

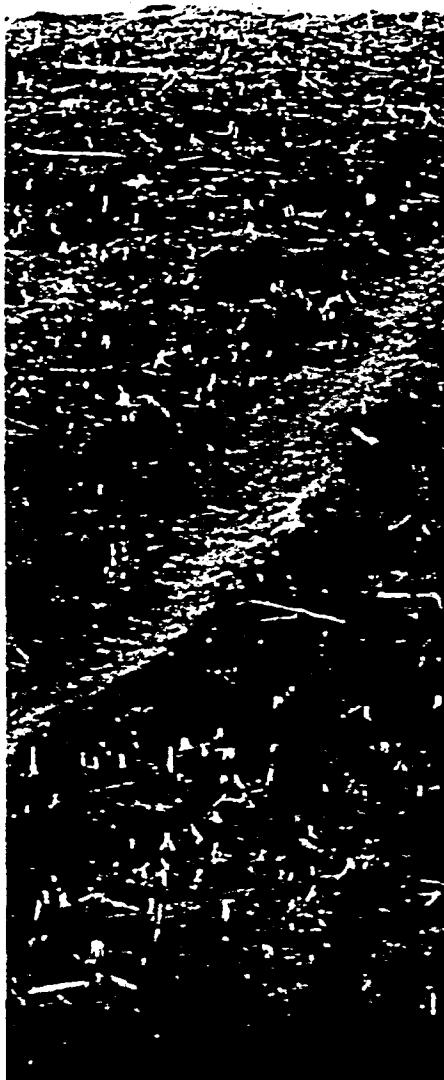
during the pulp bleaching process, are often persistent and can accumulate within fish. They are capable of inducing physiological or behavioural damage in fish and fish food organisms.

For the most part, pulp mill wastes require two levels of effluent treatment; *primary treatment* to take out the large particles (such as wood fiber, wood chips, etc.) and *secondary treatment* which usually involves the use of micro-organisms to decompose pulp wood wastes in biological treatment basins. These systems can be very effective in reducing the harmful effects. Good house-keeping and maintenance of treatment systems, however, are necessary to reduce long-term risks to fish habitat. In addition to pulp mill effluents, leachate from chip storage areas, wood-waste landfills and refuse areas are highly toxic and must be properly managed.

The major challenges associated with sawmill operations are the management of wood-preserving chemicals, usually chlorophenols, and the protection of fish habitat from the indiscriminate disposal of wood waste. Lumber-dipping facilities used in wood preservation should be paved and, where necessary, roofed to reduce run-off. Wood waste should be burned or deposited in areas well removed from watercourses. Drainage from dipping facilities and wood-waste deposits should be collected and, if necessary, treated prior to discharge.

### The Importance of Canada's Fisheries

Like farmland and forests, our fish habitats are national assets. They are contributors to the wealth



of our nation and to the quality of our lives. Commercial and sport fisheries contribute more than \$3 billion annually to the national economy in 1982 dollars and fish is a staple food and an important cultural element for many native communities. This important resource must be preserved and enhanced for future generations.

### The Role of the Department of Fisheries and Oceans

The objective of the Department of Fisheries and Oceans Fish Habitat Management Program is to conserve, restore and develop fish habitats to maintain and improve the production of Canada's fish-

eries resources for the benefit of present and future generations. To realize this objective, strict controls on activities and substances which threaten fish and fish habitat are necessary.

Canada's Fisheries Act provides the Minister of Fisheries and Oceans with the authority to ensure fish and fish habitat are protected. The Department's role includes enforcement, regulation, inspection, monitoring and research. Continuing research is necessary to increase our understanding of the importance of fish habitat and the effects of activities which alter or destroy it. In meeting its goal of protecting fish habitat, the Department applies the principle of NO NET LOSS to new works and undertakings to ensure that habitat productive capacity is maintained. In addition, efforts are made to restore previously altered or destroyed habitat and to develop new habitat, thereby providing for a NET GAIN of habitats for selected fisheries.

When managed with care and understanding, the land can yield both fish and trees. In the majority of situations, cooperation and early planning by people involved in forestry and fisheries can avoid major risks to fish habitat. Through greater awareness of the relationships between fish, fish habitat and forests, a concerned public can conserve its renewable resources and thereby ensure a continuing flow of benefits to the Canadian economy.

This brochure is one in a series prepared by the Department of Fisheries and Oceans to inform the public and interested parties about the impacts of various human activities on Canada's fish habitat.