



# RESEARCH

## IN SERVICE LABORATORIES

July 1952

**NUTRITION: Thiaminase Content of Certain Species of Fish Used in Feeding Fur-Bearing Animals:** Different types of fishery waste were spot checked for thiaminase activity during the past year. All of the samples analyzed were found to have low thiaminase activity. A final report summarizing the data obtained is now being prepared. (Seattle)

\* \* \* \* \*

**ANALYSIS AND COMPOSITION: Composition and Cold-Storage Life of Fresh-Water Fish:** The proximate composition of seven buffalofish and eleven carp was determined. The buffalofish were caught in the upper Mississippi River in June 1952; the carp in the upper Mississippi in May 1952. The results are presented in the following table:

Composition of Edible Portion of Buffalofish and Carp

Species	Sample No.	Length Centimeters	Weight Grams	Fillet Yield <sup>1/</sup> Percent	Proximate Composition			
					Moisture Percent	Fat Percent	Protein Percent	Ash Percent
Buffalofish ( <u>Ictiobus</u> sp.)	1	44	1270	35.3	79.7	1.88	18.4	1.16
	2	36	915	30.6	78.2	4.78	17.6	1.15
	3	53	2285	30.9	78.6	2.68	17.1	1.10
	4	40	1400	38.8	73.6	6.93	16.9	1.08
	5	51	2280	32.5	76.1	3.69	19.0	1.08
	6	50	2229	33.6	80.5	1.58	16.9	1.11
	7	61	3795	34.0	76.3	6.11	16.3	1.19
Carp ( <u>Cyprinus</u> <u>carpio</u> )	1	57	1955	27.1	79.1	2.63	17.5	1.14
	2	58	2460	33.1	76.4	4.32	18.3	1.16
	3	51	1505	31.6	78.5	2.65	17.5	1.14
	4	45.5	1230	31.0	77.9	3.82	19.3	1.11
	5	52	1700	28.2	80.8	4.18	17.00	1.18
	6	52	1425	32.0	80.5	2.39	18.1	1.11
	7	52	1487	29.8	77.9	2.61	19.0	1.21
	8	54	1845	30.0	76.1	5.31	18.6	1.16
	9	61	2935	35.0	81.9	1.78	17.4	0.99
	10	54	1960	30.3	79.7	3.69	18.0	1.02
	11	64	2615	31.0	79.2	2.64	18.7	1.18

<sup>1/</sup> BASED ON WHOLE FISH

(Seattle)

\* \* \* \* \*

**REFRIGERATION: Freezing Shrimp at Sea--Gulf States Area:** Organoleptic examinations were made on the frozen shrimp prepared in the Gulf States area after 5 and 8 weeks' storage of the samples. All samples are stored at 0° F. The test included the following samples:

Brine-frozen shrimp tails: The shrimp tails were frozen by immersing in 85-degree salinometer brine (sodium chloride) at 5° F. for 15 minutes. The frozen shrimp were then drained and packaged in one- and five-pound waxed cartons.

Refrozen shrimp: Whole shrimp were frozen by immersing in brine (85-degree salinometer at 5° F.) for 15 minutes. Later the frozen whole shrimp were thawed by immersing in fresh water at 60° F. for 15 minutes. The heads were removed and the tails were packed in one-pound cartons. The shrimp, in cartons, were frozen in air at -20° F. and then glazed by flooding with cold water.

Air-frozen shrimp tails: The shrimp tails were packed in one- and five-pound waxed cartons, frozen in air at -20° F., and glazed by flooding with cold water.

All samples were shipped to the Ketchikan laboratory for storage and testing.

Organoleptic examinations of the samples at the end of 5 and 8 weeks of storage indicated that brine-frozen whole shrimp or tails and the air-refrozen shrimp tails prepared from brine-frozen whole shrimp compared favorably in color, texture, and flavor with air-frozen shrimp. The salt absorption of the brine-frozen shrimp was not excessive and was below the apparent threshold of acceptability. (Ketchikan)

\* \* \* \* \*

Freezing Fish at Sea, Defrosting, Filletting, and Refreezing the Fillets: The new radar unit, installed on the Delaware and operated for instruction and testing purposes during Test Cruise No. 11 (no fishing carried out on this cruise),



VIEW SHOWING LARGE SINGLE CATCH OF FISH ABOARD THE SERVICE'S TECHNOLOGICAL RESEARCH TRAWLER DELAWARE.

performed satisfactorily. The radar unit is the first to be installed on a trawling vessel operating out of the Port of Boston.

The experimental freezing vessel Delaware left East Boston on Test Cruise No. 12 on July 16 and returned on July 24. Fishing was carried out on Georges Bank. Twenty five haul backs were made for a total of 25,500 pounds of fish. Of this total, 4,800 pounds were haddock and 20,700 pounds were scrod haddock.

All fish were frozen in-the-round immediately after being caught and were stored in the vessel's refrigerated hold until arrival at port. The frozen fish were landed at the Boston Fish Pier. The 4,800-pound lot of haddock was sold through the New England Fish Exchange to two of the larger processors of fish. The fish were placed in commercial cold storage by the buyers for later thawing and processing into frozen fillets.

The lot of 20,700 pounds of scrod haddock was stored in a commercial cold-storage plant by the laboratory as one of two lots that will be used for obtaining information on the length of time that round frozen fish can be stored commercially prior to processing. Sample parcels of fish of several thousand pounds each from this and a subsequent lot of like size will be withdrawn from commercial cold storage at periodic intervals over a period of nine months. (Boston)



### SWORDFISH STEAKS

Swordfish is plentiful and moderately priced, according to reports from the U. S. Fish and Wildlife Service.

Swordfish steaks, entirely free from bones, are cut from large fish which weigh from 200 to 300 pounds. Swordfish has a rich distinctive flavor, different from other fish. Broiling is the favorite method of cooking this fish, with baking a second choice.

Here's a recipe recommended by the Service's home economists:

#### BROILED SWORDFISH STEAKS

2 POUNDS SWORDFISH STEAKS	DASH PEPPER
1 TEASPOON SALT	CUP BUTTER OR OTHER FAT, MELTED

Cut fish into serving-size portions. Sprinkle both sides with salt and pepper. Brush fish with butter and place on a preheated, greased broiler pan. Broil 2 inches from the flame from 5 to 8 minutes or until slightly brown, baste with butter, and turn carefully. Brush other side with butter and cook 5 to 8 minutes or until fish flakes easily when tested with a fork. Remove to hot platter. Garnish. Serve immediately, with a brown butter sauce. Serves 6.

#### BROWN BUTTER SAUCE

CUP BUTTER	CHOPPED PARSLEY
2 TABLESPOONS LEMON JUICE	

Melt butter in a small saucepan and heat until light brown. Remove from heat. Add lemon juice and parsley. Serve immediately.