



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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MEMORANDUM

July 21, 1982

To: Jack Lilja
Through: Dick Cunningham *De*
From: Dale Clark *De*
Subject: Minter Lagoon Survey

On July 6, 1982 the Washington State Department of Ecology (WDOE) Water Quality Investigations Section conducted a one-day survey of the Minter Lagoon in an attempt to locate the source(s) of high fecal coliform (FC) counts found in water samples and Pacific oyster (*Crassostrea gigas*) tissue samples by the Department of Social and Health Services (DSHS).

Minter Lagoon is located on the Kitsap Peninsula near Purdy, Washington and is a Class A water with commercial oyster growing as a protected beneficial use. The survey was carried out by John Bernhardt and Dale Clark and included the following parameters: fecal coliform (org/100 ml); salinity (o/oo); stream flow (cubic feet per second [cfs]); and temperature (°C).

Grab samples were taken at low water during a period when the lagoon is totally drained except for Minter Creek. Samples were collected from the creek at locations downstream from suspected sources, including an outfall from the Minter Creek Oyster Company and seepage areas that were noted to be close to residential housing surrounding the bay. Replicate samples were taken at the inlet and outlet of the lagoon of Minter Creek to determine if changes in fecal coliform load in the creek water could be detected. Grab samples were taken from Henderson Bay during early flood tide to assess FC loading to the lagoon from the bay.

Stream flows were determined on July 8, 1982 by Dale Clark and Bob Bishop (WDOE) at several locations throughout the lagoon using a Marsh McBirney flow meter. Stream flows were taken in order to determine the contribution to creek volume by bank seepage and residual seawater seepage from sediments in the lagoon (Figure 1).

RESULTS

Water quality at all stations within the lagoon was meeting the freshwater FC standard (WDOE, 1980) and was borderline for meeting the saltwater standard. Salinity values (see attachments 1 and 2) indicate that the stream maintains freshwater characteristics during low tide discharge until just prior to the intersection of the stream braids at the lagoon outlet (Figure 1). Therefore, the freshwater standard was considered most applicable for this survey. The high salinity values at this point indicate that saltwater infiltration from the mud flats and surrounding sand spit plays a major role in stream character from this point until reaching Henderson Bay. This fact may be significant if it is determined that the FC counts are originating from the sediments themselves. A duck pond at the upper end of the lagoon displayed high FC counts (Figure 1). However, low flow (estimated 1 to 2 GPM) would suggest that this pond is not a major contributor to the FC contamination of the lagoon. Further surveillance would seem appropriate until this is proven to be the case. Minter Creek just above the lagoon inlet was meeting the WDOE freshwater standards (Figure 1).

CONCLUSIONS

1. WDOE water quality standard for fecal coliform was being met in Minter Bay during the survey (freshwater).
2. Fecal coliform sampling does not indicate any major hot spots for bacteria contamination caused by housing around the lagoon.
3. One duck pond at the upper end of the lagoon is a potential fecal coliform source.

DC:cp

Attachments

cc: Section Files

