Woods Hole Oceanographic Institution

Biology Department Seminar

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What Amphipods Teach Us About Our Ocean's Deepest Zone

Johanna Weston

Postdoc Scholar, WHOI Biology Department

As the ocean's deepest zone, the hadal zone is an enigmatic cluster of subduction trenches, troughs, fracture zones, and trench faults that plunge to depths of 6 to ~11 km. These features disrupt the topographic continuum of the shallower abyssal zone, creating isolated pockets of hadal habitats. High hydrostatic pressure, near-freezing temperatures, food scarcity, and geologic instability limit these environments to just a few "extremophile" organisms. The crustacean order Amphipoda is one of the most widely spread taxa at hadal depths, with species present at full ocean depth, and can be readily brought to the surface using baited landers. Thus, amphipods are a valuable model for hadal ecology and evolution. In this seminar, I will focus on advances in hadal amphipod research, including: 1) an expansion of the described diversity through integrative taxonomy, 2) the sampling beyond subduction trenches to examine how the community dynamics are shaped by the topography of a non-subduction feature, and 3) that population genomics is showing that populations of the globally distributed amphipod, *Bathycallisoma schellenbergi*, are highly restricted to their individual feature. Further, amphipods show signs of human impact and highlight that the remoteness of the hadal zone does not protect these ecosystems from activities at the surface and on land. Together, research with amphipods is illuminating the interplay between speciation and tectonic-driven isolation across the deepest depths of the oceans and allows us to gain insights toward conserving these habitats.

HYBRID! In person: Redfield Auditorium **Zoom:** https://whoi-edu.zoom.us/j/99543543677 Meeting ID: 995 4354 3677 **By dial**: Find your local number: https://whoi-edu.zoom.us/u/adPLxW4SiV