USE OF FISH IN NEW ENGLAND SCHOOLS INCREASED BY DEMONSTRATIONS

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BACKGROUND

Since fish is a traditional food in New England, it is not surprising to find that it is widely used in the area's school cafeterias. However, even New England dealers may be surprised to learn that surveys show a large proportion of their schools are now serving an average of 900 pounds of fish (round weight) per school year. Effectiveness of the 38 fish-cookery demonstrations which were presented in the area during 1950 and 1951 by the Commercial Fisheries Branch of the U. S. Fish and Wildlife Service is demonstrated by the increase in fish consumption in those schools represented at the meetings.

FIG. 1 - SCHOOLS ARE A MARKET FOR FISH.

These fish-cookery demonstrations for school-lunch personnel in New England were given in Maine, New Hampshire, Vermont, Rhode Island, and Connecticut.1/ Presented as a part of the Service's national program to develop markets for fishery products, they affected the eating habits of nearly 90,000 children, or 60 percent of those eating in the school lunchrooms of these five states.

To determine the value of the program in these states in increasing the use of fish in the schools represented, a comparison was made between periods before and after the demonstrations. As a control, a similar comparison was made in schools not represented but otherwise comparable.

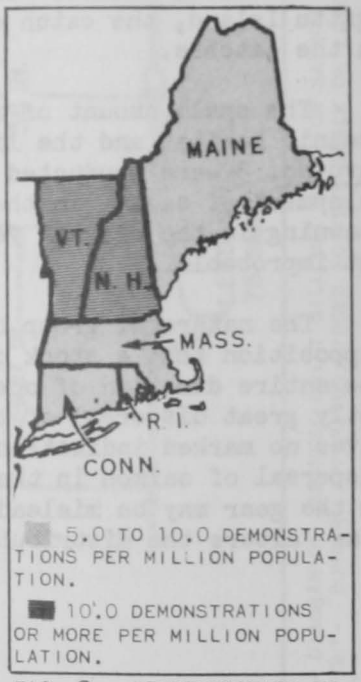

FIG. 2 - CONCENTRATION OF DEMONSTRATIONS IN NEW ENGLAND STATES.

FISH CONSUMPTION INCREASED

It was found that before the demonstrations the average school represented at the meetings in these five New England states served fish 1.7 times per month. After the demonstrations, these schools increased their use of fish to 2.7 times per month--a 59-percent increase. In the same period, schools whose personnel had never seen a demonstration showed only a 14-percent increase, raising their average number of times fish was served per month from 1.4 to 1.6 times. Thus, the over-all result of the demonstrations in the five states was a net gain of 45 percent in the frequency with which fish was used by those 706 schools represented.

Even the increases in the use of fish in those schools which were not represented at a demonstration can be par-

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1/DURING 1949 A SIMILAR PROGRAM OF DEMONSTRATIONS WAS PRESENTED IN MASSACHUSETTS. A REPORT ON THE RESULTS APPEARED IN COMMERCIAL FISHERIES REVIEW, APRIL 1951, PP. 34-6.

tially attributed to the program, according to the school-lunch directors of several states. After the demonstrations, all of the state directors did more to encourage the use of fish. Fish recipes especially designed for school use were provided by the Fish and Wildlife Service for distribution to the school-lunch managers who were not able to attend a demonstration. These efforts were particularly effective in New Hampshire and Rhode Island. However, actual representation at a demonstration, as the net gains showed, was much more effective in increasing a school's use of fish.

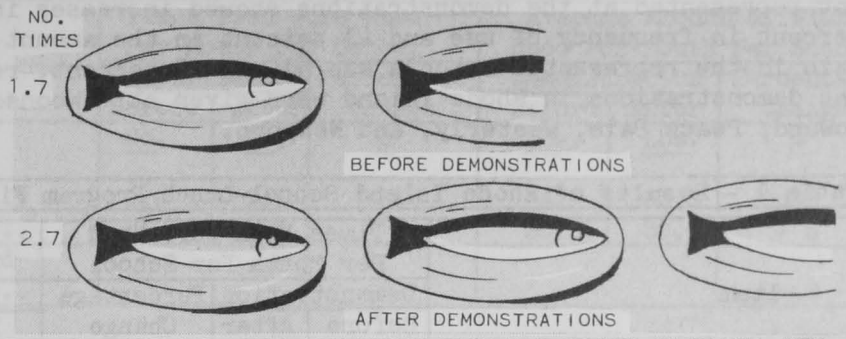

FIG. 3 - AVERAGE TIMES PER MONTH FISH WAS SERVED IN MAINE, NEW HAMPSHIRE, VERMONT, CONNECTICUT, AND RHODE ISLAND SCHOOLS REPRESENTED AT FISH-COOKERY DEMONSTRATIONS.

PROCEDURE FOR CONDUCTING DEMONSTRATIONS

This program was carried out by a Home Economist and a Fishery Marketing Specialist of the Service, with the help of the personnel of the Department of Education in each State. As a result of this excellent cooperation and assistance, each demonstration was attended by an average of 50 school-lunch cooks and managers.

Economy and ease of preparation are two "musts" for any food served in school cafeterias. Therefore, economical (within the reach of the average school budget) fish and kitchen-tested recipes (especially designed for school use) were chosen for the demonstrations. The six recipes included oven-fried fillets, fillets baked in an oil sauce, fillets baked in Spanish sauce, a fish loaf or roll, creamed fish, and a fish salad.

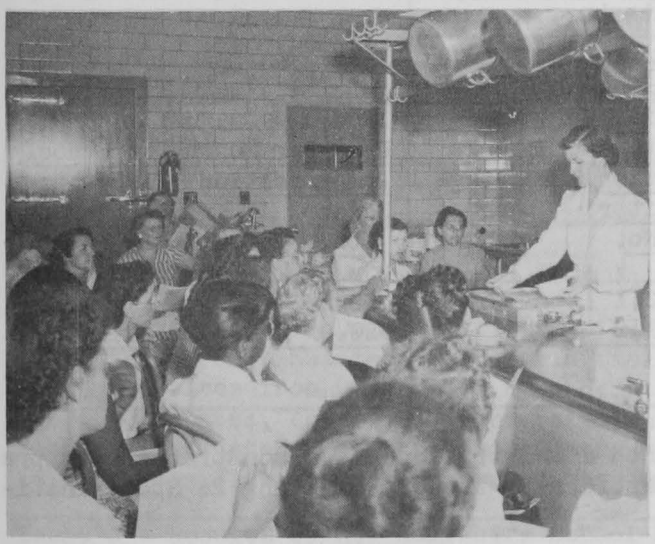

FIG. 4 - A TYPICAL DEMONSTRATION.

At each meeting, in addition to instruction in fish preparation, the audience received information on the nutritive value of fish, its local availability, purchasing hints, and suggestions for proper storage. The manager of each school was furnished recipes and other fishery publications to take back to her own lunchroom.

Although the organization and presentation of the demonstrations were similar in each of the five states, the result, number of demonstrations, and schools represented differed in each.

RHODE ISLAND: In this State, 57 schools sent representatives to the 7 demonstrations given there early in the fall of 1950. To determine the increase in their use of fish, a survey was made of the menus and records of 32 of these schools for comparable periods in 1949 (before the demonstrations) and in 1950 (after the demonstrations). Schools represented at the demonstrations showed an increase of

73 percent in the number of times fish was used per month and a 70 percent increase in the average amount of fish used per month. In comparison, 14 schools not represented at the demonstrations showed increases in the same period of 22 percent in frequency of use and 41 percent in the amount used. Thus, the net gain in the represented schools was 51 and 29 percent, respectively (see table 1). The demonstrations in Rhode Island were given at: Woonsocket, Providence, Warwick, Howard, Peace Dale, Westerly, and Newport.

Table 1 - Results of Rhode Island School-Lunch Program Fish-Cookery Demonstrations

Item	Times Fish Were Used Per Month Per School			Average Amount of Fish Used Per Month Per School		
	Demonstration		Percentage Change	Demonstration		Percentage Change
	Before	After		Before	After	
	No.	No.	%	Lbs.	Lbs.	%
For Schools:						
Represented	1.5	2.6	+73	21.4	36.5	+70
Not Represented	0.9	1.1	+22	18.5	26.1	+41
Net Gain for Represented Schools			+51			+29

CONNECTICUT: A total of 9 fish-cookery demonstrations for school-lunch cooks and managers was given in Connecticut during the late fall of 1950. Table 2 shows the results of a post-demonstration survey which was carried out in the same manner as the one in Rhode Island. Schools represented at these demonstrations showed a net gain of 22 percent in the number of times fish was used in school lunches and a net gain of 44 percent in the average amount of fish used. The survey was made in 57 of the 102 Connecticut schools which took part in the demonstrations, and in 26 schools that did not attend. The school-lunch demonstrations were held in Connecticut at: Hartford, West Hartford, Stamford, Willimantic, Torrington, Redding, New London, New Haven, and Waterbury.

Table 2 - Results of Connecticut School-Lunch Program Fish-Cookery Demonstrations

Item	Times Fish Were Used Per Month Per School			Average Amount of Fish Used Per Month Per School		
	Demonstration		Percentage Change	Demonstration		Percentage Change
	Before	After		Before	After	
	No.	No.	%	Lbs.	Lbs.	%
For Schools:						
Represented	2.3	3.1	+35	32.2	51.1	+56
Not Represented	1.6	1.8	+13	29.9	33.4	+12
Net Gain for Represented Schools			+22			+44

In addition to the nine school-lunch demonstrations, a demonstration was presented in the Capitol's cafeteria at Hartford to a group managing 24 State institutions.

MAINE: Schools represented at the demonstrations in Maine showed a greater net gain in their use of fish than any of the other five states covered in this report. As shown in table 3, this increase amounted to 60 percent in frequency of use and 49 percent in the average amount used. There were 111 schools represented at the demonstrations in Maine during 1951. The survey was conducted in 60 of these, with an additional group of 28 schools surveyed as a control group. The demonstrations were held in: Portland, Bangor, Norway, Augusta, Presque Isle, and Pittsfield.

Table 3 - Results of Maine School-Lunch Program Fish-Cookery Demonstrations

Item	Times Fish Were Used Per Month Per School			Average Amount of Fish Used Per Month Per School		
	Demonstration		Percentage Change	Demonstration		Percentage Change
	Before	After		Before	After	
	No.	No.	%	Lbs.	Lbs.	%
For Schools:						
Represented	2.0	3.3	+66	34.1	52.8	+55
Not Represented	1.8	1.9	+ 6	30.2	32.0	+ 6
Net Gain for Represented Schools			+60			+49

VERMONT: The 11 demonstrations in Vermont had representatives from 115 schools. The use of fish before and after the demonstrations was surveyed in 67 of these, with an additional 37 schools which were not represented checked as a control. The records obtained from these schools indicated that there was a net increase of 38 percent in the number of times that fish was used per month, and a 29 percent net rise in the average amount used. These, and additional statistics on the results of the survey, are shown in table 4. The increases achieved in Vermont came almost entirely from the greater use of fresh and frozen fish. In view of the former reluctance of most Vermont schools to use fish in these forms, State officials reported that these increases were a surprising accomplishment of the demonstrations. The demonstrations in Vermont were presented in: Bellows Falls, Montpelier, Wilmington, Rutland, South Burlington, White River Junction, Bradford, Enosburg Falls, Eden, St. Albans, and Lyndon Center.

Table 4 - Results of Vermont School-Lunch Program Fish-Cookery Demonstrations

Item	Times Fish Were Used Per Month Per School			Average Amount of Fish Used Per Month Per School		
	Demonstration		Percentage Change	Demonstration		Percentage Change
	Before	After		Before	After	
	No.	No.	%	Lbs.	Lbs.	%
For Schools:						
Represented	1.2	1.9	+58	33.6	49.7	+48
Not Represented	1.0	1.2	+20	29.6	35.2	+19
Net Gain for Represented Schools			+38			+29

NEW HAMPSHIRE: Demonstrations in New Hampshire were presented in 1951 in five towns: West Swanzey, West Springfield, Greenland, Rochester, and Monroe. Representatives from 90 schools attended these meetings. The survey, made as in the other states, covered 52 schools which were represented and 20 which were not. Findings indicated that the demonstrations resulted in a net gain of 54 percent in the times fish was served per month. On a poundage basis, the net increase for

Table 5 - Results of New Hampshire School-Lunch Program Fish-Cookery Demonstrations

Item	Times Fish Were Used Per Month Per School			Average Amount of Fish Used Per Month Per School		
	Demonstration		Percentage Change	Demonstration		Percentage Change
	Before	After		Before	After	
	No.	No.	%	Lbs.	Lbs.	%
For Schools:						
Represented	1.6	2.9	+81	31.8	53.0	+70
Not Represented	1.5	1.9	+27	30.4	39.1	+29
Net Gain for Represented Schools			+54			+41

the State amounted to 41 percent. Table 5 shows a summary of the results of the demonstrations in New Hampshire.

In addition to the five school-lunch demonstrations given in New Hampshire, a demonstration for institutional cooks and dieticians was presented at the State school in Laconia. This meeting was attended by 94 persons from institutions throughout the State of New Hampshire.

CONCLUSION

The increase in the use of fish in the New England schools is a good indication of the effectiveness of the fish-cookery demonstrations. However, this immediate increase in fish consumption should not be considered as the only benefit of the program.

By learning more about the nutritional value of the foods they serve, along with points on its purchase, care, and handling, the managers can give their children better meals. This is reflected in the health of the younger generation.

The eating habits learned by the children at school are also communicated to their homes. By creating greater acceptance of fish in the schools, the demonstrations can help increase its use in the community as a whole. Thus, the fishing industry, the children, and their parents all benefit from this program.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1953, P. 33; APRIL 1951, PP. 32-6; SEPTEMBER 1950, PP. 23-6; JULY 1950, P. 17; APRIL 1950, PP. 49-51.

HERRING BLOCK GENERATING PLANT'S WATER INTAKE TUNNELS

Millions of small herring blocked the intake tunnels of a lighting company's generating plant at Glenwood Landing, Long Island, for a week early in December 1952. The fish threatened to cut off the flow of water used to cool the plant's mammoth condensers, according to The New York Times. A blackout, suggested by a biologist of the New York State Bureau of Marine Fisheries, solved the problem and ended this unusual herring run.

The herring had become enmeshed in such great numbers in the special filter condenser screens protecting four 14-square-foot intake tunnels that extra crews on a 24-hour vigil barely managed to keep the screens open enough to avoid a shutdown of the generators. Prior to the blackout, approximately two tons of fish were raked off the strainers each day.

Herring have never been known to frequent Long Island waters in sufficient numbers to be fished commercially. The State biologist expressed amazement at the presence of such great numbers. He believed that this run probably was due to an unusually favorable spawning season the previous year. He said further that the feeding habits of the herring probably were causing them to concentrate at the plant. Herring eat minute plankton organisms in the water and the company's outside lights, enough to light a small city, attracted the plankton organisms.