaccine prototypes.

HTTP://TARGETFISH.EU/PROJECT

Publications Office

Learn more about EU policies for Marine Research:
https://ec.europa.eu/research/bioeconomy/index.cfm

@EUScienceInnov
EUScienceInnov

ISBN: 978-92-78-41544-0
doi:10.2830/724003