

INTERNAL REPORT 69

ZOOPLANKTON PRODUCTION AND FEEDING IN LAKES OF THE CEDAR RIVER WATERSHED

E. B. Welch, Arni Litt, and G. L. Pederson
University of Washington

Sampling intensity in the three lakes during 1973 is shown in Figure 1. Methods for field sampling and analysis will be presented in the report to follow and have been presented previously (Stoll 1973, Welch et al. 1973). More samples were collected and experiments conducted than in 1972 and an improved net was used for zooplankton collection.

Population densities, percent of total population, and eggs per female for all zooplankton species in Chester Morse and Lake Sammamish were computed and entered into the data bank. Findley Lake counts and calculations have been completed and await entry into the data bank. The following population parameters--birth rate, population change rate, and death rate--have been calculated for cladoceran species in the three lakes. Diel studies of vertical migration in the three lakes indicate that only a few cladoceran species have significant vertical movement. The dry weight of the most important species are presently being determined. Upon completion of this, secondary production calculations will be made probably by the end of the calendar year.

Two grazing rate studies during the vernal phytoplankton pulse in Lake Sammamish showed a negligible effect by zooplankton because the phytoplankton were dominated by net plankton (750μ). Results from Chester Morse Lake at that time showed grazing rates similar to those measured in late summer in 1972 (Stoll 1973). There was no measurable net plankton in Chester Morse. Grazing rates in the three lakes are falling in a range of $1-10 \times 10^{-3} \mu\text{g chl } a/\text{animal day}$. Relationships of grazing rate versus food concentration (chl a) have shown a calculated half saturation constant of $0.2 \mu\text{g/l chl } a$. Late summer experiments are unanalyzed at present.

References

STOLL, R. K. 1973. Size selective algal grazing of zooplankton using a radioisotope tracer. M.S. thesis, Univ. Washington, 57 p.

WELCH, E. B., G. L. PEDERSON, and R. K. STOLL. 1973. Grazing and production by zooplankton in lakes of contrasting trophic status-- A progress Report. Annual Reports for IBP Lake Projects, 1972.

Fig. 1. Sampling Schedule during 1973 growing season. Collections were less frequently in Findley and Chester Morse and Findley during winter and often more frequently in Findley in summer.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Grazing experiment
week 1		Chester Morse Plankton		Findley Plankton ¹⁴ C	Sammamish ¹⁴ C - Plankton	10 April 20 " Sammamish 6 Sept.	
week 2		¹⁴ C Chester Morse Plankton		Findley Plankton ¹⁴ C		1 May 11 Sept. Chester Morse	
week 3		Chester Morse Plankton		Findley Plankton	Sammamish ¹⁴ C - Plankton	27 Aug. Findley Diel studies	
week 4		¹⁴ C Chester Mose Plankton		Findley Plankton		22-23 Aug. Sammamish 1 - 2 May Chester 5 - 6 July Morse 24-25 Sept. 8-9 Aug. Findley 27-28 Sept.	
							Phytoplankton growth exp. Sam. - 8 May, 17 Sept. C. M. - 12 June Find. - 1 Aug. 2 samples each

¹⁴C includes; pH, alkalinity, temp., chl. a, DO (Winkler), light, secchi.

plankton include; chl. a, secchi, phytoplankton, zooplankton in photic zone and total water column for abundance and biomass