

Conservation of the Fisheries.—The resources upon which the fisheries are based, in both Canadian waters and international waters within reach of Canadian fishing craft, require constant conservation and development. The federal Department of Fisheries is responsible for such conservation and development,* although it has delegated administrative rights to some of the provinces.

Fish populations are exposed to many threats, natural and man-made. Seafish, such as salmon, which come into fresh water to spawn, are particularly vulnerable. A natural rock slide or a man-made high dam may bar them from their spawning grounds if precautions are not taken. Fish are subject to natural disease or may be destroyed by the man-made poisons of industrial development, now expanding so rapidly in the Canadian west and north. A species may be badly affected by natural predators or by over-fishing; increased mobility and efficiency of modern fishing fleets intensify the latter problem.

Because of their high value and great vulnerability, salmon stocks receive major consideration. Arrivals of spawning runs have been studied and can now be predicted with fair accuracy. Streams are cleared of obstructions before the fish arrive. An obstruction may be anything from a beaver dam to a mountain rock slide or a hydro-electric power plant. The beaver dam can be cleared away; the rock slide may be tunnelled or bypassed by an artificial fishway; the power plant may require a fish ladder constructed like a stairway of small locks to break one steep ascent into many smaller ones which the fish can readily negotiate. A small change in water level may be of life-and-death importance to fish in a stream. In a hot summer, fingerlings may be stranded in pools which are drying up. Sudden release of water from an upstream reservoir may drown the sandy shallows of a spawning ground or wash the sand out of it. Consequently, officials of the federal Department constantly review applications for water and foreshore rights, stream-bed leases and certain mining leases to determine whether they will be detrimental to local fish stocks. They also arrange with industrial plants for the maintenance of adequate flow and the screening of water intakes.

They co-operate, for instance, with the Fisheries Section of the Fraser River Board, studying flood control measures and effects of possible hydro-electric development. In Newfoundland they are making an important river system an attractive home for spawning salmon by removing obstructions, constructing and maintaining fishways and preparing sandy shallows for deposit of eggs. Adult salmon transferred to the new locale are adapting well to it and later generations hatched there will return naturally. In the same way, salmon runs to the Maritime Provinces are being rebuilt. Hatcheries collect eggs, rear the young and distribute them to desirable locations.

New Brunswick's valuable commercial oyster stocks and adjacent ones in Nova Scotia were almost wiped out a few years ago by disease (not harmful to humans). A resistant strain from Prince Edward Island is being successfully transplanted to replace the loss. Six thousand barrels of oysters have already been moved.

Waste from mining or chemical industries, sewage disposal and insecticide spray programs poison streams and kill thousands of fish. Such dangers must be detected and their ill effects neutralized. With radioactive fallout and the problem of disposal of radioactive wastes, this danger may soon extend to the open ocean.

Precautions are taken against predators. A bounty is paid on harbour seals, which prey on Atlantic salmon runs. The price of dogfish livers is subsidized on the Pacific Coast to reduce the numbers of this species on certain fishing grounds. Sea lampreys in the Great Lakes destroyed almost all the lake trout in most of the fishing areas before an eradication program could be organized, but it is now hoped that a poison specific to lampreys can bring them under control and make it possible to rehabilitate the trout.

* The functions and services of the Department of Fisheries are outlined at pp. 631-632, and those of the Fisheries Research Board at p. 634.