Investigating Ocean and Human Health Risks from Harmful Algal Blooms using an Integrated Framework

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Biological, physical and chemical processes mediate numerous threats to ocean and environmental quality and have serious consequences for human health, lifestyle, and the economy. The US Commission on Ocean Policy recently called for integrated approaches to address and understand these risks. In response, we have launched the Pacific Northwest Center for Human Health and Oceans. The premise underlying Center research is that genetic and environmental variability defines the toxicity and dynamics of harmful algal blooms, the retention of domoic acid (a biotoxin) by shellfish and the human populations that are susceptible to toxicological impacts. The Center is a collaboration among public health and oceanography programs at the University of Washington, other universities, governmental agencies, and community partners. The Center framework facilitates incorporation of new scientific findings into policies and decisions. Expected results from the Center include new technologies such as domoic acid biosensors, genomic approaches to determine when cells are producing toxins, new insights into problems of chronic versus acute exposure to toxins, and identification of risk factors (genetic, age, diet, cultural) for domoic acid. Support: Pacific Northwest Center for Human Health and Oceans (NIEHS:P50 ES012762, NSF:OCE-0434087), Center for the Study and Improvement of Regulation at CMU/UW.