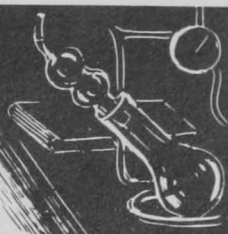




RESEARCH

IN SERVICE LABORATORIES



March 1952

ANALYSIS AND COMPOSITION: Composition and Cold-Storage Life of Fresh-Water Fish: Additional data on the composition of yellow perch and whitefish were obtained and are presented in the following table:

Composition of Two Species of Lake Erie Fish

Species of Fish	Sample No.	Length	Weight	Fillet Yield ^{1/}	Proximate Composition			
					Moisture	Fat	Protein	Ash
		Centimeters	Grams	Percent	Percent	Percent	Percent	Percent
Yellow perch (<u>Percha flavescens</u>)	7	25	220	38.6	78.4	1.05	20.3	1.28
	8	23.5	205	41.5	80.1	0.82	18.6	1.06
	9	23.5	205	42.4	78.4	1.05	19.7	1.20
	10	23	177	36.7	78.5	0.96	20.0	1.31
	11	23	192	36.4	78.7	1.00	20.2	1.20
	12	22	147	42.2	79.2	1.20	20.0	1.34
	13	23.5	165	39.4	79.3	0.85	19.6	1.23
	14	22	145	41.4	79.7	0.80	19.8	1.48
	15	21.5	150	38.0	79.0	0.94	19.9	1.24
16	20.5	125	36.0	79.1	0.82	20.0	1.23	
Whitefish (<u>Coregonus clupeaformis</u>)	7	44	405	47.0	74.8	4.66	19.4	1.15
	8	43	390	41.0	72.0	8.50	19.6	1.22
	9	52	680	39.0	70.3	12.10	17.0	1.13
	10	55	1020	44.5	61.5	18.77	16.3	1.05
	11	48	630	54	72.0	8.57	19.8	1.15
	12	38	325	54	73.6	7.96	19.4	1.12

^{1/}BASED ON WHOLE FISH.

(Seattle).

REFRIGERATION: Freezing Fish at Sea, Defrosting, Filleting, and Refreezing the Fillets: Shipyard work was continued on the experimental trawler Delaware. It is expected that the repairs and alterations will be completed about the middle of April. At that time dockside trial runs of the equipment will be made before operations at sea are resumed. (Boston).



TECHNICAL NOTE NO. 19 - THE ALASKA SHEEFISH: DESCRIPTION AND PROXIMATE COMPOSITION

The sheefish or inconnu (Stenodus mackenzii) are edible fish of the Arctic area. In Alaska large numbers are caught in Hotham Inlet and Selawik Lake near Kotzebue. During the summer the sheefish proceed upstream into the Noatak, Kobuk, and Selawik rivers to spawn. In the fall they return to brackish or salt water.

Native people catch many sheefish using gill nets strung in the rivers during the summer (Dufresne 1946). In Kotzebue Sound, the Eskimos catch the greatest number of sheefish in the winter by "jigging"--fishing through holes in the ice.

The sheefish is anadromous (ascending rivers from the sea at certain seasons) and is closely related to the whitefish. The fish itself has clear, silvery white sides and under surfaces, sometimes giving off a pinkish iridescence. The back is dusky olive; the fins are pale; and the scales are as large as a dime. The fish has no spottings. The lower jaw projects well beyond the snout (see figure 1).

Eskimos eat the fish raw--sliced thin and dipped in seal oil. The sheefish has been utilized only by the Eskimos and a few non-native Alaskans. In recent years, however, large amounts have been marketed in surrounding areas and some have been shipped to Seattle. Fish for shipment to Seattle are usually taken during the colder months of the year when the rivers are frozen. The fish are thrown on the ice immediately after being caught and are naturally frozen. The frozen fish destined for market are then flown to Nome where they are kept in cold storage until distributed to coastal cities. Wigutoff and Carlson (1950) reported that during one season about 100,000 pounds of sheefish were shipped to Seattle by one trader at Nome.

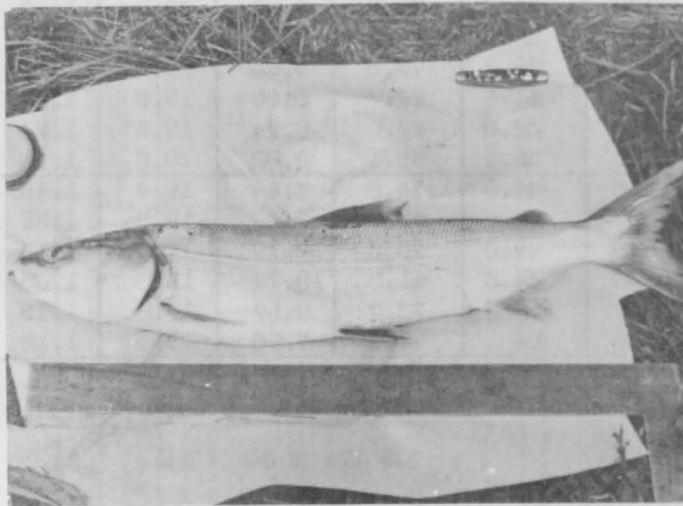


FIG. 1 - A SHEEFISH TAKEN WITH A GILL NET IN KOBUK RIVER, KIANA, ALASKA, IN JUNE 1949. A 24-INCH BUILDER'S SQUARE IS SHOWN BELOW THE FISH.

Those commonly marketed from the Kotzebue area average 6 to 8 pounds. Only a very few sheefish in the size range from 20 to 50 pounds are marketed.

Until recently, the sheefish was little known in North America outside of Alaska and the Arctic area. There is, therefore, very little information available on its palatability and proximate composition or nutritive value.

In order to provide this information, samples of sheefish caught in the Kotzebue area during March 1950 were obtained and tested at the Ketchikan Fishery Products Laboratory. The fish were naturally frozen in the round immediately after being caught and were air-expressed from Nome to Ketchikan. At the laboratory they were allowed to thaw overnight at room temperature. The thawed fish were

Sheefish from Alaska range in weight from 5 to 50 pounds.

dressed and filleted; one fillet was used for the preparation of cooked fish dishes and the other was used for chemical analyses. The fillet for analyses was ground and thoroughly mixed to obtain a uniform sample. Two portions of the ground sample were taken: each was hermetically sealed in a 1/2-pound flat can, frozen, and stored at 0° F. until needed for the test.

The cooking and palatability tests indicated that sheefish are tender, delicately flavored, and suitable for broiling, baking, or steaming. With the present cost of marketing, it is likely to be regarded more as a speciality rather than a staple item in the diet. In March 1950, the wholesale price of sheefish in the round at Nome was 40 cents per pound and the price at Seattle, delivered by air freight from Nome, was approximately 60 cents per pound. Since the edible portion is slightly less than two-thirds of the sheefish by weight, the retail price of the round fish at Seattle would be considerably higher than fillets or steaks of local market fish.

Proximate analyses (moisture, ash, oil, and protein) were run individually on ten sheefish. The results may be regarded as indicative only of the composition of fish entering the commercial trade from the Nome area. Composition of fish is correlated frequently with size and environmental differences; therefore, sheefish of larger size or from different areas might differ somewhat in proximate composition.

Analyses for ash, moisture, and protein were made according to the modified methods of the Association of Official Agricultural Chemists, 1950. Oil content was determined by the acetone extraction method of Stansby and Lemon (1937) as modified by Voth (1946). The results are shown in table.

Proximate Composition of the Edible Portion of Ten Sheefish (Stenodus mackenzii)^{1/} Caught in March 1950 at Kotzebue, Alaska

Sample No. ^{2/}	Percent by Weight of the Edible Portion			
	Ash	Moisture	Oil	Protein
1	1.4	71.5	9.1	19.9
2	1.4	73.8	6.2	20.9
3	1.2	73.3	8.2	19.0
4	1.2	74.4	5.3	19.6
5	1.2	71.8	8.7	18.8
6	1.2	75.1	6.6	18.4
7	1.4	72.5	6.0	21.6
8	1.3	74.2	5.7	20.5
9	1.3	75.2	4.9	19.7
10	1.4	70.7	7.7	21.0

1/ THE FISH RANGED IN LENGTH FROM 21.5 TO 28.0 INCHES (TIP OF NOSE TO MIDDLE OF FORK OF THE TAIL) AND IN WEIGHT FROM 4.5 TO 7.6 POUNDS. THE EDIBLE PORTION (SKINNED FILLET) REPRESENTED ABOUT 63 PERCENT OF THE WEIGHT OF THE WHOLE FISH. THE PROXIMATE COMPOSITION DATA ARE TYPICAL FOR THE SIZES OF SHEEFISH ENTERING THE COMMERCIAL TRADE IN THE NOME AREA AND MAY NOT BE APPLICABLE TO LARGER FISH OR FISH FROM OTHER AREAS.

2/ EACH SAMPLE NUMBER IS A REPRESENTATIVE PORTION OF ONE FILLET FROM ONE FISH.

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