recognized as the source of toxins causing ciguatera fish poisoning (CFP). The spatial and temporal unpredictability of CFP outbreaks has been ascribed to blooms of different *Gambierdiscus* species with different toxicities and habitat requirements. Recent progress in molecular identification of *Gambierdiscus* species has made it possible to determine the effects of environmental variables, such as salinity, on growth and distribution of *Gambierdiscus* species. However, the salinity vs. growth relationship for each species needs to be defined before this factor's effect on species distribution can be understood. Here we report the results of laboratory experiments testing the effect of salinity on growth of eight species of *Gambierdiscus*. Maximum growth rates of each species were measured across a range of salinities between 15 and 41 and growth rates were used to define optimum salinity (Smax) for each species as well as upper (SHi) and lower (SLo) tolerance limits for survival. We also used sudden decreases in salinity to simulate the effect of freshwater input on growth and survival.

GENETIC STRUCTURE OF THE TOXIC DINOFLAGELLATE *ALEXANDRIUM OSTENFELDII* IN THE BALTIC SEA

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The toxic dinoflagellate, (*Alexandrium ostenfeldii*), (Paulsen) Balech & Tangen has recently started to form dense localized blooms also in the central and northern parts of the Baltic Sea. To better understand the present expansion of the species in the Baltic Sea, we analyzed the genetic structure and gene flow among different spatially and temporally separated populations using 1177 polymorphic AFLP-markers. Fragment analyses revealed high genetic variability within all examined populations. Spatial populations were significantly differentiated from each other with the highest level of differentiation measured between the Southern and Northern populations. Such clear geographic structure suggests some degree of local adaptation despite the relatively low level of genetic difference and apparent gene flow among the populations. Cyst and bloom populations from the same location displayed nearly equal genetic structures. The high genetic diversity of the bloom population was unexpected since cyst populations are usually considered genetic reservoirs and more diverse than fast- growing bloom populations. We assume that sexuality in bloom populations might play a more important role than previously thought in maintaining the genetic diversity of the population.

FRESHWATER HABS IN WASHINGTON STATE

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Toxic blue-green algae (cyanobacteria) are an emerging public health concern in Washington's recreational waters causing illnesses to humans, pets, and wildlife. Washington Department of Health (DOH) developed provisional guidance values for microcystins (6 ug/L) and anatoxin-a (1 ug/L) for incorporation into a protocol for lake managers. DOH and Washington Department of Ecology work with local health partners to track toxic blooms and related animal and human health incidents throughout the state. Microcystins were observed above the guidance value in 18 lakes in 2008, 19 lakes in 2009, and 14 lakes in 2010 (maximum = 18,700 ug/L). Anatoxin-a was observed above the guidance value in eight lakes in 2008, 4 lakes in 2009, and 5 lakes in 2010 (maximum = 172,640 ug/L). Cylindrospermopsin (maximum = 0.106 ug/L) and saxitoxin (maximum = 193 ug/L) have each been observed in two Washington lakes. Partners are beginning a third season of monitoring thirty Puget Sound lowland lakes for the four cyanotoxins as part of a cooperative agreement with Centers for Disease Control and Prevention entitled ''Harmful Algae Bloom-related Illness and Surveillance System'' (HABISS).

SEASONALITY OF SELECTED NUTRITIONAL CONSTITUENTS OF EDIBLE DELMARVA SEAWEEDS

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Selected proximate constituents of three edible seaweed species (*Ulva lactuca*, *Fucus vesiculosus*, and *Gracilaria tikvahiae*) were compared for possible