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STATUS OF SALMON WORK IN THE NORTH ATLANTIC SECTION

October 20, 1941.

The desirability of restoring and maintaining sea-run salmon in the streams of the North Atlantic region has long been recognized. Since 1870 the Federal hatchery at Craig Brook, as well as State hatcheries at various times, have been propagating Atlantic salmon and releasing them in the streams of the region. In spite of these attempts to maintain the runs, the salmon populations have continued to decline. Thus, for the five years in which statistics are available between 1873 and 1890, the Penobscot River commercial fishery yielded an average of 12,000 Atlantic salmon per year (about 165,000 pounds), and in addition, furnished an abundance of fish for the anglers. In the last decade the Penobscot has yielded less than a tenth of that amount.

It is not possible at this late date to assess with any degree of accuracy the parts played by overfishing, pollution, and obstructions barring the salmon's path to the spawning grounds, in bringing about this general decline. However, fishery science now has progressed to the point where the restoration and maintenance of salmon runs appears to be a practical possibility, provided that the requisite facts can be obtained and properly evaluated, and satisfactory management practices instituted.

The procurement of these facts must depend on a long-time program, since information on the fresh-water survival of the young, the mortality in the sea, the actual and proportionate return of young salmon released in different tributaries or at different seasons of the year, and the effect on the production of young of different sized escapements of adults to the

spawning grounds, cannot be discovered quickly in a laboratory but depend for their solution on adequate and properly controlled field experiments. These experiments must be carried on for at least two salmon generations or ten years, if they are to yield reliable information.

For a 15-year period ending in 1936, the Federal hatchery at Craig Brook was able to obtain from half a million to one million or more Atlantic salmon eggs per year from the Canadian Government, but eggs can no longer be obtained from this source. Since even with this considerable outside supply the downward trend in the fishery continued and the present supply of salmon eggs is limited to those obtainable from our own waters, it behooves us to set up without delay suitable management measures and to begin the experiments needed to furnish information that will assure the best results from the limited supply of eggs, while this limited supply still is available.

In addition to those facts obtainable only from long-time controlled experiments in stocking and management practices, there are certain problems, especially those dealing with the fresh-water ecology of the salmon, that require less time to solve and which will be of value in interpreting the results of the longer studies. Some progress is being made toward solving these problems through a scholarship at the University of Maine known as the "William Converse Kendall Fellowship" under the direction of Dr. Gerald Cooper.

The Fish and Wildlife Service, in cooperation with the Departments of Inland Fisheries and Game and Sea and Shore Fisheries of the State of Maine, is planning a program of stocking and management of Atlantic salmon on the St. Georges River in central Maine, using 45,000 young salmon from eggs donated by the Canadian Government for scientific experiments. Also, due to

the unexpected appearance in 1940 of sea-run king salmon in the Pemaquid River, resulting from the stocking of Biscay Pond for fresh-water angling, a small-scale experiment on king salmon is being carried on in the Pemaquid River with the cooperation of the Maine Fisheries Departments. So far, it has not been possible to obtain the funds needed to assign full-time personnel to these important problems, with the result that they must be carried on without suitable facilities, as extra-curricular activities.

In October, Assistant Director Charles E. Jackson of the Fish and Wildlife Service, Commissioner George Stobie of the Maine Department of Inland Fisheries and Game, and Commissioner Arthur Greenleaf of the Maine Department of Sea and Shore Fisheries, signed a cooperative agreement covering the various activities in Maine aimed toward the restoration of sea-run salmon. This agreement provides for a research committee of three, one appointed from each organization, which for the first time will coordinate the salmon activities of the various organizations undertaking such work and where necessary, will make recommendations concerning fishways, stocking policies, management practices, etc. This committee will have to be guided largely by general knowledge of the fisheries (in the absence of scientific facts) until such time as sufficient scientific investigations have been provided for and carried out.

In brief, the present sea-run salmon situation on the Atlantic coast is as follows:

1. Adequate hatchery facilities are available for hatching and rearing young salmon for stocking purposes and at present, a considerable amount of money is being spent annually by the State and Federal Governments in carrying on this work.

2. A limited and probably dwindling number of salmon eggs is available from small runs in two or three rivers.

3. Some research work on problems of limited scope now is being carried on through the William Converse Kendall Fellowship.

4. No funds or facilities are available for setting up the long-term observations and program that are essential to the determination of such factors as the relationship between the size of the spawning run, the number of sea-run migrants, and the number of adults returning later from this spawning stock; and of rearing and stocking practices which will make most effective use of artificial propagation facilities.

To handle the long-term program adequately, it seems obvious that permanent personnel must be provided since the changing personnel furnished by scholarships or other independent funds does not provide the necessary carryover in experience and program which is essential to satisfactory study of a long-term problem. With a long-term program under way, the scholarships can provide valuable assistance in solving important subsidiary problems of limited chronological scope; without the long-term program, the scholarships might provide only a series of independent and interesting contributions to the salmon's life history and ecology.

A satisfactory program for the salmon work already has been proposed. It was discussed and approved at a meeting in our Cambridge Laboratory during October 1939, of the Fisheries Commissioners of the North Atlantic States, or their representative including Mr. Stobie of Maine, Mr. Warfel of New Hampshire, Mr. Davis of Vermont, Mr. Agnew of Massachusetts, Dr. Hunter of Connecticut, and Mr. Adams of New York. A copy of the proposed and approved program is enclosed.

If adequate support were available, such a long-term program might be set up either under the State Universities or Fisheries Departments, or under the Fish and Wildlife Service. I recommend the wisdom of the latter course for the following reasons: 1. The problem is of regional interest since all of the North Atlantic States down to New York have potential salmon streams and have urged us to take action in surveying these streams in order to provide the information necessary to undertake an antipollution campaign. Furthermore, if a satisfactory job of restoration and management can be accomplished, it will be of tremendous interest and importance to sport fishermen of all the Eastern States.

2. The Service has research men available who are experienced in population, life history, and management studies of the kind needed for the salmon work. Therefore, it is in a position to provide the most effective organization and supervision of this work.

3. The Service is investing annually considerable money and effort in hatching and rearing salmon. If conduct of research and management work is left to State organizations, the Service will be entirely dependent on work beyond its control for determination of the best and most effective use of the fish which it produces.

4. The Atlantic salmon has a tremendous and widespread appeal to the army of anglers in the United States. A successful job of restoration and management will bring a great deal of credit and attention to any organization or organizations which can accomplish the task. The Service

is the logical organization to provide the necessary leadership in such a program for the reasons I have mentioned above.

In view of the above, I wish to urge that the Service set up a limited staff to carry on trial experiments and to implement the basic long-term program which was drawn up by the Service's biologists and approved by the Fisheries Commissioners of all the North Atlantic States. This will provide the necessary continuity of effort and supervision, and make the most effective use of any work which State or other organizations are able to do on this important problem.