

Depletion of Fisheries

Artificial Culture must be Continuous to Maintain Production

Reference is frequently made to the extent, variety and value of Canada's fisheries, but it is rarely pointed out that fishing grounds are a very readily exhaustible form of natural resource. To a great degree fish is a crop, requiring considerable cultivation; a large annual output of commercial fish can be maintained only through careful husbandry. In 1914-15 the Dominion Fisheries Branch spent \$370,000—the largest single item in its expenditure—upon fish culture. Although artificial breeding of fish has been carried on by the Dominion Government for nearly 50 years, the great growth and development of this branch of fisheries administration has been accomplished in the last decade. During the latest year for which statistics are available, 64 hatcheries were conducted and the aggregate of fry and fingerlings distributed reached 1,640,000,000 in round numbers.

The Dominion Fisheries Branch is concerned chiefly with the production of commercial species, leaving the propagation of game fish largely in the hands of the provincial authorities. While lobsters and whitefish are distributed in much the largest numbers, considerable attention is paid also to Pacific and Atlantic salmon, salmon trout, pickerel and other fish.

Except with regard to such marine species as the cod and mackerel, extensive artificial culture and strict regulation of fishing operations are necessary to ensure fisheries against depletion. The history of the whitefish production of the Great Lakes furnishes the best example in Canadian experience of the manner in which a valuable fishery can be either depleted in a very short time or maintained at a high level of production accordingly as artificial culture is neglected or efficiently prosecuted. Smaller fisheries, such as the oyster, shad and sturgeon, are to-day in a depleted state, while the two most valuable fisheries of the Dominion, the lobster and Pacific salmon, will require continuous breeding operations on a very extensive scale to maintain their maximum productivity.

Housing the Birds

Competitions Among Boys Interest them in Bird Protection

As the result of a bird home contest inaugurated recently in Manitoba, fully 2,000 bird houses were made by the boys attending

manual training classes in Winnipeg. An exhibition will be held and prizes awarded before the houses are placed in the trees throughout the city. By those familiar with the strong attraction of such homes for wild birds, the great value of this unique contest will be fully appreciated. In addition to testing the mechanical skill of the boys, it directs their energies to a splendid practical purpose, at the same time inevitably impressing upon them the importance of protecting and fostering bird life.

A competition of a similar nature is being conducted at Brockville, Ont., having been inaugurated, following an address on the subject, by Dr. Gordon Hewitt, Dominion entomologist.

Dangerous Smokers

Many Serious Fires Directly Traceable to this Cause

Smokers are responsible for many fires. Along any street, cigar and cigarette stubs, and partly burned matches may be seen almost everywhere, carelessly thrown aside by smokers. Similar carelessness occurs in public and office buildings, business places and factories. Men enter office buildings where smoking is not allowed, drop their cigars on the stairs, on the floors of the corridor or possibly in the elevator, where they may roll to the bottom of an elevator shaft, into a possible accumulation of waste paper, and cause a fire. Others carelessly throw their cigar or cigarette stubs and matches into the waste-paper basket. If the basket is of combustible material the smoldering stub will eventually burst into flame.

Factory smoking is another serious hazard. While most factories have strict rules against smoking, it is a common practice for employees to "light up" before leaving, and drop their lighted matches; these, falling among inflammable materials, later break into flame. Many evening fires in factories and business places may be traced to this cause.

Open gratings and broken prisms in sidewalk lights are other common receptacles for these dangerous fire-starters, pedestrians dropping stubs and matches regardless of results.

Since the fire which destroyed the Parliament buildings at Ottawa the Dominion Government has issued an order prohibiting smoking in any building occupied by the public service.

Do not throw burning matches, cigar and cigarette butts, or live ashes of pipes where they are likely to come into contact with any combustible material.

Oyster Farming

Basis for an Important Industry Awaits Development

The depleted oyster beds of New Brunswick, Nova Scotia and Prince Edward Island offer an excellent field for oyster culture—an industry which has proved very remunerative in several Atlantic states, notably Rhode Island. For years Canada has been importing more oysters than she has been producing, measured in dollars and cents, and there is little doubt that a reduction in price would greatly increase the consumption. During the five years, 1910-1914, the value of oysters imported into Canada averaged nearly \$390,000 per annum, while the value of the Canadian production averaged less than \$196,000. In view of the market advantages, coupled with the large areas available for culture and the superior flavour of the oyster grown in northern waters, oyster-farming in Eastern Canada holds out every inducement to capital and enterprise.

Since 1912, when the jurisdictional dispute respecting the right to grant leases to oyster-bearing areas was settled, the industry has made considerable progress. Prince Edward Island has leased about 5,000 acres and, during the last two years, more than 6,000 barrels of seed oysters have been planted. The Shemogue Oyster Co., formed in 1913 and operating in New Brunswick and Nova Scotia, is a pioneer in the field. In the selection and planting of areas it has employed a Rhode Island expert, familiar with the methods found most successful in oyster culture in that state. This company hopes to be in a position within five years to command half of the trade now in the hands of United States producers.

Serious difficulties have arisen from lack of capital and adequate protection, as well as from the depredations of sea-pests. These obstacles are not insuperable and, considering the productivity of the beds, the quality of the product and the excellent market, the ultimate development of a large and profitable industry seems assured.

Spring Floods

Their Causes and Methods for Their Prevention

The advent of spring at once brings to mind the subject of floods, their causes and prevention, particularly in communities bordering streams whose upper basins have been wantonly depleted of forest cover either through

unchecked forest fires or injudicious cutting. In many districts in Canada this year, excessive floods have been feared, but fortunately, were largely prevented by favourable weather conditions. These conditions will not always obtain, and the greatest fears may be realized in the near future. The least we can do is to prevent the repetition of causes which are known to have greatly increased floods on the streams of our older districts.

Five general agencies affect floods: climate, comprising precipitation and temperature, topography, geology, artificial storage and drainage, and finally, and possibly most important, surface vegetation, including forest cover and cultivated land. The fourth and fifth agencies enumerated are within human control and steps should be taken either to improve natural conditions or at least to prevent making them worse. When the physical conditions on the drainage areas of rivers, where floods have increased, are summed up, the one great change in the vegetative conditions is the reduction of forest area. On some watersheds it has occurred by slow progression and on others more rapidly. It is certain that in some areas forest cutting has caused barren conditions, because the land was of such a character that, after it was deprived of forest protection, it eroded easily and its productive portion was swept into water-courses.

The great value of storage reservoirs need no comment. The question of cost alone prevents their more general use. Their construction, however, is becoming indispensable in connection with regulating the flow for water-power purposes and when their utility in this connection is being considered, the benefits arising from their additional importance in preventing excessive floods should be borne in mind.

Land reclamation by swamp drainage is of great value, but any project covering fairly extensive areas should be most judiciously dealt with, particularly from the viewpoint of accentuating flood conditions. It is not sufficient to dig ditches through a large area, discharging the water into streams incapable of carrying the increased rate of flow, and thus contribute to disastrous floods. In this connection it may be stated that floods on the Grand River in Ontario are partly attributed to this cause; thus, in a recent report it is stated that: "By the drainage of swamps, the water is carried off in a few hours which used to take weeks; in fact this has occurred in many swamps which formerly remained full of water during the whole year." The value of the land to be thus reclaimed should be established beyond doubt, after careful consideration of the inherent loss in water regulation and flood prevention.—L.G.D.