

TO: Gene Asselstine, Ron Pine, Harry Tracy

FROM: Scott Jeane

SUBJECT: Investigation of Reported Marine Invertebrate Kill at
Old Fiberboard Dock, Port Angeles, Washington

DATE: February 7, 1973

WA-18-0020

State of
Washington
Department
of Ecology



Summary

A complaint of a marine invertebrate kill was filed with DOE and investigated the next day by biologists using scuba techniques. While some mortalities were observed, they were considered to be normal. This assumption is based on the large number of piers I have inspected during the last several years. The clumps of mussels which have recently dropped to the sea floor could be due to biomass gained from summer growth overpowering the byssus holdfast during large waves created by winter storms or to abrasive action of stray logs and flotsam. Good population of shrimp, tube worms, and nudibranchs, all very sensitive to environmental changes, support my observations of no mass mortality in this area in the recent past. The firmness of the sludge bed is worth noting as compared to other observers' descriptions during the 60's. Several abnormal situations were observed. First, the lack of normal borrowing and bottom attachment by benthic forms. Second, was the complete absence of fish life. Last was the abnormally slow fanning rate of barnacles located on the pilings. All of these abnormalities point to a sublethal effect of the intermittent discharge of leachate from the sludge beds. This type of emission is substantiated by the presence of the small black craters surrounded by white filamentous fungi. The toxicity of the sludge leachate is sublethal presently, but any disturbance of the beds (proposed dredging by M & R Timber) will result in decreased water quality, possibly to the point of lethal toxicity.

Investigation

On January 30, 1973, Darrel Anderson and I traveled to Port Angeles to investigate the complaint registered by Nick DeScalla (N.W. Steelheaders, Port Angeles) on behalf of Bill Rowland, a local scuba diver. Bill Rowland was contacted to clarify and pinpoint the type of "kill" he had observed. He had made four dives under the Fiberboard dock during the last eight months. On the last dive (1-26-73) he observed that most of the mollusk had fallen off the piling, and many anemones were drooping. He observed the following dead animals, six young (two to four inches) dungeness crabs, several abalone jingles, and a large number of mussels near the base of several pilings. Bill Rowland also noted that the water had an off taste similar to SWL and that the mollusk populations on the pilings seemed very diminished.

M & R Timber Inc., Port Fill, Port Angeles, Washington, recently purchased the old Fiberboard site. The company plans to expand their log storage area and to utilize the old Fiberboard dock to load finished lumber on to steamships. M & R presently loads both logs and lumber off their pier located one-half mile to the north of the

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Old Fiberboard dock. To enhance loading they have applied for a permit (Army Corps #071-0YB-1-000978) to dredge a total of 40,000 cubic yards of sludge and bottom sediments from in front of the piers. I contacted Paul Hopkins with M & R Timber to determine if they had in any way disturbed the sludge beds around their piers. He visited the sites with us and the only activity to take place on their pier was normal steamship loading (no ships were in during the inspection), while at the old Fiberboard pier the only activity was the dismantling of a warehouse located on the south half of the pier. None of the noted activities would have disturbed the sludge beds.

Wednesday morning we met with Dan Bakker (WDG), John Blaine (EPA), and Gary Burns (EPA). The two divers from EPA were to assist us in evaluating the area under and around the dock utilizing scuba, U.W. photography, bottom sampling, and observations by a biologist. The EPA divers were transported to the northern end of the dock after which we proceeded to the south end and entered the water. The EPA divers found no abnormalities in their area. Our investigation revealed good viable populations of spider crabs (Inachidae), cancer crabs (mainly *C. oregonensis*), hermit crabs (Paguridae), barnacles (Balanidae), the green urchin (*Strongylocentrotus drobachiensis*), three species of nudibranchs (*A. montereyensis*, *T. carpenteri*), tube worms (Sabellidae), abalone jingle (*Pododesanus cepio*), bay mussels (*Mytilus edulis*), several species of anemones (Sagartidae), shrimp (Pandalidae) were observed.

The following specimens were observed dead - some mussels, a few crabs, one Metridium anemone, a partially decomposed abalone jingle. A molted shell of a crab (*C. magister*) was observed. Large clumps of mussels ($\frac{1}{2}$ cubic foot) were found lying at the base of many pilings, but most individuals were alive. The sludge beds under and around the dock have stabilized considerably compared to Ron Pine's observations of them in the early 1960's. This is demonstrated by clumps of mussels resting upon the sludge rather than sinking into it. The sludge bed is still in the process of decomposing as is evidenced by the large number of two-inch diameter black holes surrounded by a three to six-inch circle of white filamentous fungi. Evidently, nutrients and gases being released by decomposition are leaching out of these holes. The surface of the sludge does not support any life which requires attachment (example - anemones) to a substrate or were any borrowing life forms observed. The sludge bed was estimated to be roughly one to two feet deep under the pier.

The piling communities were normal and viable. Large populations of mussels, anemones, and barnacles were present. Some of the more protected pilings had good populations of fern-like hydroids. Abalone jingles were interspersed over all pilings at a normal population level. The barnacle population consisted of large numbers of old barnacles many of which were alive, but the fanning rate I observed seemed to be below normal. On one piling at a water depth of 15 feet I observed an egg mass of a nudibranch that had been recently deposited. The underside of the logs compiling a floating boom around the dock had very good population of boring and tube worms, tunicates (sea squirts), and other normal life.

Three samples were collected at the deepest water depth next to the Fiberboard dock and analyzed for pH, PBI, COD, and per cent volatile solids (dry wt.) where appropriate. A water sample taken 1 foot above the bottom measured 0 ppm sulfides, 7.6 pH, and 32 ppm PBI. A slurry of water and sludge was collected and revealed a pH of 7.0, 5 ppm PBI, and 4 ppm sulfides. The third sample consisted of sludge and demonstrated a COD (wet wt.) of 1600 and 20% volatile solids (dry wt.). The volatile solids measure 14% above the published (EPA) dredging standards. Caution should be utilized if any dredging of this sludge bed is to be allowed.

GSJ:bj

1519 ALASKAN WAY SOUTH
SEATTLE, WASHINGTON 98134

NPSOP-RF

11 October 1972

PUBLIC NOTICE

Reference: 071-OYB-1-000978
M & R Timber Inc.

Application has been received by this office from M & R Timber Inc., 1511 West 11th Street, Port Angeles, Washington 98362 (ATTN: Mr. Paul Hopkins, Inventory Control (Telephone (206) 457-3588), for Department of the Army permit for certain work described below and shown on the inclosed prints.

For Information see Paul Hopkins with M & R

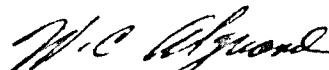
Proposed Work:

- a. Location: Port Angeles Harbor in Port Angeles, Washington.
- b. Physical character: Dredge approximately 14,000 and 25,000 cubic yards of granular material at sites A and B, respectively, by clamshell. Dredged material will be deposited at upland site. Chemical analysis of the material to be dredged is shown in the attached report. Construct addition to existing pier.
- c. Purpose (as explained by the applicant): Maintain water depth for steamship movement and loading; pier addition will improve log shipping.

Interested parties are requested to submit, in writing, any comments or objections that they may have to the proposed work. The decision as to whether a permit will be issued will be based on an evaluation of the impact of the proposed work on the public interest. Factors affecting the public interest include, but are not limited to, navigation, fish and wildlife, water quality, economics, conservation, aesthetics, recreation, water supply, flood damage prevention, ecosystems, and, in general, the needs and welfare of the people.

Comments on these factors will be accepted and made part of the record and will be considered in determining whether it would be in the best public interest to grant a permit. Comments should refer to the reference number shown above and reach this office not later than 13 November 1972 to insure consideration

It is requested that your comments be forwarded to the Washington State Department of Ecology.



W. C. ALGUARD
Acting Chief, Operations Division

1 Incl
Prints (4)

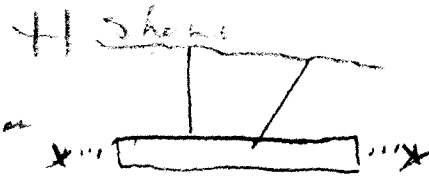
(over)

GARY BURNIS - EPA -
JOHN BLAINE - EPA -

SCOTT JOHNSON
SARAL ANDERSON } DISE

2-1-73

Fiberboard Boiler



Crabs - Oregonians - good
 DECAPOD CR - "
 Shrimp - great
 Spider - "

3 species Mediterranean crabs - good - spawning -
~~Shrimp~~ good
 Urchins good
 Tube worms - good.

Scuba
 Mussel
 * Jingle
 CIRCULARS -
 CRABS AND S -
 Fresh bark off pile
 METRIDIVM - AREA

Large white spots of fungus -

Samples - 1 - 1' above bottom - (Sulfide - N.D)
 1 - mixture of bottom & H₂O - " Appra -
 1 - bottom sample -

ITT. Ray near -

Located defussa - and took pictures -

Run -
 H₂O - pH, PBI,

Sediment % Solids by weight.
 % volatile Solids "

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO:
G.S. JEANES.....
COPIES TO:
.....
.....
LAB FILES.....

DATA SUMMARY

Source PORT ANGELES FIBERBOARD DOCK

Collected By G.S.J.

Date Collected 1-31-73

Goal, Pro./Obj. 3.2.22

Log Number:	73-	612	613	614								STORET
Station:												
pH	-	7.6	7.0									00403
Turbidity (JTU)												00070
Conductivity (umhos/cm)@25°C												00095
COD	1600	-	-									00340
BOD (5 day)												00310
Total Coliform (Col./100ml)												31504
Fecal Coliform (Col./100ml)												31616
NO3-N (Filtered)												00620
NO2-N (Filtered)												00615
NH3-N (Unfiltered)												00610
T. Kjeldahl-N (Unfiltered)												00625
O-PO4-P (Filtered)												00671
Total Phos.-P (Unfiltered)												00665
Total Solids	36,900	-	-									00500
Total Non Vol. Solids	31,900	-	-									
Total Suspended Solids												00530
Total Sus. Non Vol. Solids												
PBI	-	32	5									
% Vol	14	-	-									

Note: All results are in PPM unless otherwise specified. ND is "None Detected"
Convert those marked with a * to PPB (PPM X 10³) prior to entry into STORET

Note: We do NOT have
A #200 SCREEN

Summary By Stephen D. Bell Date 2-16-73

MEMORANDUM

TO: Gene Asselstine, Ron Pine, Harry Tracy

FROM: Scott Jeane

SUBJECT: Pictures Taken During Investigation of Toxicity at
Old Fiberboard Dock, Port Angeles, Washington

DATE: March 19, 1973

State of
Washington
Department
of Ecology



In a memo to you entitled "Investigation of Reported Marine Invertebrate Kill at Old Fiberboard Dock, Port Angeles, Washington, February 7, 1973", I reported that no abnormal problems with piling communities were observed and that underwater pictures had been taken to substantiate this. These pictures (35 MM slides) are on permanent file with our Training Services Section. If you wish to review the slides please contact Training and request Water Quality Slides #200110 thru #200130.

All pertinent field survey pictures taken by our section will be permanently filed with the Training Services Section.

GSJ:bj