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Didymosphenia geminata: The Core Question

Didymosphenia geminata was first described in 1819 on the Faroe Islands in the North Atlantic Ocean. While *D. geminata* populations were believed to be limited to the northern latitudes, nuisance blooms south of this range have been documented since the 1980's. This broadening effect fits the characteristics of an invasive species, which necessitates studies investigating the paleoecological history of the species and tracking recent environmental changes of *D. geminata*. The government of New Zealand, for example, has recently imposed strict measures to prevent *D. geminata* from spreading to new bodies of water since it first appeared in 2004. The discovery of large masses of cells reported from the 1930's in the Kanchou region of China bring about the possibility that these massive blooms have occurred before but no data exist which quantify the growth. We examined the historical record of this species in sediments of Naknek Lake, in Katmai National Park, Alaska, to test the hypothesis that the *D. geminata* blooms have been increasing globally and to evaluate the morphological changes in the species. Chronological control was established by two ash layers, the Katmai ash and brown ash. We found no statistically significant change in the numerical presence of *Didymosphenia geminata* in Naknek Lake between the years 1218 and 2003. This suggests no sudden increase in abundance. Our data suggests there to be an unusual variation within the *D. geminata* of Naknek Lake. This may be the first record of *D. geminata* var. *stricta* in North America.