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Use of Irondequoit Creek by William Stappenbeek, Inc*

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Water Pollution

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Use of Irondequoit Creek by William Stappenbeck, Inc.
by
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Summary:

William Stappenbeck, Inc., a local rendering company, was not polluting the Irondequoit Creek in cold weather. Dilution of the Stappenbeck lagoon effluent by the high creek water flow in cold weather was so great that conditions did not reach the levels which are officially recognized as disturbing to the natural biological system.

Background:

The lower portions of Irondequoit Creek have been polluted beyond the present B classification (best usage for bathing; minimum dissolved oxygen (DO) level of 4.0 parts per million (ppm) or 5.0 ppm in trout waters) (1,2,3,4). Stappenbeck has been referred to as a polluter of the lower portion of the creek (2,3). However, the extent of pollution due to the Stappenbeck lagoon effluent has never been determined.

Methods and Results:

Tests were made to determine levels for dissolved oxygen (DO) which are necessary for the destruction of organic matter and for the respiration of most organisms; carbon dioxide, which indicates the amount of oxidation; nitrite (NO_2^-), an indicator of pollution; nitrate (NO_3^-) and sulfate (SO_4^{--}), both of which contain elements required by microorganisms; turbidity (cloudiness); hardness (the concentration of metallic cations other than alkali cations); pH (a measure of the hydrogen ion concentration); and alkalinity. These tests were performed with a Hach kit, a portable field laboratory (D.R.E.L.). Numbers of coliform bacteria were counted by the Millipore filter method. Temperature and visual observations were also recorded.

Testing stations were set up in November and December of 1969 at the point of entrance of the lagoon effluent, and 100 yards upstream and 20 and 200 yards downstream from the lagoon effluent.

The very low DO (1.5 ppm), the noxious odor which is evidence of anaerobic (airless) oxidation, and the large algae and duckweed growths indicate that water in the Stappenbeck lagoon is fertile and polluted. Chemical oxygen demand (COD), a

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measure of the amount of oxygen necessary to oxidize all the organic matter) in the effluent was determined by Dr. David Wilson in the summer of 1967. The value of 223 which he obtained clearly indicates a highly polluted stream (5). Recent results (see Appendix B) showed that the effect of the effluent is slight at only 20 yards downstream from the lagoon discharge. At 200 yards downstream the effluent is so diluted that there is no evidence of the effluent.

Although the trace amounts of nitrite indicate some pollution and the carbon dioxide level is too high for a good fish population (6), the results show that this area of the stream is in relatively good health. Coliform counts and DO show little evidence of pollution.

Discussion:

Stappenbeck processes the wastes that it produces. When the volume of water is high in the receiving stream, the pre-cleaning system is adequate, but in warm weather when the creek flow is considerably reduced, the effluent may be an important source of pollution. Because of this possibility, it may be advisable for Stappenbeck to expand its facilities or connect to the planned county sewage system.

References:

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