

## MARINE ECOLOGY PhD STUDENT VACANCY

The **Royal Belgian Institute of Natural Sciences** (RBINS, Belgium) is recruiting a PhD student (M/F/X). The PhD student will be engaged in the recently started project PERSUADE (ExPERimental approaches towards Future Sustainable Use of North Sea Artificial HarD SubstratEs, 2017-2021 ) funded by the Belgian Science Policy . The research will be conducted in close collaboration with the Marine Biology Research Group of Ghent University.

### CONTEXT

Future coastal ecosystems will be challenged with a multitude of ecosystem-level stressors, resulting from both local anthropogenic activities and environmental change acting at the global scale. The installation of offshore wind farms (OWFs) is currently a major human activity in the coastal North Sea area, resulting in the introduction of large surfaces of artificial hard substrates (AHSs) in an otherwise sandy environment. These AHSs are rapidly colonized by large quantities of fouling fauna, including non-indigenous species, leading to local changes in food-web structure and affecting the general cycling of nutrients, which can have important consequence for the air-sea exchange of greenhouse gasses in coastal areas. In addition, space at sea is limited, and multiple use of some areas is considered beneficial. In Belgium, aquaculture activities (i.e. mussel farming) are allowed within areas designated for OWF development. These additional activities can affect the response of the marine ecosystem to the introduction of the AHSs.

The effect of local anthropogenic impacts on the coastal ecosystem should be investigated in the context of global impacts on the marine environment. Increased atmospheric CO<sub>2</sub> concentrations lead to global warming on the one hand, and on the other hand to a decrease in ocean pH (ocean acidification, OA). The limited studies available investigating the combined effect of OA and warming on an ecosystem-wide level reveal substantial, non-additive and complex changes in community dynamics, and both pelagic and benthic nitrogen cycling.

### JOB CONTENT

The focus of the PhD student will be on experimental research, statistical processing of the data and modeling the biogeochemical response of the environment to the mentioned cumulative local and global stressors. The research will include (1) database compilation to investigate the effect of trophic and non-trophic interactions on food-web topologies; (2) detailed experiments with benthic and fouling model species to investigate their effect on the benthic and pelagic nitrogen cycle; (3) whole community experiments investigating the C-flow under different climate/multi-use scenarios and (4) developing and applying ecological models to integrate the obtained data in an ecosystem context.

The PhD student will be affiliated to RBINS, but will mainly work at Ghent University. The modeling work will be done in cooperation with prof. dr. Karline Soetaert at the Netherlands Institute for Sea Research in Yerseke (The Netherlands). As such, regular stays in Yerseke are planned for this PhD research.

## PROFILE

- Master in Sciences or Bio-engineering Sciences (within the field of Biology, Biochemistry, Oceanography or equivalent)
- Strong interest in multidisciplinary research in relation to marine ecology
- Open, collaborative attitude
- Prepared to take initiative, but also to work in close collaboration with other team members
- Prepared to participate in sampling campaigns at sea for several days
- Prepared to participate in (inter)national conferences and symposia

## SKILLS

- Excellent organisational, communication (both oral and written) and social skills
- Capable of planning and organizing your own work and meeting deadlines imposed by the project
- Strong interest in experimental work
- Good insights in analysing and interpreting data
- Knowledge of statistical processing of data
- A good knowledge of R is an asset
- Excellent knowledge of English (written and spoken)

## WE OFFER

- A full-time 2-year position as a PhD-student at RBINS, with a realistic chance of a 2-year contract extension
- A dynamic, challenging, varied and stimulating research environment
- Free public commuting and/or bike fee

START: Spring 2017

## CONTACT DETAILS

If interested, please send your motivation letter, CV and a copy of the Master Degree diploma, with reference "PERSUADE" before 13 March 2017 to Yolande Maes (ymaes@naturalsciences.be).

For more information:

- Concerning the job content or working conditions: Dr. Jan Vanaverbeke (jvanaverbeke@naturalsciences.be; +32 2 773 21 15)
- Concerning RBINS in general: <http://www.naturalsciences.be>
- Concerning UGent: <http://www.Ugent.be>
- Concerning NIOZ: <http://www.nioz.nl>

Interviews with pre-selected candidates will take place on 7 April 2017.

Only applications that meet the profile and that are received in time will be taken into consideration