

Monitoring Toxic Algae in Puget Sound, A Potential Human Health Hazard

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Among the organisms that are present in the Pacific Northwest (PNW), there is a type of algae that is capable of producing neurotoxins and derivatives. To measure cyst concentrations, sediments from Bellingham Bay and down to South Puget Sound were analyzed for *Alexandrium catenella*. *A. catenella* is a dinoflagellate capable of producing toxins commonly associated with paralytic shellfish poisoning. *A. catenella* spends time as a cyst resting on top of sediment bed when environmental conditions are unfavorable for growth or reproducing. When conditions become suitable, these cysts become motile, allowing for reproduction to occur, and a possibility of becoming a source of food for shellfish, thus making the shellfish toxic for consumption. To measure cyst concentrations within sediment samples, samples were treated with formalin, methanol, and primulin. Formalin allows for preservation of cellular structures. Methanol denatures unwanted proteins while stabilizing formalin. Primulin is a staining dye that allows visualization of cysts under an Epifluorescent microscope. Results indicated a range from 0-43 cysts/cc, with an overall average of 5 cysts/cc. Understanding cyst concentrations in the PNW will allow for shellfish harvesting regulations to be further updated to protect local human population from consuming infected shellfish with *A. catenella*. Human consumption of paralytic shellfish may lead to and are not limited to numbness, tingling in face and limbs, ataxia, headaches, paralysis, respiratory failure, and possibly death. Thus, proper monitoring of *A. catenella* within shellfish is key to ensuring public safety.