

Research Project

Cold adaption vs. sensitivity to climate change and pollution in Antarctic Notothenioids: Physiological plasticity, genetic regulation, immunology and reproductive traits

Project funded by own resources

Project title Cold adaption vs. sensitivity to climate change and pollution in Antarctic Notothenioids: Physiological plasticity, genetic regulation, immunology and reproductive traits

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Organisation / Research unit

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Status Completed

The Antarctic ecosystem is progressively exposed to anthropogenic environmental influences, such as ocean warming, ocean acidification and persistent organic pollutants. It is expected that global warming will even increase levels of xenobiotics in Antarctica because they will be more available for atmospheric transport and scavenged more effectively from the atmosphere due to increased precipitation.

Our project focuses on the energy metabolism under environmental stress and the trade-offs between energetically demanding processes such as biotransformation, metabolic compensation and immune response of high-Antarctic fish species in response to multiple stressors (temperature, pH and exposure to xenobiotics) on the one hand and the costs for reproduction and growth on the other hand. We further will determine the level of cold adaptation in various Antarctic species and populations, red and white-blooded notothenioids, specifically from Filchner Outflow System, a biological "hotspot" in terms of food availability and physical processes. Our integrative approach aims at assessing the physiological vulnerability of high-Antarctic fish to climate change and anthropogenic pollution over several levels of biological organization from the molecule to the whole organism and to contribute to develop a basis for environmental conservation efforts

Keywords physiology, teleostei, polar research, exotoxicology, reproduction, immune system, pollution, xenobiotics, biomarker

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University funds

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ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
3401294	Holm, Patricia	Mark, Felix C., Scientific Collaborator	AWI, Alfred Wegener Institut, Bremerhaven	01.10.2015	31.07.2017