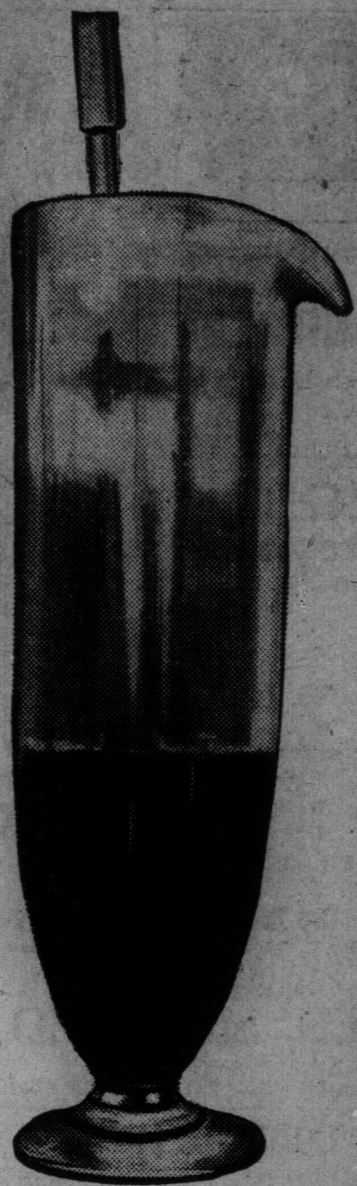


Planting a Billion Fish



A jar of pickered spawn, which the process of hatching has advanced considerably. The jar will contain and hatch out 250,000 pickered or 150,000 whitefish eggs.

Dominion and Ontario Governments Are Now Busy Distributing Fry In All the Big Lakes and Streams and Gathering Eggs To Supply Further Sport And Food.

About twenty years ago, following experiments that had been successful in the United States, the Dominion government founded its first fish hatchery.

It was looked upon as more or less an experiment, but the mere fact that since that time fifty additional hatcheries have been built and are in operation under the supervision of the department of fisheries, is sufficient proof that the propagation of fry for distribution in Canadian waters has been successful.

It has been recognized that the preservation of the natural game and fish of the country is the duty of the national government, and that good sport opportunities bring into Canada many millions of money each year.

A live moose in the forest is worth \$500 as an attraction to the hunter, according to a well-known government authority, while a dead moose is worth but a small fraction of that amount.

Depletion of the waters of Canada gave rise to the problem of how shall the government provide sport and food for the nation? It became evident that action must be taken at once, and while the breeding of fish and game, both for sporting and commercial purposes, was at once suggested, it is only in recent years that concerted efforts have been made to assist nature to replenish the stocks drawn upon by the ardent sportsman and native.

Contrary to popular opinion, it is not the sportsman from across the line that has been responsible for the dearth of fish in many of the streams of the dominion, but rather the ruthless ravages that have been made by unthinking and careless residents. In a recent government report the necessity for co-operation of every part of the country if the natural fish and game are to be conserved has been emphatically emphasized.

Attracting the Tourist By Growing Black Bass

The average sportsman or angler coming into Canada for a short holiday spends \$100, or even more, and, besides giving business to a hundred and one Canadian institutions, carries away with him impressions that he passes on to his friends. It is estimated that the state of Maine was a benefactor to the extent of some \$36,000,000 last year as the result of the tourist trade brought about by the cam-



Planting the fry over the moss beds in Lake Huron.

paign of game conservation that state has waged for the last twenty years.

By far the greatest attraction that Canada offers to the sportsman is the small-mouthed black bass, and, strange to say, this fish is about the only one that cannot be raised by ordinary artificial methods. The ever-increasing scarcity of this fighting fish urged the Ontario government to experiment, and it was found that the only successful way of restocking streams was by encouraging breeding in "brood-pools." The result is that the

fish when the food supply is uncertain and insufficient and the natural enemies of the fish too numerous to overcome. The fish are then compelled to resort to cannibalism for existence.

Dominion Government Raises Commercial Fish

By far the greatest efforts of the Dominion Government have been devoted to the commercial fish. In fact in Ontario the federal authorities have left the replenishing of the sporting waters entirely to the province. Whitefish, pickered, salmon,



Loading the cans of fry for distribution at the fishing grounds.

series of ponds at Mount Pleasant, Ont., from which last year, over 500,000 fingerlings, or young bass about the size of a finger, were "planted" in the various streams of the province.

When they reach the "fingerling" stage the fish are placed in special tanks, but aboard the special car "Beaver No. 1," which the provincial government uses exclusively for that purpose. This car is fitted with special refrigerating plant, and is specially built to carry the live fish without in any way impairing their vitality when they can least afford to suffer.

While bass do not allow artificial incubation, they are much easier to rear than many other more prolific fish, for they are not confirmed cannibals. The trout prefers to eat its own kind to the food given by the breeder, but the bass, if kept in ponds always clean and fresh, is quite willing to eat the food provided by the government.

The growth of the young fish varies very greatly, and in the same "brood," several weeks after hatching pools. The result is the one inch to five inches.

The point that is kept continually in mind by the fish breeder is to maintain the balance of nature. It has been found useless to indiscriminately stock a river with

sturgeon and lobster have been distributed by the billions in the various lakes and rivers during recent years and the efforts to assist nature to maintain the fish food supply have been eminently successful.

The methods used to produce the fry turned loose have now been standardized and the little fishes, a few millimeters in length, are planted by the million to fight their own battles after they have been given a start in the hatchery. Fish eggs are considered a great delicacy by nearly all the members of the piscatorial tribe, large and small, and it is on account of this peculiar taste and because of the comparatively small percentage of eggs fertilized under natural conditions that the hatching jar has become almost a necessity.

Pickered, whitefish and lobsters respond most readily to artificial propagation.

The eggs of the whitefish are gathered in November and those of the pickered in May and from the gathering of the spawn till the fry are planted, some eight months later, the hatching fish must have constant attention. No enterprise in the world is so dependent upon the skill, faithfulness, and the enthusiasm of those in charge as the hatching of fish. The Bay of Quinte and the Killarney fishing grounds in the



Superintendent Parker in his boat on Lake Huron.

The government car beaver, which is a fish incubator on wheels, at the Toronto Union Station.

Georgian Bay furnish most of the whitefish spawn while the pickered eggs are obtained principally in Lake Huron.

As the fish are taken from the nets the females are deftly grasped in the gloved hand held against the body of the operator while with the other hand he skillfully presses out the eggs which are temporarily deposited in a pail or tub. They are then fertilized by the milk of the male fish and the mass stirred up with a bunch of stiff feathers.

35,000 Eggs From Fish

The number of eggs taken from each fish varies, but from the whitefish and pickered it is in the neighborhood of 35,000, while from the sturgeon it is much larger.

After the catch for the day has been completed the eggs are treated to a number of washings and then transferred to glass jars in the hatchery. These jars have a capacity of 150,000 whitefish or 250,000 pickered eggs and are placed on shelves where they may be continuously watched. Each jar has a bell-mouthed glass tube reaching to the

bottom thru which fresh water is kept running constantly.

This water is first pumped into an overhead tank and falls from there into each of the jars, entering at the bottom and escaping at the top, keeping the eggs constantly in motion. If the water was to cease running for even an hour the eggs would merge into a solid mass and be ruined. The eggs are watched night and day by attendants who, with a syphon and a feather, remove the spoiled eggs from the jar; these are easily discovered by their whitish color.

After about five months, in the case of whitefish, the fry break from their tiny shells and are placed in a larger tank, where they are allowed to sport for a week or ten days or until there is an opportunity of 'planting' them in the lake. Pickered eggs take only six weeks to hatch and they are cared for exactly as the whitefish.

The aim of the fish culturist in 'planting' the fry is to give them the maximum protection from natural enemies and at the same time provide them with a good food supply.

It is interesting to watch the little fellows when dumped into the lake. For a few seconds they flit around near the surface and then, as if prompted by some unseen force, they dive to the bottom of the water, where they find the greatest protection from their numerous enemies.

Eighty Per Cent. of Eggs Returned As Fish

Of the eggs gathered from the adult fishes by the culturists, from 80 to 85 per cent. are returned to the lake as fry, while under natural conditions it is doubtful if more than a small fraction of one per cent. of the eggs fertilized ever hatch, while only a very small proportion of the eggs laid by the fish are even fertilized.

The number of fish incubated at the fifty hatcheries of the Dominion government is enormous. While the exact number deposited is, of course, not kept, a fair estimate may be made and it is well over one billion a year. From the Port Edward hatchery alone last year 150,000,000 pickered and 90,000,000 whitefish were planted while the other

hatcheries grew as many in proportion to their size. The hatchery on Prince Edward Island planted 130,000,000 young lobsters as well as some 25,000,000 other fry. The extent to which lobster breeding is successful can be estimated from the increased number of lobsters that have been caught in the vicinity of the planting beds during the last few years.

Lobster hatching is carried out on the same principle as used for other fish except that the berried or spawning lobsters are purchased from the fishermen instead of being caught by the government boats. They are then placed in ponds and allowed to deposit their spawn.

If every fish deposited was to reach maturity the lakes of the Dominion would soon be overstocked, but although artificial aids to propagation are able to bridge over very many of the dangers of destruction, only a comparatively small percentage of the fish that are started on the highroad to success ever take advantage of their opportunities to become of a commercial value.



Catching the fish for their spawn on Lake Huron. The eggs are later hatched out in the fish hatcheries.



Interior of Pt. Edward, Ont., fish hatchery, showing the long jars in which the eggs break forth into fish.