
LOBSTERS AND THE LOBSTER PROBLEM IN
MASSACHUSETTS



By George W. Field

Chairman Massachusetts Board of Fisheries and Game



WITH DISCUSSION

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Mr. PRESIDENT AND GENTLEMEN OF THE CONGRESS: In 1873 it was found necessary in the state of Massachusetts to make some regulations restricting the catching of lobsters. At that time the first law was made, and, as subsequent experience has shown, it proved to be a biological blunder and a thoroughly illogical procedure. They started out with the assumption that if the lobster had an opportunity to lay one litter of eggs this would be sufficient to insure a supply for increasing demand. It was not long after that it was found the lobster supply in the neighborhood of the great cities—particularly New York and Boston, the great markets—was decreasing very rapidly; and that decrease has continued until now the supply in Massachusetts has diminished over 66 per cent in the neighborhood of Boston in three years. If we examine the evidence, there is absolutely no question that this decline in the lobster catch is an actual and not a theoretical one.

It is evident, first, from the fact that it is necessary for the fisherman to tend, not 10, 20, 30, or 50 traps, as he formerly did, but he must now have 100 or 200, in order to get the same number of lobsters. The number of men in the business has increased very largely. They are obliged to cover a larger area in order to get a proper supply. But most prominent of all is the fact that the number of egg-bearing lobsters has diminished in proportion to the total number of lobsters in the water. In 1890 statistical evidence indicated that there was about 1 egg-bearing lobster to every 20 which were not carrying eggs; whereas in 1907 it was found that this ratio had declined so that there was only about 1 egg-bearing lobster to every 101, showing that the egg-bearing lobsters were only about one-fifth as numerous as they formerly were. This has come about from the fact that we have been taking from the larger lobsters, the adult lobsters, each year. We have, in other words, been cutting off the big timber, which was producing the new material, the seed, and in that way we have diminished the reproductive capacity of the race. During the past four years, in my personal experience, we made measurements of about 3,500 or 4,000 egg-bearing lobsters each year. These measurements have been carefully made, and the lobsters

divided into two classes—those above 12 inches and those below. I have some figures here indicating the decline in the size of the egg-bearing lobsters, and with that comes the very important fact that there has been a corresponding decrease in the number of eggs laid. In 1905 we found there were 185 lobsters over 12 inches long to every 100 under 12. In 1906 this number had declined to 133 above 12 inches to every 100 under 12; in 1907 came the very astonishing reduction of 39 over 12 inches to every 100 under 12; in 1908 there was somewhat of a rise, and the number this year was 110 over 12 to every 100 under 12. Taking the average of the first two years, we find that the average for 1905-6 was 159 lobsters over 12 to every 100 under 12; and in 1907-8 this had declined to 75 egg-bearing lobsters over 12 to every 100 under 12.

This seems to me to indicate that we are going at the matter in the wrong manner; that the present laws are entirely illogical, and that we are decreasing annually the reproductive capacity of the race by destroying the best of the lobsters of reproductive age each year. To meet this situation we are suggesting to the legislature of Massachusetts that just as it was responsible for this original law, so it should pass another law to remedy the situation. It should consider the fact that it is necessary to have a law which will meet the conditions by protecting not alone the young lobster before it reaches an age of economic importance, but also the adult lobster, which produces the eggs necessary for propagation.

We need to support the work of the Bureau of Fisheries, which for many years has been propagating the lobster artificially; the admirable work of the Rhode Island commission, and the work of the Maine commission, all of which has been on the line of saving the eggs which have been laid. There should be some provision made for increasing the number of eggs which are annually produced, and it seems that this could best be done by protecting the adults, say above 11 or 12 inches long, in such a way that their capture may be entirely prevented. We are therefore suggesting that the traps be made with a ring $3\frac{1}{4}$ or $3\frac{1}{2}$ inches in diameter, a size so small that the large lobsters of reproductive age can not enter. And thus we will have a law that will enforce itself automatically. The traps are to be officially inspected and sealed, and these traps must conform to the specifications, and in that way the law could be readily and economically enforced.

DISCUSSION.

The PRESIDENT. Is there approval or objection to the measure that has been suggested?

Mr. HENRY T. ROOT (Rhode Island). I was going to say, Mr. President, I hoped that the president would answer that question. I will say, however, while I am on my feet, that in Rhode Island the increase of lobsters has been amazing within the last three years. We lay it wholly to protection. We are enforcing the laws thoroughly. We put men in prison; we fine them hundreds of dollars; and we have got them now so that the fishermen are with us. Our laws are enforced, and the small lobsters are not put on the market. We save the egg lobsters and get more than we want by paying for them.

When we first started in the lobster business it was difficult for us to get 80 to 100 egg lobsters. This year we had no trouble in getting several thousand; last year we got more than we could begin to handle, simply paying the fishermen a little more than market price for egg lobsters. We save them in that way; we strip them, put them back in the water, and they go on; and in two years more, if the fishermen do not get them, we will have more egg lobsters—the same ones.

This method of Doctor Field's sounds very plausible, but with all his arguments the Rhode Island commission has not been able to give it their indorsement. I think thorough protection will increase lobster production, as it has in our waters of Narragansett Bay, where we got last year, in that little bay, over 1,000,000 pounds of lobsters. This year we should get many more; and the fishermen are getting rich in the short time they have to catch them. One man on Block Island made alone \$1,300 catching lobsters in the open season. We feel that we are doing great work there. I wish that Doctor Mead was here. And, furthermore, I would like to say, while I am on my feet, the whole inception of our industry was inaugurated by President Bumpus.

The PRESIDENT. The figures that Mr. Root has mentioned are really very striking, both to us of this country and to our foreign friends; and when I tell the visiting delegates that this summer I have been paying 25 cents per pound for lobsters, and state the total amount of lobster meat taken in the lower part of Narragansett Bay, which is a small bay (the lobsters do not get very far up the bay of our smallest state), you have a sum of money coming in to the poor fishermen there that is really very considerable; those figures once more, Mr. Root? It was how many?

Mr. ROOT. One million pounds last year. This year it will be a good deal less.

The PRESIDENT. It was 1,000,000 pounds. This makes \$250,000 that has come into the pockets of fishermen. There are only a few lobster fishermen in Narragansett Bay.

If you will permit the chair to comment a little further, I would say that I believe that the large catch of lobsters in Narragansett Bay at the present time is the direct result of the efforts of Doctor Mead and his associates on the Rhode Island commission in their methods of hatching the lobster during the first few stages of its development. You all know how the young lobster first hatches from the egg and swims upon the surface, a perfectly helpless, pelagic animal. After it has reached the stage of its fourth moult it is, psychologically, itself; it is no longer timid, but it becomes pugnacious. It is no longer a helpless and free-swimming animal. It settles to the bottom, and it is pretty well able to look out for itself. Now, what the Rhode Island commission has attempted is to keep the lobsters confined until the young lobsters have

developed sufficiently to reach that stage when they are able to look out for themselves. It is practically the same thing that the men interested in trout have been doing for the trout. They have kept the trout until they reached the fingerling stage, and the Rhode Island commission has been keeping the lobsters until they have reached the self-help stage. Of course a part of the itinerary in New England is a visit to the station at Wickford, where this work has been going on. And I might further add that I believe what I say in regard to the work of the commission there will be subscribed to by every practical fisherman in the state of Rhode Island, i. e., that the commission is working in perfect sympathy with the local fishermen.

The paper is now open to discussion. I am sorry I have taken so much of the time myself.

Mr. W. H. BOARDMAN (Rhode Island). Mr. President, I wish to corroborate Mr. Root's statement, and refer to something he did not mention—a fact which has been brought to my attention especially, because I went down to visit the Block Island lobster fisheries.

That year, or previous to two years ago, there was no lobster fishing there at all. The fishermen had gone out of business entirely. Of course at one time, years ago, the little ground surrounding the island was good ground for fishing; but, as I understand it, for the last six or seven years there have been absolutely no pots set around Block Island, because it did not pay. Last year two or three fishermen ventured to set a few traps, and they were successful to so great an extent that in this year, in July—no, in the early part of August—when I went down to visit those fisheries, I found 80 fishermen had engaged in the business, with 3,000 traps. In a visit of two or three days' duration I saw quite a number of lobster fishermen come in with their daily catch, and it was simply enormous. Each daily catch represented a large profit. In some cases it would take fifteen minutes to dip it with a bucket from the car to the vehicle on the shore with which they went to the markets. They claim, without exception, and I have no doubt they are uniformly enforcing the law, that it is all due to the Rhode Island commission's preventing the catching of less than 9-inch lobsters and the fishermen's sending what egg-bearing lobsters they have to our commission at Wickford, to be hatched and raised, as you say, to the fourth stage.

The PRESIDENT. This island is a relatively small island, some 10 square miles in extent, in the mouth of Narragansett Bay—an island of, say, 5 miles in extreme length and 3 miles in width.

I am inclined to dwell on this a moment, because the efforts to stimulate and revive a waning industry are so often fruitless that when activities result in apparently pronounced success it seems to me well for us to accentuate that.

Are there other comments to be made upon this matter of the lobster fisheries? I wish that Professor Prince, if he is here, would speak. The work in this line I know has been carried on in thorough sympathy between the two governments. Are there others who will speak? If not, the next paper will be called for.

Mr. DONAHUE (State Fish Commissioner of Maine). Mr. President—

The PRESIDENT. Will you be good enough to come to the platform? Permit me to say to the foreign delegates that the lobster industry of the Maine coast is one of the most important in the United States.

Mr. DONAHUE. During the remarks with reference to the lobster made by the gentleman who preceded me, it occurred to me that it might be of interest to some who are not as familiar with it as we are to know just what the conditions are as we find them in Maine, where we produce more lobsters than all the rest of the country combined and therefore think we ought to know something about the subject.

We produced last year 8,000,000 pounds of large lobsters. We do not make our measurement as small as the other states. Massachusetts and Rhode Island have a 9-inch law; so do the provinces. Our lobster, to be a legal lobster under the laws, must be approximately 10½ inches long. We changed our method of measuring at the last legislative session, which was a year ago last winter, on account of the curious way

the fishermen had of doing it. A lobster must as the law required measure $10\frac{1}{2}$ inches from the end of the nose to the rear end of the tail shell. Now a lobster is in two sections, practically, so that he can be pulled out or shoved in; and if a fisherman wanted to make a lobster "go" that was a little short, he would give it a little wrench or pull and it would stay out. Then he would say to the buyer, "Measure him again;" and the lobster would be found to be all right. That was a very bad practice, and by it we have lost a great many lobsters. The fellow that caught the lobster might be able to sell it, but in a day or so the man who bought it would have a dead lobster instead of a live one. So we adopted a new law. A lobster now must be measured from the end of the nose to the rear end of the body shell. This is one solid shell, and there is no way to pull it up or stretch it in any way, so that $4\frac{3}{4}$ inches is the measure now, which is approximately the same $10\frac{1}{2}$ inches, but measured in a different way.

Last year, as I say, we caught of that size of lobsters between 8,000,000 and 9,000,000 pounds; and the value of them, as received by the fishermen, who are the first hands, was a little less than \$2,000,000.

We have a method of propagating in Maine which is a little different from that in Massachusetts, inasmuch as we buy the seed-bearing lobsters, or egg-bearing, as we call it, from the fishermen and pay 25 per cent more for them than the fishermen can get from the market man for the regular legal lobster. We do that to make it an object for the men to save every one of those seed-bearing lobsters, as we do not want to lose a single one.

The lobster is very prolific, producing from 25,000 to 80,000 seeds at a batch. They are great breeders. If they had not been, our lobsters would have been exterminated long ago.

By the way, I want to say that some lobster fishermen do not think it is a good plan to have these fish hatched artificially. They believe the best way is to throw them over into the natural element and let them do their own hatching. If the fisherman objects to our taking them, we say, "We will buy the lobster; and you may throw it overboard in the ocean, and if you catch that lobster to-morrow we will buy it again." But in order to find out how much we were getting "stuck" on that proposition, we took a small punch and punched the thin part of the tail. This does not hurt the lobster. We mark it, and in that way we keep tab on how many times we buy the same lobster in the same year. In one case we rebought a lobster four times, but very seldom do we buy one the second time.

We take those that the fishermen do not object to our carrying to the hatchery. We have a hatchery in the state, owned by the United States Government, at Boothbay Harbor, and they hatch all the lobsters that we can get for them. The State pays us the price that we pay for the lobsters, or the market price of the lobsters. Those lobsters are held in pounds throughout the winter and hatched the following spring, and last year (1907) the hatchery at Boothbay Harbor hatched and liberated on the coast of Maine approximately 140,000,000 of those small lobsters. They are taken out after they are able to swim around pretty well and take fairly good care of themselves and liberated in the coves, up in the mouths of the rivers, where the water is not too fresh, and some out in the ocean. It is more or less a question as to the best way to propagate the lobster, and how to get the best results. After the little fellows are once liberated, why, of course, we do not know any more about them, excepting the results we get the next season or two seasons after in fishing. We have been following that plan now for a number of years—it has been ten years—and our fishing last year showed a marked increase; the year before a slight increase. For this year the statistics are not entirely made up, yet as far as we have gone it appears that we are going to get a very fair increase in the catch of lobsters. The 9-inch law which is in force in Massachusetts and Rhode Island and the Provinces is more or less trouble among our fishermen, from the fact that a fisherman is more or less greedy; when he gets something that he has picked up out of the water he is apt to want to sell it; and we have enforced the law by making it a pen-

alty—a fine of \$1—for each lobster found in any man's possession, whether he caught it or whether he bought it, under approximately 10½ inches in length.

That has been the system for a number of years. Two years ago, when I took charge of this department, I was very familiar with the lobster men and their habits, having lived among them for a number of years; and I adopted a different method of enforcement. While I enforce the same penalties and in some cases have to use the same methods, I commenced, instead of using legal suasion on the fishermen, using moral suasion, and have at the present time educated in the neighborhood of 2,000 of them (there are only about 3,000 that fish for lobsters) up to the idea that it is to their disadvantage to sell a lobster before he is approximately 10½ inches in length. So that at the present time there are nearly 2,000 lobster fishermen that are helping the wardens to enforce the law. Without moral suasion, as one of the wardens said to me, "It would take one warden to every fisherman, and then you could not enforce the law," which is true.

The lobsters of the state of Maine are unquestionably on the increase, and we are satisfied in the state that the method we have adopted there is the best method. The idea of selling the small lobster and preserving the big ones is thought the best way by some. As a fair illustration of that I would like to ask any of you gentlemen from the West, where you raise beef, what would you think of a man out there in the beef business who sold all of his veals? Where would he get any beef to sell later? Would not that be practically where we would be if we sold our small lobsters and did not save the big ones, the seed lobsters? What would result if we did not let the small ones grow? This method, I hope, will be the one that will be adopted by the other states. We were very sorry that Maine and Massachusetts could not agree upon a uniform law, because Massachusetts is our nearest neighbor and competitor, and we find it more or less difficult to enforce the law with Boston a market for 9-inch lobsters. I hope the time will soon come when we can all have the same law, and I have not a doubt that, if we do, and give the proper protection to the lobster, there will be no question but we will have all the lobsters that this country wants at fair prices. This year Rhode Island has a larger catch than for a number of years; in fact, it has been a long time since Rhode Island produced many lobsters, and the way it looks now lobsters ought to be sold at lower prices. They have been too high, and it is no wonder that the public found fault with the price. But with the proper protection of the seed and by giving the little ones a chance to grow there is no question in my mind but what we will all have lobsters at fair prices.

Mr. FRYER. There is one small point which has not been touched upon, and that is the question of what I may call the "average minimum size" at which lobsters are found to be egg bearing. The term "egg bearing" I assume is used in the sense of carrying the eggs externally. We have had in England precisely the same trouble that you have had here, accentuated by the fact that where we have tried a law prohibiting the landing of lobsters carrying berries we have found that the fishermen have evaded that law by brushing the eggs off, and in many cases, at certain stages of development, it is very difficult to prove that such a thing has been done and that the eggs have not been shed naturally. In the same direction we have adopted a method of regulation similar to that which you are adopting here, namely, regulation by size; but we are very much in doubt what is the proper size limit to fix. On some parts of our coast we are told that there is a diminutive race of lobsters, and that they never attain what is now the legal minimum size, namely, 8 inches; but within the last two years I have been having some rather extensive observations carried out with regard to the size of lobsters and their condition at the different sizes. One result of that has been certainly in the direction advocated by the last speaker, namely, that the minimum size at which lobsters may be taken needs increasing. We have found—I have not the exact figures in my mind, but I think I am within the limit in saying it—that not one in a thousand female lobsters under 8 inches in length has been found to be carrying eggs externally, which goes to show that our law, fixing the minimum at 8 inches, is per-

fectly inadequate. On certain parts of the coast the size has been increased to 9 inches, and the method that I personally favor, for the moment at any rate, pending more detailed information, is that, in order to meet the prejudices of the fishermen, the minimum size should be gradually increased—if it is only by half an inch per annum—until such a minimum size is fixed as will give at least a fair chance to every lobster—every female lobster—to reproduce once before it is brought to the market.

With respect to the very ingenious suggestion that has been made of a lobster trap which shall let out all the little ones and exclude all the big ones, I would suggest that the practical effect of that, if it works out as the fishermen would like to see it work, would be that you would allow the fishermen to catch all the lobsters at the reproductive size. They would spare them until they reach that size, and in the meantime they would be prevented from catching the larger patriarchs of the ocean. But those patriarchs of the ocean will not live forever, and the time will come when they will die off. You will then have killed off all those of the intermediate, egg-bearing size, and will only have those of the smaller non-egg-bearing size left.

Mr. PAUL NORTH (Ohio). Mr. President, it occurs to me that we of the West, who know nothing about the lobster, except our own peculiar brotherly kind that we have out there, do not help you eastern people to the extent of stopping our states from being the dumping ground of these short lobsters. All we see with us is the short lobster, and it seems to us that if we could pass laws in our state, where we do not raise lobsters, that would prevent the sale of lobsters below the legal limit, we would be assisting very materially in the enforcement of the lobster laws in the states where they raise them. The 6 and 8 inch lobster is common with us, except when they get man size.

The PRESIDENT. The question is raised: At what time does the lobster reach sexual maturity, i. e., the average time, as indicated by its size? I know that the United States Government has made a great many observations on that, and I dare say that Doctor Field has them at his tongue's end. Do you remember, Doctor Field? The smallest lobster to be found with eggs, I believe, was $7\frac{3}{4}$ inches.

Dr. GEORGE W. FIELD. How many? That was only one individual. Less than 3 per cent of those that have eggs are under 9 inches long, and the great bulk of those we have taken have had an average size of about 11 inches. There is a small number above that. We will say that with a curve the number below 11 inches and the number above 11 inches is about the same; but those above 11 inches will produce at least five times as many eggs as those on the other side—as those between 9 and 11 inches. You doubtless know that the first litter of the lobster is about 5,000 to 10,000 eggs, and then each two years later it doubles—10,000, 20,000, 40,000, 80,000, the largest being 96,000 eggs in a 17-inch lobster.

Now, our contention is that if you make a perpetually closed period on the large lobsters you preserve those large lobsters which produce eggs and have a continual supply of eggs hatching, and have young ones growing up from them; whereas, at present you have a wide-open season, so to speak, on all the lobsters above 9 inches which are exposed to capture. Under the laws proposed it will be legal to take them only when between 9 and 11 inches, and they are protected except during a very small portion of this breeding age, i. e., when below 9 inches.

In regard to the simile of the cattle breeder, it is perhaps not necessary to say that there is no sane cattle breeder who would kill off his very best stock. He would keep the best stock for breeders. He would kill off a proportion of the small stock, and keep the very best selected animals for breeders, and that seems to me is precisely what we ought to do in the case of the lobster.