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INSTITUTE FOR FISHERIES RESEARCH
UNIVERSITY OF MICHIGAN

Report 255 September 14, 1934

REPORT ON A WATER SAMPLE TAKEN FROM THE EFFLUENT OF THE GRANDVILLE SEWAGE TREATMENT PLANT

On August 7, 1934 a gallon sample of water was taken from the effluent of the Grandville sewage treatment plant, to be tested for its toxicity to fish life. (This plant receives wastes from the Winters and Crampton Manufacturing Company which does considerable chromeplating.) This sample was brought to the Institute for Fisheries Research by Mr. Milton P. Adams on August 11. On August 16 a series of experiments were begun with this sample to determine its toxicity to the blunt-nosed minnow (Hyborhynchus notatus), this experiment continuing until September 13.

The chemical analyses of this sample, made by the Michigan Stream Control Commission is as follows:

5 day B.O.D.	1.6
Alkalinity HCO_3	253.8
Phenol	None
Cyanide	None
Chromium	Present
pH	7.2

The blunt-nosed minnows used were adults, some of them tuberculated, breeding males, and were from 51.5 to 72 mm. in standard length. Due to the extreme warm summer temperatures prevailing during these experiments and the fact that a number of these fish were breeding males, the specimens used in this experiment apparently were less resistant than the average specimens used in previous experiments of this type. The low vitality of these minnows is partially proven by the fact that one of the controls lived only 23 hours, four minutes, while the other lived only 51 hours, 54 minutes. Various percentages of this sample were diluted with aquarium water, ranging from 1% of the sample up to 100%. Two types of experiments were conducted, one in which the water was aerated by the use of

a hose and compressed air and the other in which it was not aerated.

Results: Solutions containing up to 5% of the effluent of the sewage treatment plant had no apparent effect upon the fish. One of them, in a 5% solution, living up to the present day (September 14); those in a 50% solution showing but little distress for a day or more; while each of those two that were placed in a 100% solution of this effluent, lived for over 26 hours.

Conclusions: As blunt-nosed minnows placed in a 100% solution were able to survive for over a day, and those in a solution of 5% or less were apparently but little if any affected; as they were weakened somewhat by warm temperatures and the fact that some were breeding males; and as the controls lived but 23 hours, 4 minutes and 51 hours, 54 minutes respectively, it is logical to assume that under more normal conditions the resistance may have been much higher. It is therefore obvious that this sample from the effluent of the Grandville Sewage Treatment Plant, was much less toxic upon the blunt-nosed minnow than, for instance, were those samples previously tested which contained from 50 to 185 ppm of phenol.

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