Woods Hole Oceanographic Institution

Biology Department Seminar

Thursday, September 26, 2024 – 12:00 Noon

Vulnerability of Polar Environment and its Biodiversity to Rapidly Progressing Changes

Piotr Kuklinski

WHOI guest investigator

Institute of Oceanology Polish Academy of Sciences, Sopot, Poland

The talk will highlight selected Arctic and Antarctic issues related to Bryozoa, benthic ecology and biocarbonates geochemistry. The more we study Arctic bryozoan fauna taxonomy the higher level of endemism is revealed which indicates Arctic bryozoan narrower environmental requirements. However, they often exhibit life history adaptations which enable them to survive harsh conditions including their skeletal mineralogical signature. With rapid ice cap decrease in many polar locations, following CO2 increase, the water masses chemistry is changing, and in polar areas these changes are progressing faster than elsewhere in the world. Would change in water masses chemistry lead to geochemistry change in carbonate structures of marine invertebrates like shells and skeletons? With a specially designed sampling protocol we were able to show that biological control seems to be the major force in shaping geochemical signature of skeletons of given organisms, yet environmental parameters also seem to have an impact. To understand that impact, we must understand the dynamics of many environmental parameters including pH, oxygen etc. Projects providing unique temporal and spatial scale of environmental data provision will also be presented. Finally, the presentation will get into the everlasting larval story. Classical zooplankton net samples hardly ever indicate the full picture of larval diversity (meroplankton) of benthic organisms. As zooplankton nets never sample the zone next to the bottom; thus, projects using some technological advances were conducted in order to understand larval distribution and its ecology in this environment. Their occurrence in “open water” seems to have a very narrow time window and understanding its timing requires usage of diverse sampling techniques.

HYBRID! **In Person**: Redfield Auditorium **Zoom:** https://whoi-edu.zoom.us/j/97000865816 Meeting ID: 970 0086 5816 **By phone**: Find your local number: https://whoi-edu.zoom.us/u/adIvMow3LQ