ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR- UND MEERESFORSCHUNG



The Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI) is a member of the Helmholtz Association (HGF) and funded by federal and state government. AWI focuses on polar and marine research in a variety of disciplines such as biology, oceanography, geology, geochemistry and geophysics, thus allowing multidisciplinary approaches to scientific goals.

# PhD position in Plankton Ecophysiology (m/f/d)

## Background

In addition to macronutrients (N, P, Si) and trace metals (Fe, Zn), Vitamin $B_{12}$ is required by >90% of all surveyed harmful algal bloom (HAB) forming phytoplankton species, including *Pseudo-nitzschia* sp.. Furthermore bloom dynamics of some HABs can be correlated with the availability of $B_{12}$.
Since eukaryotes cannot produce $B_{12}$, these algae need to take up exogenous $B_{12}$, produced only by some prokaryotes, mainly heterotrophic bacteria. A handful of studies have looked at the relationship of algae and bacteria and found that in some cases the addition of the latter could elevate $B_{12}$ limitation in auxotrophic phytoplankton species. Little is known about the impacts of $B_{12}$ on growth and DA production of the ecologically diatom *Pseudo-nitzschia sp*.. Some studies have shown that domoic acid production in *Pseudo-nitzschia* depends on the bacterial community in its phycosphere, and there is evidence that some bacteria may consume domoic acid. The relationship between bacteria, domoic acid production and $B_{12}$, however, is unknown. The aim of this project is to 1) map the distribution of *Pseudonitzschia sp*, toxins and vitamin $B_{12}$ in Arctic and Antarctic waters, 2) assess the importance of $B_{12}$ on growth and toxicity of *Pseudonitzschia sp* and 3) investigate $B_{12}$ as a currency of interaction between *Pseudonitzschia sp* and its microbiome.

## Tasks

- Shipboard expedition in the Arctic and Antarctic, assessing distribution patterns of *Pseudonitzschia* sp., associated toxins and B-vitamins
- Culture work with different strains of *Pseudonitzschia* sp. and vitamin $B_{12}$
- Co-culturing of heterotrophic bacteria with *Pseudonitzschia* sp.
- Establishing methods for measuring cellular $B_{12}$ content

## Requirements

- Master or comparable degree in biology, marine science/biology or environmental sciences
- Experience cultivating marine plankton, applied methods in plant physiology and/or in sea going expeditions
- Participation in ship-based research expeditions to the Arctic and/or Antarctic
- Good English language skills (spoken and written).

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**Additional skills and knowledge**

- Analytical experience working with nutrients /trace metals/phycotoxins
- Knowledge of basic molekular techniques (transcriptomics/metabolomics)
- Experience working with radioisotopes

**Further Information**
Please contact **Dr. Florian Koch (**0471-4831-1136; florian.koch@awi.de) for further information.

This position is limited to 3 years. The salary will be paid in accordance with the Collective Agreement for the Public Service of the Federation (Tarifvertrag des öffentlichen Dienstes, TVöD Bund), up to salary level **13 (66%)**. The place of employment will be **Bremerhaven.**

All doctoral candidates will be members of AWI's postgraduate program POLMAR or another graduate school and thus benefit from a comprehensive training program and extensive support measures.

**The AWI is characterised by**

- our scientific success - excellent research
- collaboration and cooperation - intra-institute, national and international, interdisciplinary
- opportunities to develop – on the job and towards other positions
- an international environment – everyday contacts with people from all over the world
- flexible working hours and the possibility of mobile working up to 50% of regular working hours
- Health promotion and company fitness with qualitrain
- support services and a culture of reconciling work and family
- Occupational pension provision (VBL)
- Jobticket

Equal opportunities are an integral part of our personnel policy. The AWI aims to increase the number of employees who are women, and therefore strongly encourages qualified women to apply.

Applicants with disabilities will be given preference when equal qualifications are present.

The AWI fosters the compatibility of work and family in various ways and has received a number of awards as a result of this engagement.

**We look forward to your application!**
Please submit your application by **April 15th 2023,** exclusively online.
Reference number: 23/67/G/Bio-b

Apply here