ITEM 30
MANAGER'S REPORT NO. 47
COUNCIL MEETING June 25/73

30. Re: Dead Fish - Deer Lake

At the meeting of Council on May 28, 1973, as a result of an inquiry your Municipal Manager stated that a report would be presented to Council indicating the results of an autopsy that is being held into the death of fishes which have been found recently in Deer Lake.

Following is the report dated June 22, 1973 of the Chief Public Health Inspector together with a report dated June 21, 1973 from Dr. Lorne March, Assistant Regional Environment Co-Ordinator, Environmental Emergency Branch, Environment Canada.

This is for the information of Council.

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June 22, 1973.

The Office of the Medical Health Officer

Mr. M.J. Shelley
Municipal Manager

Dear Sir:

Re: Dead Fish - Deer Lake

Further to our report of May 25, 1973, we are attaching information as received from Dr. Lorne March, Assistant Regional Environment Co-ordinator, Environmental Emergency Branch, Environment Canada.

As stated in our memo of May 25, 1973, dead fish were removed from the Lake by Municipal personnel. The phenomena ended as dramatically as it commenced and there has been no re-occurrence.

We would concur with the information contained in the report as submitted by Dr. Lorne March.

Respectfully submitted,

G.H. Armson,
CHIEF PUBLIC HEALTH INSPECTOR

GHA/pm
Att.

Environment Canada / Environnement Canada

Environmental Protection / Protection de l'environnement

1090 West Pender Street,
Vancouver 1, B.C.

June 21, 1973

Your file / Votre référence

Our file / Notre référence
4711-10/4

Mr. George Armson,
Chief Public Health Inspector,
4949 Canada Way,
BURNABY 2, B.C.

Dear Mr. Armson:

With regard to our participation in the investigation of the catfish kill at Deer Lake, we wish to provide you with the following information.

Several whole fish samples, judged to be typical of the stricken population in the lake, were sent to the B.C. Department of Agriculture Lab. for pesticide analysis, and to the Nanaimo Pacific Biological Station for microbiological tests.

The enclosed results received from the B.C. Department of Agriculture Lab., show findings of 0.10 ppm DDE, 0.06 ppm DDD, and 0.09 ppm DDT. These results appear to be well within the pesticide acute toxicity limit for fish. In addition, the time period for death ranged over a one-week period. This, combined with the very low precipitation between the period of May 16 - May 24 indicates very strongly that chemicals and pesticides were not the cause of death.

Also enclosed are the results received to date from the Nanaimo Pacific Biological Station. The records show no evidence of infectious disease to fish. Although extended virus cultures are still being conducted, indications are that the results will be negative. If the results are otherwise, you will be informed; however, we strongly doubt that this will be necessary. Further written results from the Nanaimo Pacific Biological Station will be forwarded to you once we receive them.

While the problem does not appear to be microbiological or pesticidal in nature, the microscopic appearance of the liver, kidney and gill tissue could suggest some stress condition. The measurement of all environmental parameters that could result in such a population decline would require a highly complex and difficult research program. Nevertheless, the possibility of a physiological stress of man-made origin, resulting in the fish die-off, cannot be entirely discounted. However, there are comparatively large populations of other species of fish in Deer Lake and yet, they did not experience a similar die-off. Therefore, the problem is species specific to catfish. This raises the question of overpopulation beyond the carrying capacity of the lake, which would result in what is generally referred to as a "natural turnover". This certainly is not conclusive, but the absence of any definitive cause suggests this may have been the case.

We trust the information provided is of some use to you and we apologize for this somewhat vague report.

Yours truly,

G.L. March (Ph.D)

S. Hum (Miss)

Encls.

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MANAGER'S REPORT NO. 47
COUNCIL MEETING June 25/73

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BRITISH COLUMBIA DEPARTMENT OF AGRICULTURE

PESTICIDE ANALYSIS REPORT

REPORT OF EXAMINATION June, 1, 1973

Classification:	Date sample taken:
Catfish.	May, 13, 1973

Sample No.	Lab. No.	Sample taken by:	Date received at lab.:
1	6506	Dr. G. Lorne March.	May, 17, 1973

Producer or shipper: Address:

Vendor: Dr. G. Lorne March. Address: Environment Canada, 1090 W. Pender St., Vancouver, 1, B.C.

Analysis results: Expressed as parts per million;

Lab No.	Name	DDE	DDD	DDT
6506	Catfish	0.10	0.06	0.09

Please invoice this report.

(Analyst) W. D. Sargent.

Analysis: Satisfactory. ☐ Unsatisfactory. ☐

Action recommended:

C. L. Mallon
Provincial Entomologist

Entomology Branch, B.C. Department of Agriculture.

• EXERPTS FROM THE NANAIMO PACIFIC BIOLOGICAL STATION REPORT:

Now to the fish and findings. We observed no gross lesions in or on any of the four fish (two fresh frozen [27 cm - 361 g, 28 cm - 387 g] and two fresh fixed) received. One of the formalin-fixed fish had fungus on the postero-ventral aspect of the right operculum but this was quite superficial and did not extend onto the gill. However, the gills did look in gross poor condition. The stomachs of all fish were essentially empty. Gonads of the three females and one male (May 24, 10:30 AM sample) varied in development from ripe to immature. Kidneys in all fish seemed very soft but this might have been a normal condition of which we are ignorant.

We could culture no bacteria from the kidneys of the frozen specimens using a selection of media commonly employed in fish disease work. The results of virological examination will be reported at a later date because we had trouble with our test system. But so far the results appear negative.

The histological findings* are given below in unedited form because of pressures of other work.

Fish 1, female

Liver - widespread "necrosis," particularly of cytoplasm, almost exclusively in the peripheral area of the tissue. Central area is dense and confluent.

Kidney - extensive degeneration; pyknotic nuclei, diffuse cytoplasm, widely scattered cell elements. Most tubules are "ghosts" in which the border cells are anucleate.

Heart - apparently healthy.

Gill - "epithelium" of gill stripped away and lying draped from one lamellum to the next.

Fish 2, male

Liver - very extensive necrosis and degeneration, unlike no. 1 not restricted to periphery of tissue.

Kidney - generally much more solid and healthy than no. 1 but even so, certain areas were more "space" than cells. Apparently necrotic tubules scattered throughout.

Heart - apparently healthy but certain areas of muscle somewhat granular.

Gill - as no. 1, a single-celled, "septate" lamellum with a stripped off layer running over the lamellae.

* Using formalin preserved fish