

## **Dynamics of chemical defenses in four Kachemak Bay kelp species as a response to gastropod grazing patterns.**

**Angela Dubois (University of Alaska Fairbanks).**

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It doesn't take a rocket scientist, or even a marine biologist, to recognize that algae are abundant along the Alaskan coast. Considered by many as a nuisance when caught in engine props, macroalgae actually play a significant role in the health of the nearshore ecosystem. More specifically, kelp provide refuge and feeding grounds for sea otters, fish and small invertebrates, and act as essential habitat for a wide variety of marine organisms with important ecological, and in some cases, commercial, value. The success of these kelp is dependent upon various physical conditions, and is also influenced by biological interactions like grazing. The feeding activities of grazers like sea urchins, snails and limpets, damage the algae and may decrease their ability to grow and reproduce. Much like terrestrial plants, kelp are able to respond to this grazing by producing chemicals that reduce the digestive ability of grazers. University of Alaska Fairbanks' graduate student, Angela Dubois, is studying the interaction between kelp species in Kachemak Bay and subtidal snail species that damage them. Her two-year study involves observations and data collections that assess the seasonal dynamics of chemical production within annual and longer-lived kelp in response to grazing pressure. In her work funded by the West Coast and Polar Regions National Undersea Research Center and the North Pacific Research Board, she will also investigate how effective chemical defenses are in repelling snails. Her study will provide a more thorough understanding of the mechanisms that maintain a balanced nearshore ecosystem within Kachemak Bay.