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Phytoplankton and Zooplankton  
Populations of Sandusky Bay, Lake Erie

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Young, Donn C. Center for Lake Erie Area Research & Department of Botany, The Ohio State University, Columbus, Ohio. Phytoplankton Populations of Sandusky Bay.

The net phytoplankton of Sandusky Bay, Lake Erie was sampled monthly during 1974. Dominant phytoplankters were diatoms and blue-green algae with green algae, dinoflagellates, and cryptomonads being of relatively little significance. Populations remained at low levels during the winter months with the diatom Stephanodiscus binderanus dominant. An unusual bloom of 200,000 filaments/l of the brackish-water centric diatom, Skeletonema subsalsum, occurred in April. This small, filamentous diatom, never having been previously reported from the Western Hemisphere, reached levels of greater than  $3.7 \times 10^8$  fil/l in April 1973. The origin of this European diatom and reason for its great abundance are entirely unknown. Blue-green algae, primarily Aphanizomenon flos-aquae, increase in abundance during the summer, reaching bloom proportions in July at greater than  $3 \times 10^6$  fil/l. Levels of A. flos-aquae during 1974 were considerably lower than encountered in 1973 when blooms of  $10^8$  fil/l were observed. Total numbers of phytoplankton declined to less than 50,000/l during the fall, with communities composed primarily of species of the diatom Melosira.

Distribution of phytoplankton in Sandusky Bay was irregular, possibly dependent upon variations in nutrient levels, wind action, turbidity, and the grazing of large numbers of herbivorous zooplankton and fishes. General distribution patterns showed the highest abundance along the windward shore and closest to open water. Phytoplankton species encountered were those commonly associated with eutrophic conditions, giving testimony to the eutrophic, nutrient-laden waters of Sandusky Bay.

Young, Donn C. Center for Lake Erie Area Research & Department of Botany, The Ohio State University, Columbus, Ohio. Zooplankton Populations of Sandusky Bay, Lake Erie.

Monthly analyses of zooplankton populations during 1974 from Sandusky Bay, Lake Erie, show a predominance of forms characterizing communities of eutrophic waters. Species of Brachionus and Polyarthra were the dominant rotifers during the spring, whereas Pompholyx sulcata was dominant during the summer. Keratella cochlearis and K. quadrata remained abundant from April to October. Cyclops vernalis, the principle cyclopoid copepod, reached maximums in May-June, while the calanoids were represented almost entirely by Diaptomus siciloides. Development of cladocerans was greatest during the months of June and July with Daphnia retrocurva, Eubosmina coregoni, Bosmina longirostris, and Chydorus sphaericus common. With total numbers of organisms ranging from a maximum of 1167 ind/l on 30 May to winter minimums of 25 ind/l, abundance of zooplankton in the bay was considerably greater than reported for Lake Erie proper. Development of zooplankton populations occurred along a gradient with maximums at stations near the mouth of the Sandusky River, the furthest distance from open water, and near areas of lowest phytoplankton density. The great and almost exclusive abundance and distribution of zooplankton associated with eutrophic conditions is evidence of high nutrient levels; shallow, warm water; turbidity due to sediment; limited circulation between the bay and open lake; and possible predation by gizzard shad.