Clayoquot Sound Harmful Algal Blooms Investigation of Sydney Inlet – 2019

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Abstract:

In 2014 and 2019, an unusually warm patch of water in the North Pacific called the ‘Blob’, came ashore in early Fall of both years. Researchers were interested to see if this warm water intruded into Clayoquot Sound, located off the west coast of Vancouver Island and considered to be an important source of food and income for the neighboring communities. The goal of this study was to determine if these warm waters intruded into Sydney Inlet, which could in-turn create favorable conditions for harmful algal blooms (HABs) to form, specifically the phytoplankton *Alexandrium* known to be present in this region. As a result, University of Washington Tacoma (UWT) faculty and students measured water properties and collected water samples for nutrient analysis. Choropleth maps were created to compare relative concentrations of key nutrients used by phytoplankton such as nitrates and phosphates, which were represented by different sized dots shown at each of the sampling stations the data was taken from. Contoured profile plots of the water properties were also used to determine if oceanic conditions were favorable for HABs to develop. Overall, researchers found that the ‘Blob’ intruded into the waters of Sydney Inlet, causing an average temperature increase of 1°C within the water body compared to the 2014 temperatures, as well as a decrease in nitrate and phosphate concentrations and an increase in fluorescence compared to the 2014 data. This data suggested an increase in favorable conditions for *Alexandrium* corresponding to the years where the ‘Blob’ was present,
which means implementing additional monitoring at shellfish beds within the area during other instances of the ‘Blob’ would be beneficial for public safety.