CWSC 265

EELGRASS AND OTHER WATERFOWL FOODS
PRESENT STATUS AND FUTURE PROSPECTS

BY

H.F. LEWIS

1936

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Eelgrass

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By

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At the last two annual conventions of the American Game Association, the predecessor of the North American Wildlife Institute, reports were presented on the eelgrass situation. It is assumed, therefore that the history and importance of this plant disease is well known to members of the conference. Consequently it seems unnecessary to point out the many intricate relations that this submerged, saline aquatic pondweed bears to other forms of life. It will be recalled that its precipitate and nearly complete disappearance has apparently seriously affected sea brant and other coastal waterfowl as well as the fishing and shellfishing industries. It should be remembered that the disease gravely affected the plants on the American and European Atlantic coasts, while the same species of plant (Zostera marina) occurring on the American and Asiatic Pacific coasts is as yet unaffected.

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Eelgrass Conditions on the Atlantic Coast of Canada in 1935

Every year since the eelgrass on the Atlantic coast of Canada was largely destroyed by disease there has been much vigorous new growth of the plant in summer, unfailingly giving rise to newspaper reports that this important waterfowl food was "coming back". Every year, in the interval between late August and the following spring, most of the new growth has succumbed to the disease, with the result that, considering the coast as a whole, there has been no permanent improvement in the condition of the eelgrass.

Fluctuations of this type were repeated in 1935 by the eelgrass of the eastern Canadian coast. In this year the new growth seemed to be a little larger and more plentiful by mid-August than was the case in previous years, but the subsequent destruction by disease was as devastating as usual, so that by mid-December the eelgrass was, on the whole, no better than it was a year earlier.

At Isle Verte, Quebec, on the south shore of the estuary of the St. Lawrence River, are extensive tidal flats which were formerly renowned, both for the large harvests of eelgrass which they produced, and for the great flocks of Canada geese and brant which gathered there during migration to feed on the eelgrass rootstocks. Personal examination of these flats by Lewis in October in each of the past three years is the basis of the following comparative data:

October 24, 1935. 50 percent of the flats estimated to be covered with eelgrass, which was short and diseased; remainder of flats bare.

October 3, 1934. 10 percent of the flats estimated to be covered with short, diseased eelgrass; remainder of flats bare.

October 17, 1935. Only a small fraction of 1 percent of the flats covered with short, diseased eelgrass; remainder of flats bare.

What little eelgrass is now to be found on the Atlantic coast of Canada is chiefly in areas where the salinity of the water is much below the normal salinity of sea water.

There appears to have been some increase of wigeongrass (Ruppia) in areas vacated by eelgrass, but not enough to furnish more than a small fraction of the waterfowl food formerly furnished by eelgrass on the same areas.

Whether or not eelgrass will eventually return to its former abundance on the Atlantic coast of Canada no man can say. So far there is no evidence of any permanent or worth-while improvement in its condition or its abundance. The chief hope of bringing about, by human intervention, an improvement in the situation as it affects brant and geese appears to lie in attempts to introduce on the denuded tidal flats disease-resisting eelgrass or other suitable waterfowl food-plants from other regions.

Conditions on the Atlantic Coast of the United States

While no complete or detailed survey of the eelgrass situation along the Atlantic coast of the United States has been made for several months, the evidence at hand indicates that even though conditions are still serious and alarming they are not quite so unsatisfactory as they seem to be along the Canadian coast. It may be reported that conditions are still extremely variable, many areas being no better than they were six or twelve months ago and some being even worse. Evidence of the disease appears to persist in every section, although the plants in some localities may be developing an immunity against it or else a strain that is more resistant to the disease is appearing.

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In much of the Chesapeake Bay section of Virginia and Maryland the plant has returned to almost normal condition and during the past season has been sufficiently abundant to be washed ashore in sizable windrows and to be gathered for packing crabs and other shellfish. In general the best return of the plant has been restricted to areas of reduced salinity, such as the more inland coastal bays and estuaries and the mouths of large rivers. Most of the more open coastal bays have shown little or no improvement. Each year at many places during the growing season an encouraging improvement has been noted. Much of this, and in many areas all of the new growth, has been entirely laid waste as fall progressed. Extensive flats that formerly supported a dense stand of the plant became shifting sand flats when the disappearance of the eelgrass left the firmer soil exposed to erosion.

Fortunately many of these flats are now being covered with wigeongrass (Ruppia maritima), which is serving both as an effective check for moving sand and as a food for coastal waterfowl. This plant-food is restoring many of the ecological associations that existed before the onset of the wasting disease of the eelgrass. Consequently waterfowl food conditions are noticeably improved along much of our coast, particularly in the more southern areas, including Pamlico Sound of North Carolina.

Only time can tell whether eelgrass will ultimately re-establish itself as it formerly was along the Atlantic seaboard. The solution of the problem may lie in the introduction of resistant varieties of eelgrass. Last fall the Biological Survey obtained seeds and plants of the west-coast variety and planted them at appropriate situations along the Atlantic coast. Furthermore, transplantings were made of healthy plants that had become well established in Chesapeake Bay to areas in the more open coastal bays where

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little or no return had occurred. It is too early to give the results of these experiments. Additional plantings of Pacific coast plants and seeds will be made again this spring in an effort to restore the eelgrass on the Atlantic coast. If these efforts fail, attempts should be made to introduce other species of eelgrass from the Asiatic and European coasts.

The abundance of other waterfowl foods varies slightly from year to year. Reclamation, drainage, mosquito control, pollution, drought, and agriculture have destroyed many favorable waterfowl areas. Consequently the supply of appropriate duck foods has, to some extent, decreased with the increase and expansion of our population and the advance of civilization.

The Federal Government in its refuge program is at the present time making every effort to acquire and rehabilitate some of the more important waterfowl areas. Even though there naturally has been a reduction in the quantity of waterfowl foods throughout the United States, with localized areas having an obviously inadequate supply, this diminution of foods has not been proportional to the decrease in waterfowl populations. Consequently there undoubtedly is as much food per bird today, with the exception of the Atlantic sea brant, as there ever was. Furthermore the supply of acceptable foods can be increased with less effort than is required to increase the waterfowl population. If the destruction wrought by human agencies can be prevented there need be little fear for a bounteous supply of acceptable waterfowl foods.

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Abundance and Condition of American Brant and Canada Geese on the Atlantic Coast in 1935.

Canada

Reports obtained by the Canadian Department of the Interior from its officers, from the Royal Canadian Mounted Police, and from organized voluntary observers on the coasts of Nova Scotia, New Brunswick, Prince Edward Island, and Quebec indicate that the status of American brant and Canada geese in those regions in 1935 was as follows:

Canada geese were present on migration in both spring and fall in numbers that differed little from those recorded with reference to them in 1934. They are only a small fraction of the numbers of this species that occurred on migration in this region under normal conditions six or more years ago, before the supply of eelgrass began to fail.

Only a few thousand American brant appeared in the spring and fall migrations through this region. Their numbers in the spring of 1935 appeared to exceed somewhat their numbers in the spring of 1934, but in the fall of 1935 they were notably scarcer than in the fall of 1934. What remain are only a very small percentage of the numbers of these birds that frequented these regions on migration in 1930 and preceding years.

Very few American brant or Canada geese were killed by hunters on the Atlantic coast of Canada in the fall of 1935. Seven brant which were taken by two hunters from a flock of a thousand at Isle Verte, Quebec, were so thin that they were considered unfit for food.

It is believed that the present extraordinary scarcity of eelgrass on the Atlantic coast of this continent is the condition chiefly responsible for the reduced numbers of Canada geese and American brant on that coast and for the poor condition of individuals of the latter species.

The United States

Inasmuch as the American or Atlantic sea brant follow along the Canadian coast before reaching the United States the numerical status of the birds in the two countries would necessarily be similar. While all the facts are not yet available regarding the abundance of these birds in the United States, the information at hand offers little encouragement. A slight increase over the alarmingly low numbers of last year is reported for Pamlico Sound, with a proportionate decrease for other sections of the coast. Atlantic coast geese, particularly in the southern part of their range, have probably increased slightly. This increase seems to be due to birds going to the coast from the interior of the country rather than to birds migrating along the coast from Canada.

Some Important Waterfowl Foods

Discussion of waterfowl foods in this paper has thus far dealt only with eelgrass. It should be pointed out that while this plant is the principal vegetable food of a number of coastal waterfowl and under normal conditions formed more than 80 percent of the winter, spring, and autumn food of the American or sea brant, it is only one of many plants that can properly be listed as being of great importance to waterfowl. With it, wigeongrass (Ruppia maritima) normally occurs along the coast in brackish water. 1/

1/ Comments concerning the importance and distribution of each of the more important brackish - and fresh-water plants were presented as 60 slides were shown.