

THE NEW ENGLAND SALMON PROBLEM

I have just discussed some of the work on marine fish which has been, or is being, done. Now I would like to mention a job which should be attempted and which will be a great thing for the sportsmen if it can be done. This job is the restoration of abundant salmon runs in New England streams. Once, hundreds of thousands, possibly millions of salmon annually ascended our rivers to spawn. Now, there is only a remnant in a few of the streams in eastern Maine.

For a great many years, sporadic efforts have been made to restore salmon to former abundance. In this work, primary emphasis has been placed on artificial propagation. Without such work there probably would be no salmon in New England streams today. From Mr. Montgomery, superintendent of the Bureau's Craig Brook Hatchery, I have obtained records of the salmon propagation work carried on at that station since 1926. During that time, a total of nearly 15 million salmon eggs has been obtained from Canada through an exchange agreement in which the Bureau supplied trout eggs in return for eggs of the Atlantic salmon. Of the 15 million eggs, more than 6 million were distributed to Maine State hatcheries and a few hundred thousand to other states. The remainder were hatched at Craig Brook and distributed as fingerlings as follows: To eastern Maine rivers including the Dennys, Pleasant, and Narragaus, went about 1½ million; to the various branches of the Penobscot, nearly 4½ million; and to tributaries of the St. John and St. Croix, about 500,000. This is a total of over 6 million young salmon in addition to perhaps an almost equal number planted by the State.

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In spite of the rather extensive propagation work described above, the salmon runs have continued to decline. Consequently, although this work must be given most of the credit for maintaining what few salmon we now have, it should by this time be clear that artificial propagation by itself will not solve the salmon problem. Furthermore, it no longer is possible to obtain a supply of eggs from Canada. Obviously, a new approach to the problem is called for.

In this connection, I would like to quote from a monograph on the Atlantic salmon published in 1935 by the late Dr. William C. Kendall, an authority on New England salmon and trout, who for more than 40 years was a close observer and student of these New England species.

"Notwithstanding the early fish cultural interest in the Atlantic salmon of New England, the continued fish cultural propagation of the fish at one Federal hatchery in Maine, and its potential commercial and angling value, no attempts to solve the many problems connected with the salmon have been made since those of Atkins over one-half a century ago.

". . . to me it seems not only extremely unfortunate but fatal that so much reliance has been placed upon the applicability of the results of investigations on the other side of the ocean. . . and so little done in the way of independent investigation. Canada has made and is still making some effort in that direction, but in the United States almost nothing has been done in the past, and absolutely nothing is being done now, with the consequence that her Atlantic salmon fishery is almost past history and the salmon is verging on extinction."

Certainly, Dr. Kendall possessed very decided views on the necessity for more investigation of New England conditions as a basis for restoration work. And I think that a glance at the record will substantiate his remarks, for the Atlantic salmon has vanished from New England, except for a few streams in eastern Maine where small runs still survive. Here, the strenuous and devoted efforts of a small but growing number of sportsmen combined with the work of the State Department of Inland Fisheries and the Federal Hatchery at Craig Brook, have made it possible to preserve a remnant of the once great runs as a reminder of the past and of the potential possibilities of the future.

Now, many may take it for granted that the Atlantic salmon is merely a victim of the times, and that there is no point in wasting money or effort on such a forlorn hope as the restoration of salmon appears to be. However, it seems premature to classify the Atlantic salmon as a "forlorn hope". Certainly, there are many who think that effective restoration work can be done, although they may not agree on the best method to be used.

Fully aware of the vigorous but perhaps somewhat unorganized interest in Atlantic salmon, and of the lack of agreement as to the possibility or means by which they might be restored, Mr. David Aylward, President of the National Wildlife Federation, requested the Bureau of Fisheries to cooperate in searching for an answer to the situation. We were asked to make a brief survey of information at present available, to report on the possibilities of salmon restoration, and to prepare a program suggesting the most effective methods for carrying out restoration work.

In compliance with this request, Dr. G. A. Hounsefell and I prepared a report, working in cooperation with Mr. George Stobie, Commissioner of Inland Fisheries for Maine, and with the advice and counsel of the commissioners or their representatives from the other North Atlantic States and of Mr. Raymond Dow and other sportsmen who have long been interested in salmon. The following is part of that report:

"Numerous attempts have been made to maintain the salmon fisheries through regulatory laws, construction of fish ladders, and artificial propagation; but those efforts have not served to restore past abundance or even to halt the gradual reduction of the stock. Many observers consider that these negative results are not conclusive, because in no case was it possible to carry through the measures under adequately controlled conditions. Furthermore, it is believed that at present, due to the closing of lumber and pulp mills and abandonment and destruction of temporary dams, and to the construction of fish ladders in permanent dams, conditions on many of the rivers are more favorable for salmon than has been the case for many years past. Consequently, we recommend that a carefully supervised experiment be carried out which will definitely prove or disprove the practical feasibility of restoring this potentially valuable resource, and that this experiment be developed along the general lines of the recommendations which follow. These recommendations include:

1. A comprehensive survey covering the most promising New England rivers from mouth to source to show: number and kind of obstructions to salmon migrations; the extent and degree of pollution and to what extent it limits salmon movements and spawning; the condition and extent of

spawning areas; and the suitability and capacity of the streams for young salmon.

II. On the basis of the above survey, select the most suitable stream for restoration and management experiments.

III. Obtain State laws prohibiting or severely limiting the capture of salmon anywhere on this river or within a suitable distance from its mouth.

IV. Provide means for determining the number of fish which spawn naturally.

V. Obtain a supply of Atlantic salmon eggs for hatching and planting each year for at least 5 years to assist in rebuilding the natural stock.

VI. Mark wild parr and smolts in the different tributaries, and hatchery-reared parr and smolts to determine: the value of the tributaries for spawning and nursery grounds; the best age to release hatchery stock, and the optimum size of spawning run for each tributary.

VII. After 10 years, or less, should results be sufficiently successful, open the stream to controlled fishing.

VIII. Study the possible advantages and disadvantages to be derived from introducing a more desirable species of West Coast salmon than that previously tried in Maine waters. It is believed that a species could be selected which would be of value to both sports and commercial fishermen and whose early life history is such that it would offer a minimum of competition to native salmon.

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"Some of the work mentioned above, particularly that under Item I, has already been begun by the various states. In some cases, surveys of State streams are being carried on as rapidly as funds permit and much good work is being done in installing effective fishways in the streams. Any additional work carried on under the above program would be in cooperation with the State biologists and would serve to supplement and coordinate the surveys of the several states. In any event, it is obvious that a successful program for restoration of salmon will take the best efforts of all concerned.

"It is believed that the most important problem at present is to prove that extensive restoration of Atlantic salmon is feasible and practical. Once this has been demonstrated on one or two streams, ample support should be available for similar work on others."

You may wonder just how practical or necessary are some of the measures we have included in the above recommendations. The next speaker, Dr. G. A. Rounsefall, who for several years was in charge of part of the Bureau's salmon work on the West Coast, will show us how some of these measures are successfully applied in the extensive salmon fisheries of that region.