



**Centre
for Polar
Studies**

Centre for Polar Studies
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Reference No: CSP/2019/IOPAN/6

Title of PhD project: Comparative phylogeography of boreal marine macroinvertebrates colonising High Arctic

Leading unit: International Environmental Doctoral School associated with the Centre for Polar Studies at the University of Silesia in Katowice (IEDS)

Deadline: 31th August 2019

Entrance Exam: 2–3rd September 2019; In the case of students from abroad the exam will be performed online.

Interviews: 4th–13th September 2019, venue will be indicated later. In the case of students from abroad the exam will be performed in the form of teleconference.

Mode of study: full-time

Degree to be obtained: PhD in exact sciences, discipline: Earth and environmental sciences

Duration: 4 years (8 semesters), from October 2019

Language: English

Scholarship: approx. 550€ monthly (1st–2nd year); approx. 850€ monthly (3rd–4th year)

Required documents and registration online:

Requirements and regulations: <https://www.mssd.us.edu.pl/en/candidate-of-ieds/>

Registration: www.irk.us.edu.pl

Conditions of recruitment:

I STAGE: Knowledge test (entrance test) in the field of discipline. The test is scored on points: from 0 to 10 points. A positive result of the test is that the candidate gets a minimum of 7 points. Absence on the test disqualifies the candidate from the entire qualification procedure.

II STAGE: a) the final result of the candidate's completion of higher education (maximum 6 points, diploma grading ratio: 6.0 (excellent) – 6 points, 5.0 – 5 points, 4.5 – 4 points, 4.0 – 3 points, 3.5 – 2 points, 3.0 – 1 point), b) for candidates (students) referred to art. 186 para. 2 of the Act – a certificate of average grade from at least three years of uniform Master's studies,



rounded to one decimal place, according to the conversion factor: 6.0 (excellent) – 6 points; 5.0 – 5 points; 4.5 – 4 points; 4.0 – 3 points; 3.5 – 2 points; 3.0 – 1 point};

III STAGE: Interview for assessing: the candidate's intellectual level knowledge of English, substantive level of the doctoral dissertation project, motivations and predispositions for scientific work, scientific achievements to date of the candidate (maximum 15 points).

Requirements:

1. MSc degree (or equivalent) in Biology, Genetics, Environmental Protection
2. General knowledge in population genetics, phylogeography and biogeography
3. General knowledge in zoology, with Focus on invertebrate zoology and ecology of hydrobionts
4. Knowledge in genetics, particularly in laboratory methods and analytical tools used in biogeography and phylogenetics.
5. Knowledge of English at a level that allows communication, reading and writing of scientific papers.

Tasks description:

1. Collection of biological material from the coasts of Svalbard and the islands of the North Atlantic (Norway, Iceland, Faroe, Shetland);
2. Identification and molecular analysis of the collected material
3. Statistical and phylogenetic analysis of the obtained molecular data
4. Preparation of manuscripts of scientific papers making up the doctoral dissertation and presentations of the obtained results on international conferences and symposia;
5. Regular reports of work progress
6. Submission and public defence of the doctoral dissertation.

Abstract

The European Arctic coasts are subject to rapid de-icing, both by the retreat of glaciers and by the disappearance of fast ice. This process allows colonization of the so far scantily inhabited shores by various organisms transported from the south by the sea currents. The continental Scandinavia (from the Island of Iceland to the Faroe Islands) is among the regions that potentially supply the coastal zone of European Arctic, and Svalbard in particular, with species. In areas potentially supplying coastal fauna to the Arctic, there are



over 500 species in the tidal zone, of which about 100 species have colonized Svalbard so far. This phenomenon is known as the "Atlantification" of the Arctic. The last significant discovery was the return of a warm-water mussel, *Mytilus edulis*, first discovered in 2005. This species appeared on Svalbard after several thousand years of absence since the last climatic optimum. The way it arrived to Spitsbergen is not clearly defined - today it seems that the population could come to the archipelago on the floating plastic garbage from the south. The planned doctoral dissertation is designed to identify, through comparative phylogeographical studies using molecular markers, the source areas for the population of the most common boreal Atlantic species of macro-invertebrates inhabiting the Svalbard coast zone, determine the spatial pattern of their genetic diversity, as well as trace the pathways, vectors and dynamics of these species' expansion.

Other information:

1. The supervisors will be: prof. dr hab. Michał Grabowski, michal.grabowski@biol.uni.lodz.pl, Department of Invertebrate Zoology & Hydrobiology, University of Lodz; prof. dr hab. Jan Marcin Węśławski, weslaw@iopan.gda.pl, Department of Marine Ecology, Institute of Oceanology, Polish Academy of Sciences
2. Contact to Secretary of the IEDS: dr Michał Cieply, polarknow@us.edu.pl, www.mssd.us.edu.pl