

## PLANKTON FORMS OF SOME LAKES NEAR SPOKANE

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During 1938 and 1939 plankton tows were taken from eighteen lakes in eastern Washington by Mr. Harlen Cheyne, biologist with the Washington State Department of Game. This material was stored at the Griffith Springs Fish Hatchery, in the custody of Mr. Don Earnest, who suggested that the authors undertake identification which Mr. Cheyne had intended to make when he made the collection. Since no previous surveys have been published for this area, this project was entered upon with the idea of eventually extending the work to include quantitative and seasonal studies on as many lakes as possible. Since it now seems unlikely that either author will be able to complete the study, the initial efforts are herein presented.

A small standard plankton cone was used to get the samples. The collections were fixed and preserved in four per cent formalin solution. Samples of each of the collection were mounted on permanent slides in balsam, glycerine jelly, or euparal (diaphane). Identification of species was facilitated by staining with fast green or by reduction of silver nitrate which was especially helpful in bringing out details of surface anatomy. All of the collections were found to be in excellent condition for identification.

It was found that the keys in such standard reference books as Ward and Whipple's *Freshwater Biology* were adequate for the material encountered. No effort was made to identify the protozoa, algae, or rotifers more closely than to assign them to genera. Only adult copepods are listed; the absence of numerous nuclei in the appendages and the presence of mature reproductive organs were used in establishing their maturity.

Listing the forms found in each lake as presented in the following table, was done without regard to the frequency of their occurrence. The names of the lakes, the dates, and specifications of the collection are taken directly from the record of the collector. The lakes can be found easily on standard maps, with the exception of Lost Lake in Adams County, and Pepoon Lake, the identity of which is still in doubt.

A summary of the plankton forms encountered follows:

Protozoa: *Peridinium*, *Ceratium*.

Algae: *Asterionella*, *Fragilaria*, *Chlorobotrys*, *Oscillatoria*, *Lyngbya*, *Zygnema*.

Rotifers: *Anuraea*, *Notholca*.

Cladocera: *Daphnia longispina* (O. F. Mueller 1875, *Daphnia pulex* (de Geer) 1778, *Bosmina longirostris* (O. F. Mueller) 1785, *Ceriodaphnia pulchella* Sars, 1862, *Graptoleberis testudinaria* (Fischer) 1848, *Alona affinis* (Leydig) 1860, *Alona costata* Sars, 1862.

Copepoda: *Cyclops bicuspidatus*, (Claus) 1857), *Cyclops modestus* Herrick, 1883, *Diaptomus sicilis* Forbes, 1882.

No new species were encountered. Most of the *Bosmina longirostris* were of the variety *brevicornis*; occasional specimens of variety *cornuta* in Parker Lake were seen. *Daphnia longispina* proper was the most common form of this species, although in Chapman Lake certain individuals appeared which could be allocated to the variety *hyalina*. The species *Graptoleberis testudinaria* is represented by only one whole individual and several fragments in Keuster Lake.

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	<i>Alona affinis</i>	<i>Alona costata</i>	<i>Anuraea</i>	<i>Asterionella</i>	<i>Bosmina longirostris</i>	<i>Ceratum</i>	<i>Ceriodaphnia pulchella</i>	<i>Chlorobotrys</i>	<i>Cyclops bicuspidatus</i>	<i>Cyclops longispina</i>	<i>Cyclops modestus</i>	<i>Daphnia longispina</i>	<i>Daphnia pulex</i>	<i>Diaptomus sicilis</i>	<i>Fragilaria</i>	<i>Graptolebris testudinaria</i>	<i>Lyngbya</i>	<i>Nostoc</i>	<i>Notholca</i>	<i>Oscillatoria</i>	<i>Peridinium</i>	<i>Tabellaria</i>	<i>Volvox</i>	<i>Zygnema</i>
Badger Lake, <sup>3</sup> Spokane County April 16, 1938			X	X				X											X					
Bead Lake, <sup>3</sup> Pend Oreille County May 13, 1938				X															X					
Chapman Lake, <sup>3</sup> Spokane County July 7, 1938												X	X				X							
Curlew Lake, <sup>3</sup> Ferry County April 12, 1938				X				X	X	X														
Deer Lake, <sup>3</sup> Stevens County April 5, 1938			XX	X				X	X	X									X					
Diamond Lake <sup>3</sup> Pend Oreille County May 7, 1938			XX	X				X							X							X		
Ferry Lake, <sup>3</sup> Ferry County June 17, 1938			XX	XX	X	X		X	X	X									X					
Goose Lake, <sup>5</sup> Grant County August 3, 1939					X			X					X											
Keuster Lake, <sup>5</sup> (Bear Lake) Spokane County July 31, 1939	XX	X	X	XX	X				X	XX		X	X										X	
Liberty Lake, <sup>1</sup> Spokane County May 9, 1938				X	X					X														
Long Lake, <sup>3</sup> Ferry County June 17, 1938			X	X					X	X									X				XX	
Loon Lake, <sup>3</sup> Stevens County April 8, 1938			XX	XX				X	X					X					X					
Lost Lake, <sup>5</sup> Adams County August 2, 1939				XX	XX							X										X		
Marshall Lake, <sup>3</sup> Pend Oreille County May 2, 1938			X	X						X									X					
Parker Lake, <sup>4</sup> Pend Oreille County June 10, 1938				X				X	X	X														
Pepoon Lake, <sup>2</sup> June 3, 1938			X	X	X			X	X										XX					
Twin Lake (North), <sup>3</sup> Ferry County June 4, 1938										X	XX								X					
Waits Lake, <sup>3</sup> Stevens County April 13, 1938			XX	X				X	X	XX									X					

<sup>1</sup> 25 foot vertical tow.  
<sup>2</sup> 28 foot vertical tow.  
<sup>3</sup> 30 foot vertical tow.  
<sup>4</sup> 200 foot surface tow.  
<sup>5</sup> 5 minute tow.