

In British Columbia, the Department of Fisheries is advised by the Water Commissioner when a new pulp mill is to be built and approval is sought for effluent disposal. The Department asks the Fisheries Research Board for a study and forecast of the proposed situation. The Board works with the design engineers to find the optimum solution and recommends conditions for control of the process, sewer outfall, and effluent quality, which the Department then imposes as conditions for granting permission for disposal of the effluent in the coastal waters.

Presumably, the Pollution Control Board of British Columbia will exercise similar study and control over sewage (or effluent) entering the rivers.

Monitoring

On the Pacific Coast, the major potentially polluting situations are monitored regularly, usually at the time of minimum flushing (late summer) when the worst conditions can be expected. Methods have been developed to determine the concentrations of the active ingredients of the effluent, the oxygen concentration and the factors of water quality critical to the well-being of the fish. In almost every case the observed situation has been found to be within the limits that were forecast. In a few cases there have been additional factors which contributed to the condition.

Pulp fibre pollution

The effluent from pulp mills contains an appreciable amount of wood (cellulose) fibres which settle to the bottom and consume oxygen while they slowly rot. When the dissolved oxygen in the bottom mud is depleted, hydrogen sulphide (a noxious gas) is formed and is dissolved in the water.

These occurrences have been monitored in Alberni Harbour since 1963 and at Port Mellon, Woodfibre (Squamish), Powell River, Ocean Falls (Kitimat) and Port Edward. In all cases there was evidence of this type of pollution.

Wood decay studies

The rate of decay (or oxidation) of wood, bark and pulp chips is being studied at Nanaimo to provide bases for forecasting their effects in natural waters.

Fish tolerance studies

Research has been done to determine the concentrations of deleterious chemicals (pulp mill waste) that affect the well-being and growth rate of fishes (salmon) as well as the concentrations at which they become lethal.

When a dam is built on a river it creates a lake in which the water is usually warmer than it was in the unobstructed river. Research has been done to forecast this temperature increase and research on migrating salmon has been done to determine its effect on their well-being, behaviour and ability to cope with the obstructions.

Deforestation

During logging operations the ground cover is removed, the land is eroded by rains and silt is washed into the rivers where some of it covers the bottom. Also, the silt contains humus which rots, using oxygen, so that the ground water below the silt becomes devoid of oxygen.