

Physics and Physical Oceanography Seminar

Thursday, January 30, 2020

2:00 pm

NAFC Auditorium

80 East White Hills Rd

St. John's, NL

A tale of three fjords: A comparison of marine heatwave impacts on three British Columbia mainland coastal systems

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Abstract

The coastline of British Columbia (25,725 km in length) is lined by numerous fjords that were carved out by glaciers and whose bathymetry (length, maximum depth, sill depth) varies with specific geologic history. Some fjords, such as Bute, Knight, and Rivers Inlets, are still influenced by headwater glaciers whose seasonal runoff strongly influences the physical, chemical and biological properties in these inlets. In recent years, warm anomalies in the Eastern Pacific atmospheric system have led to enhanced glacial melt and a prolonged marine heatwave in subsurface coastal waters. Physical (temperature and salinity) and chemical (oxygen) profile data have been collected in these three fjords since 1951, yet this nearly 7 decade-long time series has never been examined in the context of climate change. In June 2019, all three fjords were concurrently sampled by the Raincoast Foundation's R/V Achiever (Bute and Knight Inlet) and by the Hakai Institute's small boat (Rivers Inlet). Data from these three inlets show the striking impacts of glacial melt and the 2014 to 2016 marine heatwave on the internal structure of temperature, salinity and oxygen within these fjords.

Speaker biography

Dr. Jennifer Jackson is a research scientist in physical oceanography at the Hakai Institute in Victoria, Canada. She received her MSc from the Department of Earth and Atmospheric Sciences at the University of Alberta and her PhD from the Department of Earth, Ocean, and Atmospheric Sciences from the University of British Columbia. She held postdoctoral positions at the University of Cape Town (South Africa), the University of Washington (Seattle, USA), and ASL Environmental Sciences (Victoria, Canada). Jennifer is known internationally for her work in Arctic and coastal oceanography, particularly bio-physical interactions and ocean climate. Jennifer joined the Hakai Institute in 2015 and currently leads the Hakai Oceanography Program. Her current research focuses on the British Columbia central coast, examining links between the open ocean and coast, particularly the impact of climate anomalies on coastal regions. Jennifer serves on national and international committees, including CIOOS and PICES.