applied to road building operations in the vicinity of streams can reduce the amount of debris entering streams and eliminate the physical disturbance to stream beds.

Transportation and Storage

Land transport of logs does not usually affect the fishery resource. However, wood debris, when improperly discarded at dry sorting areas, can introduce toxic chemicals (leachates) into water.

Canada's coastal waters, rivers, and lakes are often used for the transport of logs by raft or barge, detrimentally affecting fish habitat. Log dumping and storage in shallow areas can compact the bottom and crush food organisms and aquatic vegetation. After extended use, bottom areas can accumulate large quantities of sunken bark and logs. The decomposition of this material and leaching of chemicals can lead to contamination of nearby waters and a reduction in dissolved oxygen levels, rendering habitat unsuitable for fish use and reducing the numbers of fish food organisms. Propeller wash from boats in log storage areas can stir up and disperse bottom materials, thus degrading water quality. Many of these detrimental effects can be avoided if log handling and sorting are carried out on dry land.

Silviculture

After a forest is logged, silvicultural activities such as site preparation, planting and seeding, brush removal and thinning are carried out to establish and nurture a new forest. The effects of silviculture treatments on fish habitat are often similar to those associated with logging, log storage and transport but they are generally far less severe. Burning and mechanical cultivation are commonly used to prepare sites for planting and, in some cases, these activities can increase sedimentation in streams. In steepland areas, where brush helps to maintain soil stability, burning can also cause loss of root strength, leading to potential landslides.

Fertilization of forest sites can increase nutrient concentrations in streams. In extreme cases, enrichment of stream water leads to rapid growth of algae, covering stream bottoms and reducing fish food production. Decay of this material can reduce dissolved oxygen concentrations in streams. Chemical biocides or pesticides used to control brush and insects can pose a serious problem to fish. Pesticides which enter streams may be toxic to fish and aquatic invertebrates and lead to long-term reductions in stream productivity. Bioaccumulation of these chemicals can render fish unacceptable for human consumption or result in chronic fish toxicity.

Wood Processing

Making pulp and paper and cutting logs into sawn lumber are processes that pose potential dangers to fish habitat. The manufacturing of pulp and paper requires large quantities of water which are ultimately discharged into the aquatic environment. Untreated waste water contains a large quantity of oxygen-consuming organic substances, including pulping chemicals, resin acids, and wood fibers. If not adequately treated, the effluent can be toxic to fish and can consume large amounts of oxygen in the water while in the process of being degraded. Effluents can adversely affect receiving-water quality and fish habitat many kilometres distant from mill outfalls. Chlorinated organic compounds, which can be produced