

Blue Bioeconomy in Northern Germany

**Introducing the members of the Bioeconomy at
Marine Sites (BaMS) cluster for CEE fellowship
applicants**

For questions, please do not hesitate to visit our website or to contact us

blaue-biooekonomie.de | info@blaue-biooekonomie.de

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Welcome

Dear CEE fellow applicants,

As manager of the innovation cluster Bioeconomy at Marine Sites (BaMS) in Northern Germany, it is my pleasure to welcome you!

In this brochure, our cluster members present themselves and their research and development activities in the field of sustainable blue bioeconomy. It is our conviction, that cooperation across borders is the only way forward to overcome the challenges of our time. We therefore welcome you to conduct your CEE fellowship research projects at our institutions and in close liaison with our blue bioeconomy projects. Together, we can shape the transition to a sustainable blue bioeconomy in Europe and the world!

Looking forward to meeting you in Northern Germany soon!



Stefan Meyer, cluster manager



Application procedure

German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt, DBU) provides all relevant information for the application process on their website

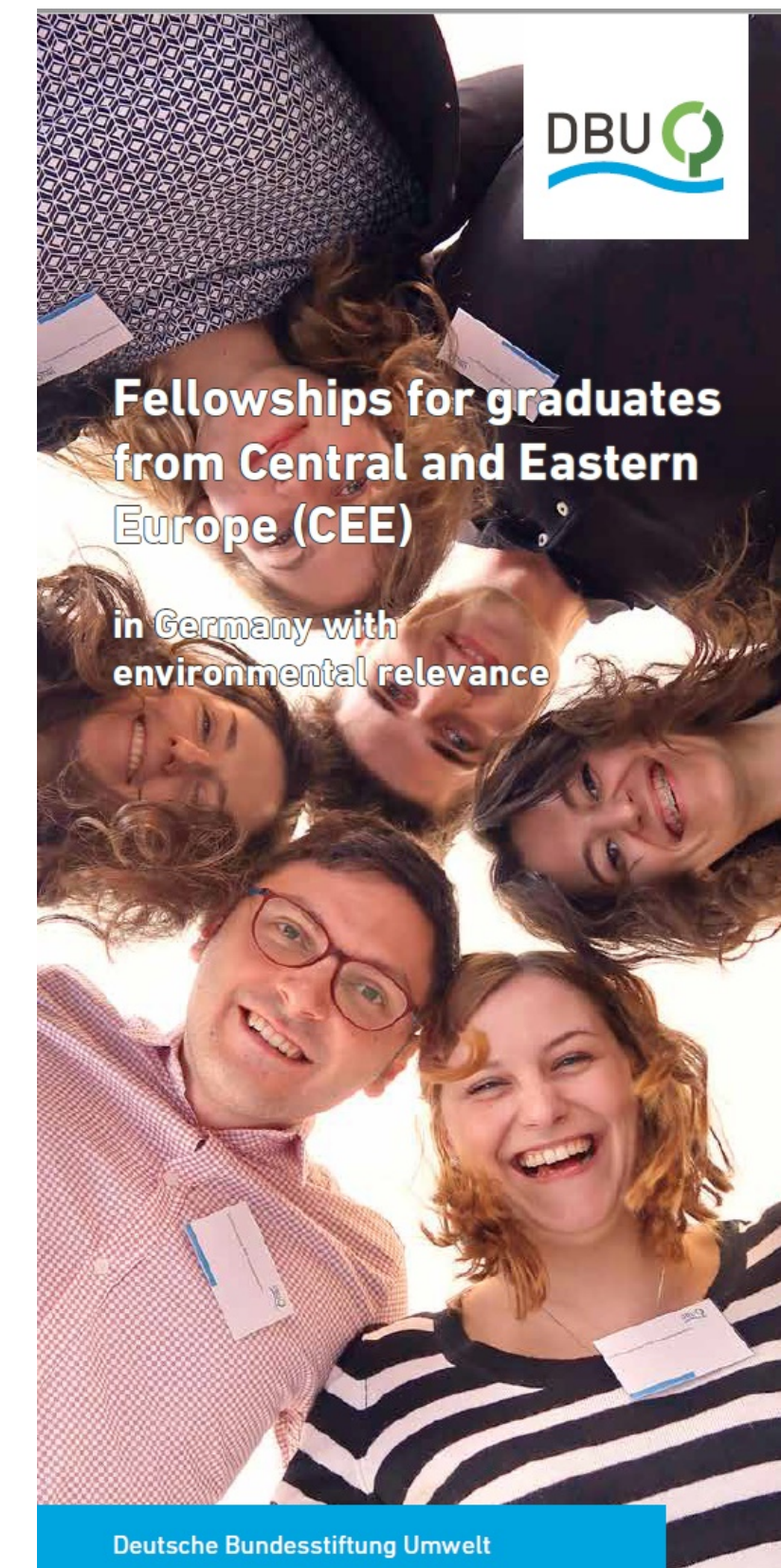
<https://www.dbu.de/2600.html>

For any inquiries pertaining to the application process, please do not hesitate to contact DBU

Hard facts:

- application deadline annually on 05.09. and 05.03.
- funding period: 6-12 months, monthly grant: 1.250 €
- health, accident and liability insurance, several weeks of intensive German course in Osnabrück before the beginning of the stay at the host institution

For any **thematic / research questions**, please do not hesitate to visit BaMS website or to contact BaMS at: blaue-biooekonomie.de | info@blaue-biooekonomie.de



Sponsored by the Scholarship Programme of the



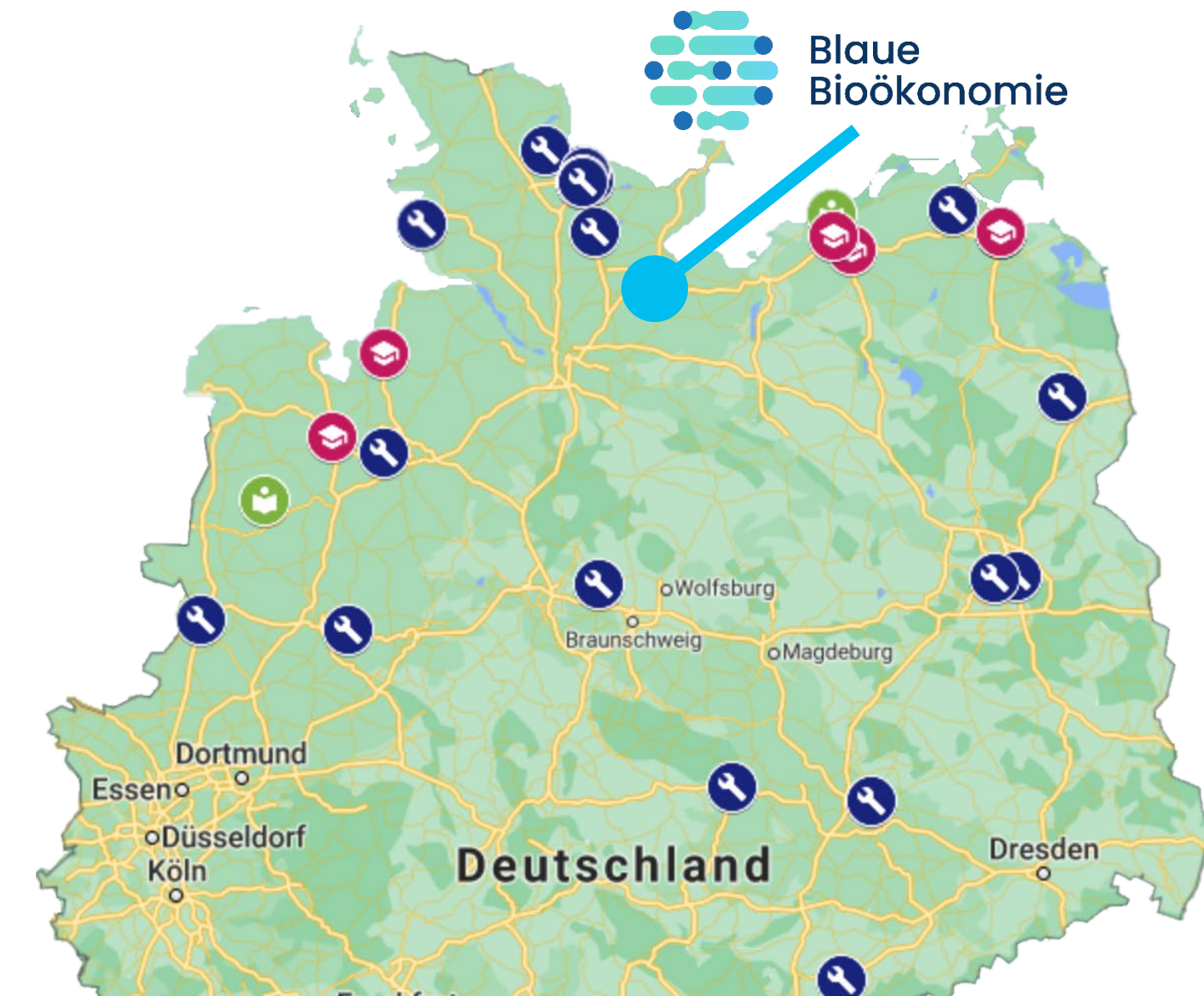
Deutsche
Bundesstiftung Umwelt

www.dbu.de

Download the DBU CEE fellowship leaflet here:
<https://www.dbu.de/2433publikation1585.html>

Innovation cluster BaMS

- BaMS is the innovation cluster for blue bioeconomy in Northern Germany
- 43 members of BaMS e.V., association founded on 30.09.2019
- Our members are the leading companies, research organizations and universities in this field



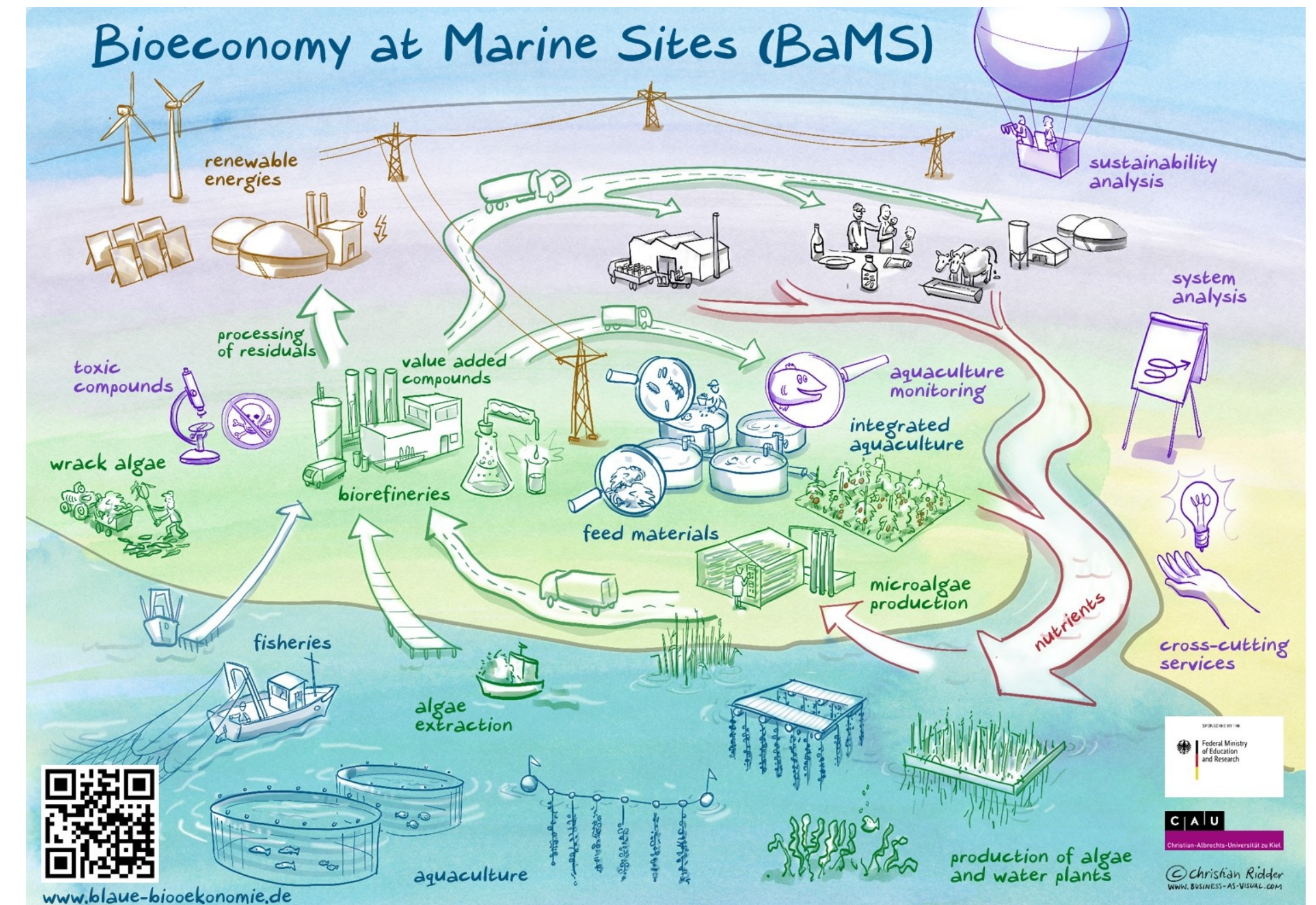
Members of BaMS e.V., as of 18.03.2021

	Companies	Research	Other	Total
Schleswig-Holstein	12	7		19
Mecklenburg-West Pomerania	4	4	1	9
Lower Saxony	4	2		6
Other federal states	7	2		9
Total	27	15	1	43



What is blue bioeconomy?

- Blue bioeconomy is above all aquatic circular economy, extending our current system boundaries for bioeconomic use from land (29% earth's surface) to the seas (71% area).
- Aquatic ecosystems are sensitive and not "domesticated". There are hardly any cultivated landscapes under water. The use, management and removal must be carried out carefully and sustainably.
- The blue bioeconomy will grow mainly in regions with access to natural, large areas of water (especially coastal regions), like in northern Germany ... or the Baltic Sea!
- When you like to hear more, have a look here:
<https://cloud.bams.uni-kiel.de/index.php/s/THGBf4BsK3AR9gE>



Anthropogenic nutrient inputs enter coastal waters and seas, drive biomass primary production and thus serve as a carbon source for the blue bioeconomy.

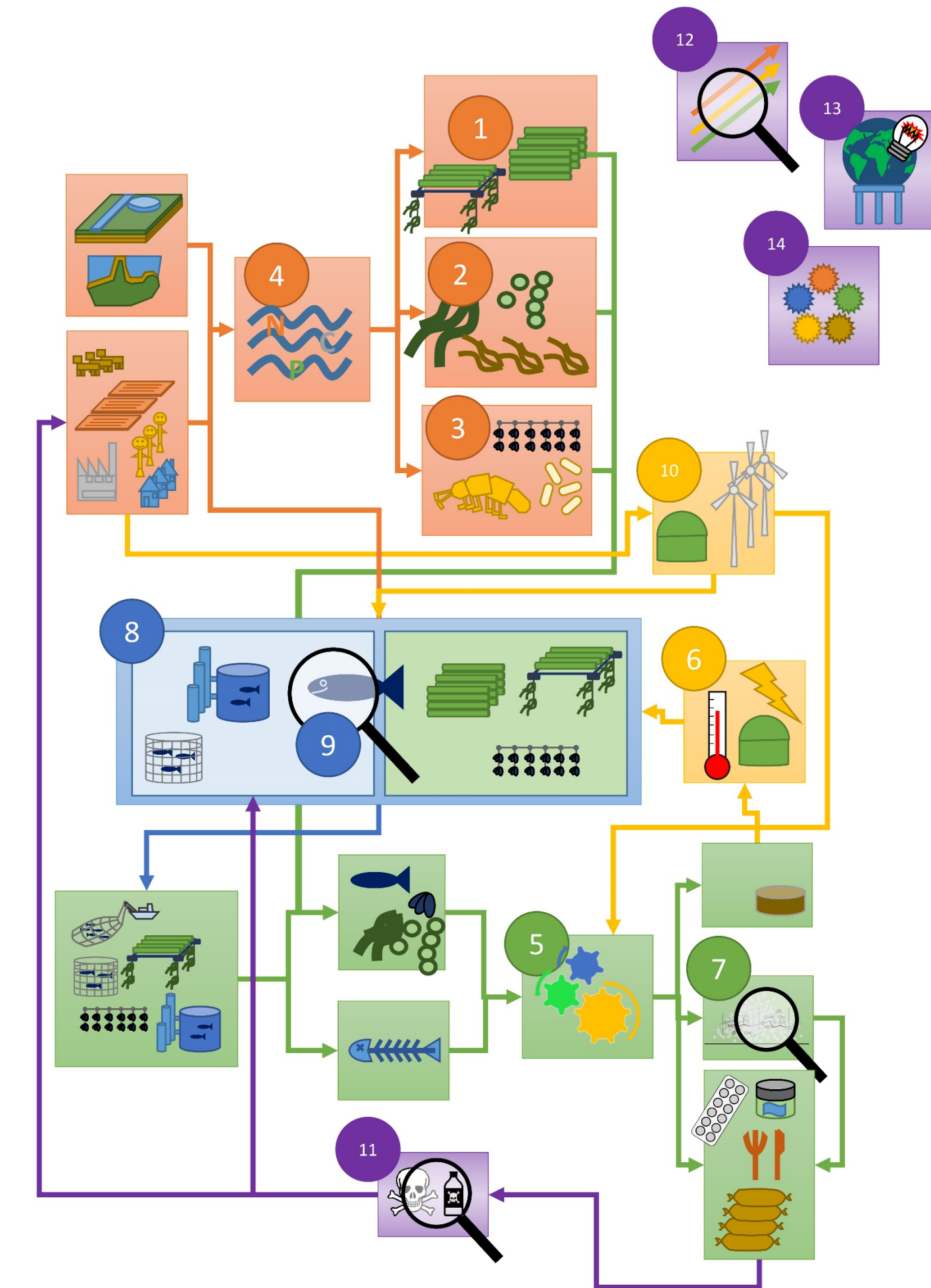
© Bioeconomy at Marine Sites, CAU Kiel & Christian Ridder, Business as Visual

Our blue bioeconomy strategy

Our research in blue bioeconomy is related to one or more of the following subject areas.

These areas can be a good guidance for you to identify the right hosts and project topics:

1. Algae production
2. Algae extraction
3. Invertebrates
4. Bioremediation
5. Use of side-streams, material
6. Use of side-streams, energy
7. Added value compounds
8. Integrated aquaculture
9. Aquaculture monitoring
10. Renewable energies
11. Pollutants
12. Systems analysis
13. Sustainability analysis
14. Cross-sectional services



With 14 subject areas, the connections of the blue bioeconomy and its connection to other economic sectors can be presented.

Companies

Enzymicals AG



Description:

We are an experienced partner for industrial biocatalysis from mg to ton-scale. Enzymicals experts offer their recognized expertise in the use of enzymatic processes for complex chemical synthesis, from initial catalyst-lead finding to process optimization and pre-scale up. Combining many years of experience in biotechnology with state-of-the-art facilities, our company has success stories with many partners from diverse industries speeding up their developments. Our core working principles are high quality R&D, professionalism and customer satisfaction. By this, we add value with tailor made enzymes, customized chemicals and individual process solutions and contribute to a more sustainable industry with greener and safer processes.

Infrastructure: S1-biology, screening, process R&D, fermentation (4x1-L 1x5-L 1x30-L), biocatalysis (4x1-L, 1x10-L), DSP

Thematic areas:

Enzyme identification, enzyme production, biocatalysis, processing, scale-up, bioeconomy

Suggestions for project topics:

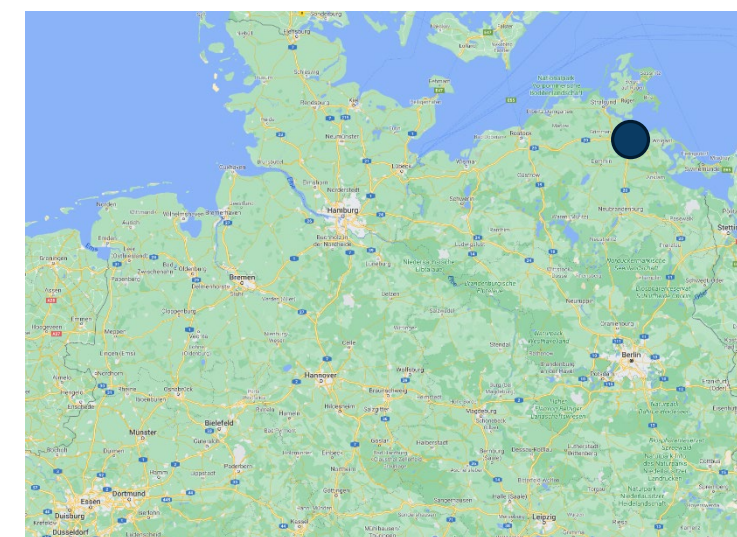
Extraction and characterization of marine polysaccharides, e.g. Ulvan, enzymatic degradation of marine sugars, scale-up of production of defined marine poly-, oligo- and monosaccharides with the help of enzymes

Contact:

Dr. Henrike Brundiek, henrike.brundiek@enzymicals.com

Enzymicals AG
Walther-Rathenau-Straße 49a
17489 Greifswald

www.enzymicals.com




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EUCC-D, Coastal Union Germany

Description:

EUCC – The Coastal Union Germany, or EUCC-Germany for short, promotes integrated coastal zone management (ICZM) and the sustainable development of coasts and seas in Germany. EUCC-Germany provides information, consultation, knowledge, and education around Germany in addition to arranging workshops and leading demonstration projects.

We supervise floating wetlands at three coastal locations in Mecklenburg-Western Pomerania (Rostock, Vogelsang-Warsin, Born). We cannot provide a laboratory, but we do have mobile measuring devices (e.g. multiparameter probe).

Thematic areas:

Water quality, climate change, marine spatial planning, marine litter, education for sustainable development

Suggestions for project topics:

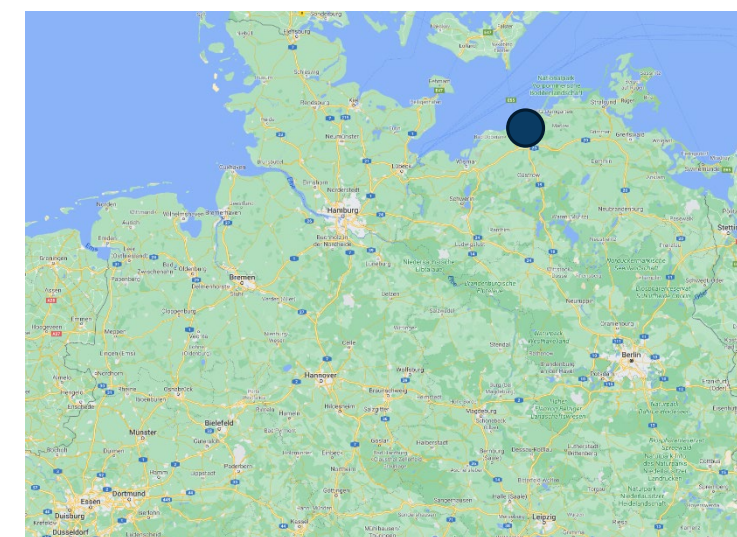
Floating wetlands for nutrient removal and local water quality improvement in coastal waters --- Options: (1) Pursue mapping activities for potential installation sites for floating wetlands in European lagoons using open source data for QGIS. (2) Review of existing data of plant selection in different water bodies (urban, pond, lake, river, coast, open sea...) and climate zones. (3) Development of a utilization concept of harvested biomass and strengthening techniques for nutrient removal efficiency

Contact:

Nardine Stybel, Stybel@eucc-d.de

EUCC-D
Friedrich-Barnewitz-Strasse 3
18119 Rostock-Warnemuende

www.eucc-d.de



Förde Garnelen GmbH & Co. KG



Description:

Förde Garnelen is a company located in Strande, Schleswig-Holstein, close to Kiel, that produces and markets tropical shrimps of the species *Litopenaeus vannamei*. Recently we produce about 5 tons annually. An expansion to a production capacity of up to 50 tons annually is planned for 2021.

Thematic areas:

Optimization of production, esp. management of stock density and distribution patterns of the shrimps inside the tanks / Feed optimization, development of our own feed for shrimps, determination of growth rates and feed conversion / Enhancement of the shrimp health and the macroscopic assessment of the appearance / Establishing the shrimp reproduction

Infrastructure: tanks & net-pens and production unit for trials / Laboratory with photometer, binocular, light microscope, scale, access to chemicals, dissecting set / 2 motivated biologist with a lot of experience running RAS facilities and growing shrimp.

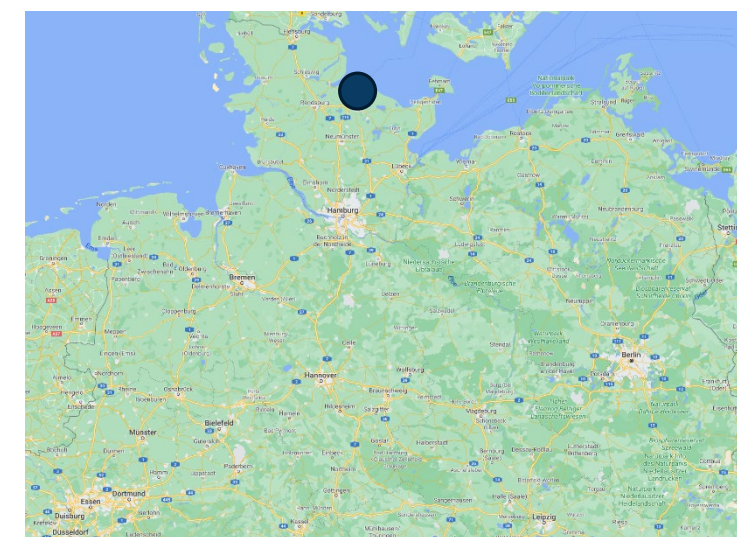
Suggestions for project topics: Comparison of different plant extracts in the feed to improve health / Establishing a computer vision system for biomass determination / Optimization of shrimp reproduction – Enhancing fertilization rate and survival rate of zoea-larvae / Effect of different probiotics in the water on shrimp health / Determination of growth rates and feed conversion with our own feed and optimization of the ingredients.

Contact:

Kilian Landsch, kilian.landsch@foerde-garnelen.de

Förde Garnelen GmbH & Co. KG
Bülker Huk
24229 Strande

<https://www.foerde-garnelen.de/>



Research Organizations & Universities

Alfred Wegener institute - Helmholtz centre for polar and marine research



Description:

The Alfred Wegener Institute conducts research in the Arctic, Antarctic and the oceans of the middle and high latitudes. The Alfred Wegener Institute is one of the 18 research centers of the Helmholtz Association, the largest scientific organization in Germany. The aquaculture research group deals with a wide range of economic and scientific questions relating to the commercial production of aquatic organisms. The AWI has with the Center for Aquaculture Research for various highly technical recirculating aquaculture systems in which different fish species, algae and crustaceans are kept.

Thematic areas:

RAS Technology / Feed and sustainable resources / Microalgae / Integrated aquaculture / Invertebrates

Suggestions for project topics:

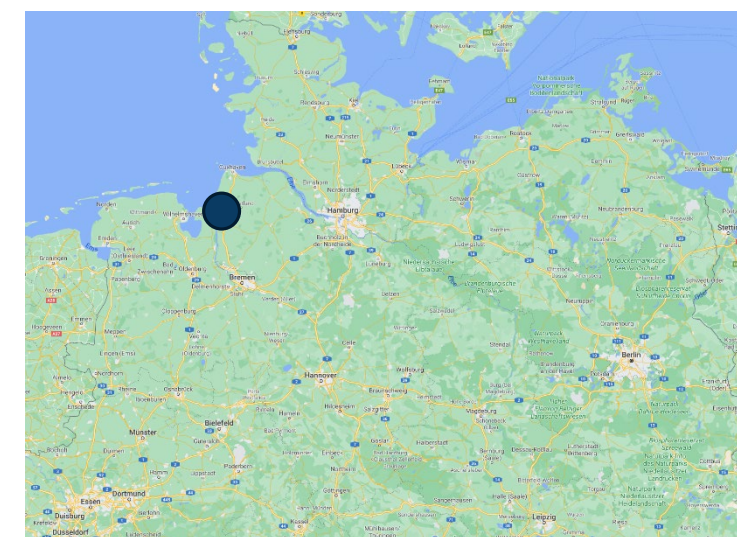
Integrated aquaculture, marine aquaponics, residual material minimization in RAS

Contact:

Mirko Bögner, mirko.boegner@awi.de

Alfred Wegener Institute
Am Handelshafen 12
27570 Bremerhaven

[https://www.awi.de/forschung/
besondere-gruppen/aquakultur/aquakulturforschung.html](https://www.awi.de/forschung/besondere-gruppen/aquakultur/aquakulturforschung.html)



City University of Applied Sciences, Bremen

Description:

International Degree Programme Industrial and Environmental Biology / Professor for Ecology and Conservation / Divers laboratory and field facilities at the university and within the city of Bremen

Thematic areas:

Applied nature conservation, fisheries management, inland fisheries, behavioural ecology, citizen science, inter- and transdisciplinary research

Suggestions for project topics:

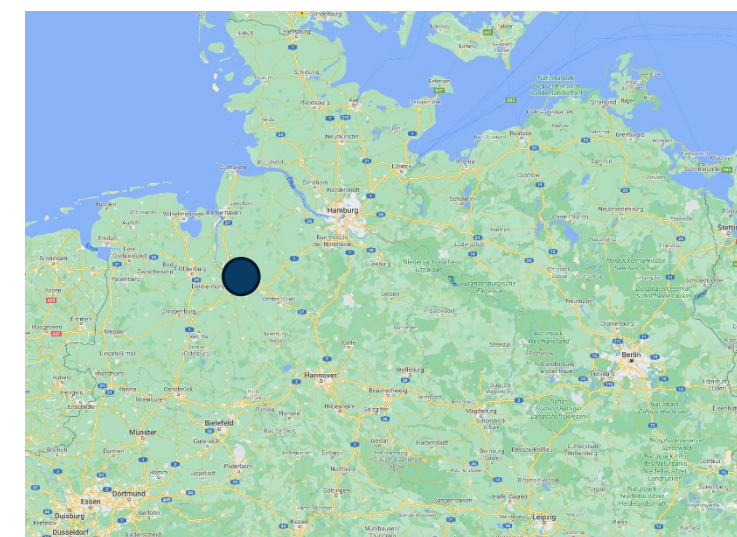
Behavioural ecology of invertebrates in terrestrial and aquatic environments with a focus on insects and crayfish using passive telemetry.

Contact:

Prof. Dr. Thomas Klefoth, thomas.klefoth@hs-bremen.de

Hochschule Bremen
Neustadtswall 30
28199 Bremen

<https://www.hs-bremen.de/internet/de/studium/stg/istab/lehrende/tklefoth/>



Fraunhofer EMB

Description:

Our core competence is extensive expertise in the isolation, handling and manipulation of cells. Among other things, organ culture and cell-based model systems are used here for different questions.

Important unique selling points of the facility are the excellent know-how for the in vitro cultivation of cells of marine organisms as well as unique knowledge about the cryopreservation of fish gametes. In addition, many years of experience in the culture of adult stem cells from different tissues of various other vertebrates are available.

Thematic areas:

With its expertise, the Fraunhofer EMB develops processes and devices for various business areas, e.g. Cosmetics, pharmaceuticals as well as food and aquaculture. In the field of marine biotechnology and cell technology, the EMB also works on topics for the future field of bio-economy.

Suggestions for project topics:

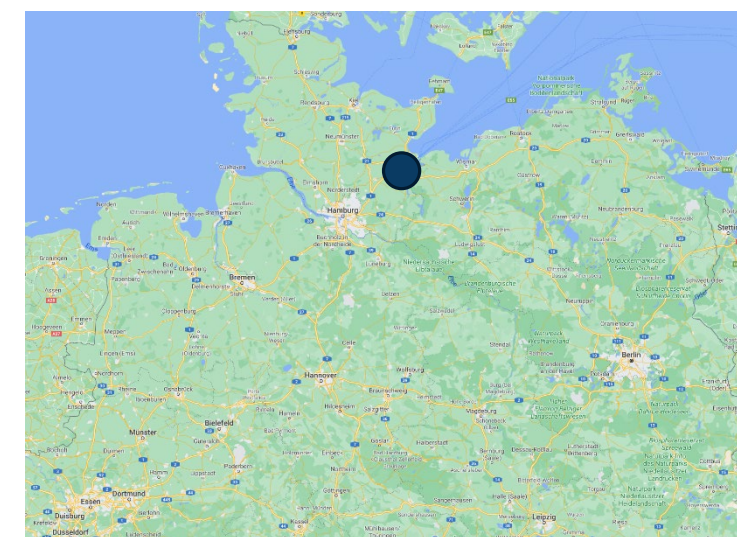
Breeding and culture optimization of marine organisms is an urgent need to encounter future food demands. A direct approach is the testing of nutritional, temperature and oxygen demand on a cellular level. We want to test the potential of several food industry relevant fish species cell lines to represent in vivo conditions.

Contact:

Dr. Marina Gebert, marina.gebert@emb.fraunhofer.de

Fraunhofer EMB
Mönkhofer Weg 239a
23562 Lübeck

www.emb.fraunhofer.de



University of Applied Sciences Lübeck

Description:

Technische Hochschule Lübeck (TH Lübeck) is an institution of higher education focusing on technology, natural sciences, economy, and civil engineering. Approx. 5.000 students and 130 professors, 35 bachelor's and master's degrees.

Thematic areas:

Quantification, modelling and assessment of energy and material flows; Ecology and ecosystem services of aquatic environments

Suggestions for project topics:

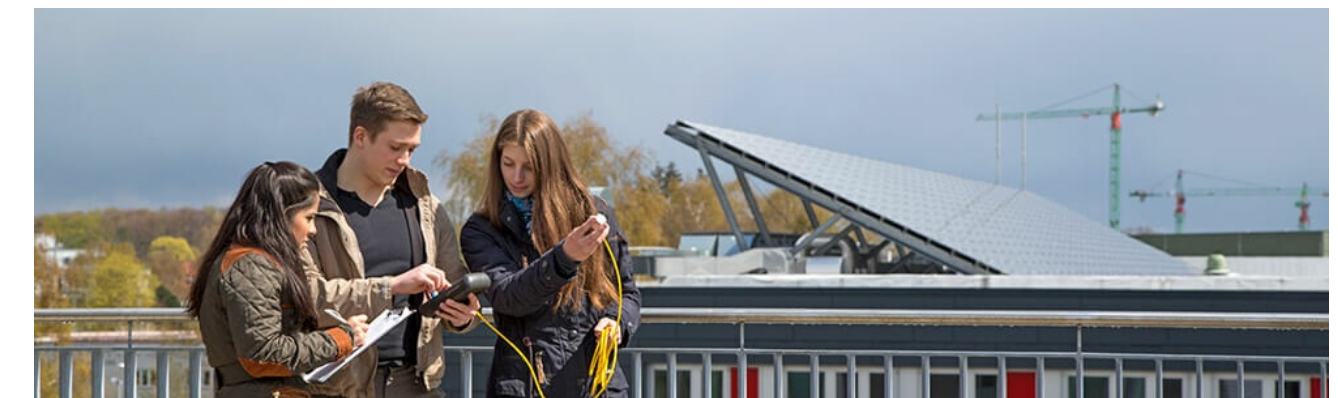
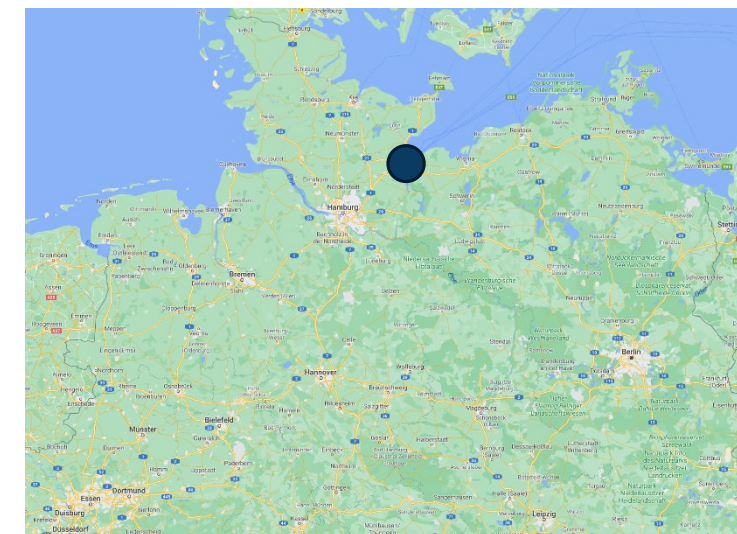
Modelling of nutrient and energy flows in aquaculture / retention of nutrient from agricultural drainage water

Contact:

Prof. Dr. Norbert Reintjes, norbert.reintjes@th-luebeck.de

University of Applied Science Lübeck
Mönkhofer Weg 239
23562 Lübeck

www.th-luebeck.de



University of Kiel, University Medical Center, Department of Ophthalmology, Experimental Retinology

Description:

Research lab of the biggest provider for ocular health care in the region. The Research lab is part of a newly build research facility with access to state-of-the-art biomedical equipment. The lab focuses on cell culture, immunofluorescence microscopy, protein biochemistry and molecular biology.

Thematic areas:

Cellular aspects of pathology and treatment of retinal diseases (main focus on age-related macular degeneration), and development of new therapies, including the potential of marine bio-compounds as new options for treatment and prevention of retinal diseases.

Suggestions for project topics:

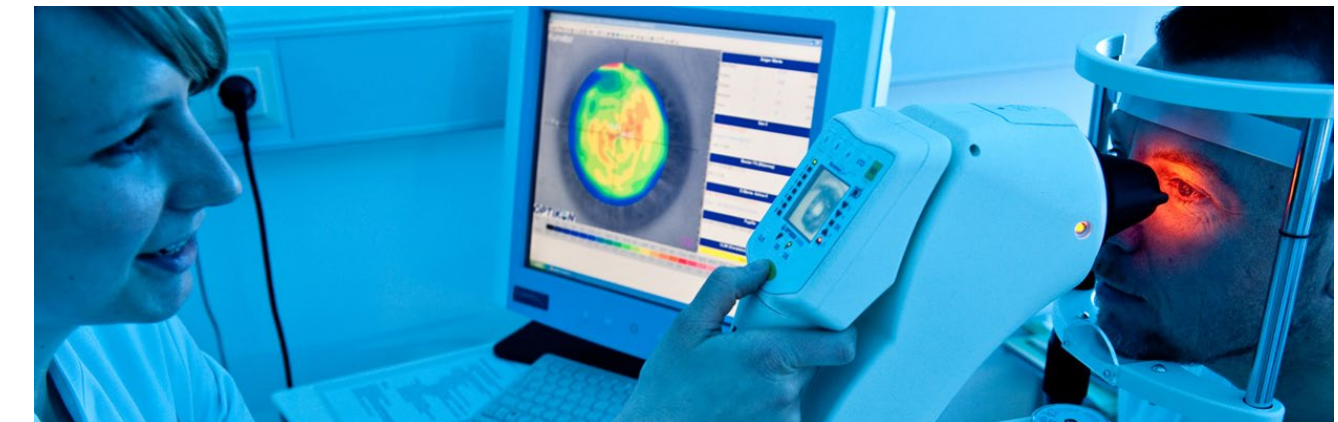
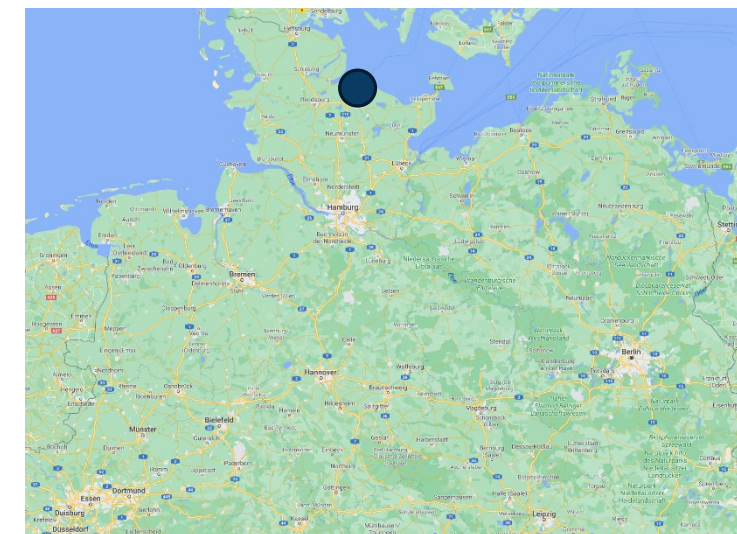
Identification and characterization of marine bio-compounds from sustainable origins for treatment of retinal diseases.

Contact:

Prof. Dr. Alexa Klettner, AlexaKarina.Klettner@uksh.de

Quincke Research Center
University of Kiel, University Medical Center
Rosalind-Franklin-Str. 9
24105 Kiel

[https://www.uksh.de/augenlinik-kiel/
Wir+%C3%BCber+uns/Team/Wissenschaftliche+Mitarbeiter.html](https://www.uksh.de/augenlinik-kiel/Wir+%C3%BCber+uns/Team/Wissenschaftliche+Mitarbeiter.html)



University Rostock, Faculty of Agricultural and Environmental Sciences, Professorship Aquaculture and Sea-ranching

Description:

Oldest university in the Baltic Sea region. The Faculty of Agricultural and Environmental Sciences is responsible for animal, plant and engineer science study programs and aquaculture. The Professorship Aquaculture and Sea-ranching main activities are the cultivation of aquatic organisms by utilizing most modern infrastructures such as the FishGlassHouse and microscopic and molecular laboratories.

Thematic areas:

The professorship has the main research topics aquaculture, diseases and parasites of aquatic organisms and the interaction between mariculture farms and the environment. With the FishGlassHouse, the professorship has access to a unique research infrastructure in Europe.

Suggestions for project topics:

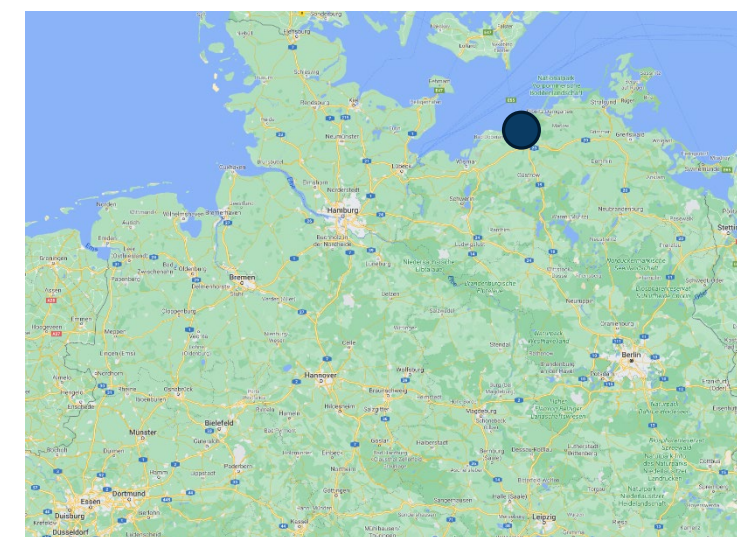
Aquaponic production with African catfish (*Clarias gariepienus*) / Larviculture of pikeperch (*Sander lucioperca*) / Parasites of freshwater fish in Mecklenburg-Western Pomerania

Contact:

Prof. Dr. Harry W. Palm, harry.palm@uni-rostock.de

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Justus-von-Liebig-Weg 6
18059 Rostock

<https://www.auf.uni-rostock.de/professuren/a-g/aquakultur-und-sea-ranching/>



Thank you!