

ED34C-2436: Pan-Arctic Phylogeography of the Pelagic Chaetognath *Eukrohnia hamata*

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Chaetognatha are highly-effective predatory components of the marine planktonic assemblages. Many species exhibit disjunct biogeographical distributions throughout the global ocean, and thus serve as sentinel species for examining climate-driven changes in ocean circulation on zooplankton species, communities, and food webs. Of particular interest are ecological changes in the Arctic, a region being drastically affected by climate change. In this study, a 650 base-pair region of the mitochondrial cytochrome oxidase I (mtCOI) gene was sequenced for 131 individuals for the chaetognath *Eukrohnia hamata* collected from diverse regions throughout the Arctic. DNA sequence analysis was done to characterize population genetic diversity and structure, phylogeography (i.e., geographic distribution of genetic lineages within species), and connectivity among regional populations. High haplotype diversity (H_d) and significant ($p < 0.02$) negative values for Fu's and Li's F statistic imply that *E. hamata* is undergoing population expansion.. Patterns and pathways of population connectivity examined to test several migration hypotheses revealed that pan-Arctic population connectivity followed the primary ocean currents. The reliance of this ecologically important zooplankton species on Arctic Ocean currents has implications for future warming conditions, which have the potential to modify these currents, resulting in altered biogeographical distributions and population connectivity of Arctic zooplankton.

- **Session Proposal:** [ED34C Undergraduate Research in Aquatic Sciences Posters](#)

Undergraduates who have conducted research are invited to present their results in this general session that will highlight the wide variety of student research and provide an opportunity for interested faculty to discuss your project with you. Students who have participated in REU programs are particularly invited so that we may showcase the wide range of research experiences available through this program. Students are not limited to this session, and we encourage any undergraduate student who wishes to submit an abstract to a specialized science session in the subject of her/his research to consider that option as well.

- **Primary Topic:** [Education, Outreach and Policy](#)
- **Day:** [Wednesday, February 14, 2018](#)