Bedwell Inlet Clayoquot Sound Phytoplankton and Water Properties
2014-2024 Comparison

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University of Washington Tacoma researchers have been studying the marine ecosystem in Clayoquot Sound on the west coast of Vancouver Island, BC, Canada annually in the fall since 2001. In 2014, the Northeast Pacific Ocean, including the Pacific Northwest coast, experienced the first of a series of marine heatwaves (MHW). This study will examine the estuarine conditions in Bedwell Inlet, one of five inlets in Clayoquot Sound, in 2024 and compare water properties and phytoplankton abundance and diversity in this inlet with data collected in 2014. Water properties and phytoplankton will also be compared with nearby Herbert Inlet for 2024.

Continuous profiles of temperature, salinity, density, dissolved oxygen, fluorescence, and transmissivity with depth were recorded with a CTD and discrete water samples were collected at the surface and pycnocline, along with a 10-meter vertical net tow for phytoplankton identification and enumeration. The Simpson Index was used to calculate phytoplankton diversity.

In 2014, *A. catenella* was present in Bedwell inlet, but had significantly higher concentrations in 2024. The water properties in 2024 and 2014 were similar except that dissolved oxygen was lower throughout the water column and fluorescence was significantly higher in 2024. Highest fluorescence, a measure of higher biological productivity, occurred near the head of the inlet in both years. Water property cross-sections indicate significant mixing over the sill weakening stratification near the mouth of the inlet compared with Herbert Inlet which appears to have less flushing.