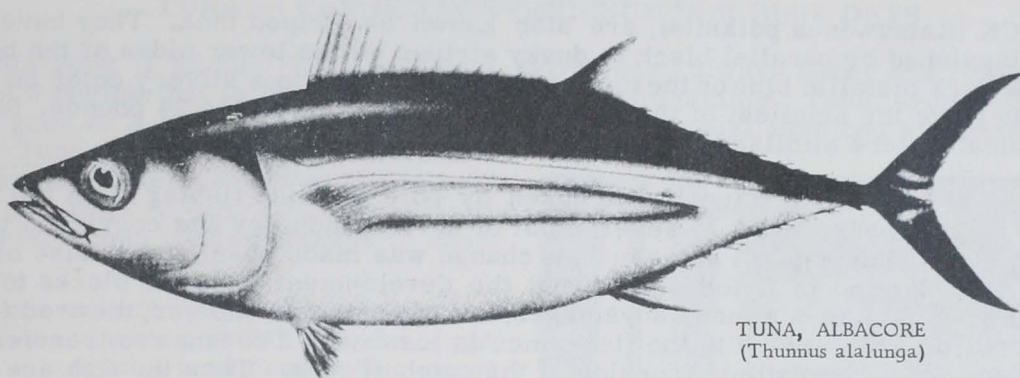


FOOD FISH FACTS



TUNA, ALBACORE
(*Thunnus alalunga*)

Tuna, one of mankind's most ancient and honored foods, were pursued by fishermen hundreds of years before the time of Christ. Ancient Greeks referred to tuna as "thunnos" and they had an intense taste and admiration for these fish. Their admiration was evidenced in vase and decorating themes of that era.

In the still undiscovered New World, ancient Incas and other civilizations were also harvesting tuna along the coasts of Peru and other South American coasts along the Pacific Ocean. Their two-man reed boats, used in searching for tuna, were almost unsinkable.

In the United States, over a billion cans of tuna are consumed annually.

DESCRIPTION There are four kinds of tuna: albacore, yellowfin, bluefin, and skipjack. All
AND four belong to a large family of fish which includes the mackerels and bonitos.
HABITAT: The members of this family are similar in that they travel in schools and are among the most rapid swimmers of all fish. Nautical engineers have described the contours of these fish as being perfect for passage through the water with the least resistance. The bodies are streamlined and smooth, and the fins, set in grooves on the bodies, offer little resistance as the fish glide through the water.

ALBACORE (*Thunnus alalunga*), vary from other tuna in flavor and in the whiteness of the flesh. They are also known as "longfins" and can be recognized by long, sabre-sharp pectoral fins. They are further distinguished by the metallic steely-blue color on the tops and sides of the body and a silvery color on the bottom side, as well as by the absence of stripes. The usual weight of albacore is between 10 and 60 pounds; however, the maximum recorded weight is 93 pounds. Albacore range from Southern California to mid-Mexican waters, sometimes going as far north as Puget Sound in the late summer.

YELLOWFIN (*Thunnus albacares*), probably the favorite of the tuna fishing fleet, are light-colored. They are considered one of the most commercially valuable of the four, and are also popular as game fish. Yellowfin describes these fish as they are distinguished by elongated, yellowish dorsal and anal fins, and yellowish coloring on the sides. They vary in weight from 50 to 150 pounds; however, fish from 40 to 100 pounds are considered choicest for canning. Yellowfin tuna are found from the Gulf of California south to the waters off northern Chile.

BLUEFIN (*Thunnus thynnus*), sometimes called horse mackerel, have light flesh and vary in commercial weight from 15 to 80 pounds. Bluefin tuna have a history as a game fish that goes back to Greek and Roman times. They are distinguished by the deep blue or green color on the tops and sides of the body. Unlike most fishes, the high metabolic rate of the bluefin maintains a body temperature warmer than the water. Bluefin are found from Alaska to Southern California; however, this species is sometimes found in the Atlantic Ocean.

(Continued following page)

SKIPJACK (*Katsuwonus pelamis*), are also known as striped tuna. They have light flesh and are distinguished by parallel black to dusky stripes on the lower sides of the body. Skipjack tuna are dark metallic blue on the tops and sides, shading to a silvery color on the bottom surfaces. They are the smallest of the four tunas, weighing from 4 to 24 pounds. Skipjack are found in tropical waters similar to the yellowfin.

Fishing for Tuna: At one time tuna were taken by pole and line fishing from the famed tuna clippers. Now, however, most of the tuna industry has converted to the more efficient purse seines. This change was made possible because of the introduction of nylon seines and the development of power blocks to handle the great nets. Purse seining has many advantages; the voyages are shorter, the need for bait has been eliminated, and the hazard to the fishermen is lessened. The tuna are transferred to refrigerated holds where immediate freezing of the catch occurs. Thus the fish are fresh upon reaching the canning and processing plants.

Conservation: In the early 1960's it became apparent that the stocks of Pacific yellowfin tuna had reached their maximum sustainable harvest. In 1966 this tuna came under effective regulation on the recommendation of the Inter-American Tropical Tuna Commission. An effort began to increase the harvest of underutilized species of tuna. Fortunately, the skipjack population and perhaps those of the temperate tunas appear not to be fully harvested. The Fishery-Oceanography Center of the Bureau of Commercial Fisheries, the IATTC, and other agencies are now involved in research designed to increase the take of these tunas through discovery of new fishing grounds, and increased knowledge of the week-to-week movements of the fish.

Uses of Tuna: Tuna supplies a rich source of protein, vitamins, and minerals. It is easily digested, and can be used as it comes from the can or combined with other foods. It is economical because there is no waste in the compactly packed and compressed cans. Although the packs are labeled white meat or light meat, they can be used interchangeably. It is available in solid-pack, chunk-style, or grated; and comes in $3\frac{1}{4}$ to $3\frac{1}{2}$, $6\frac{1}{2}$ to 7, $9\frac{1}{4}$, and $12\frac{1}{2}$ to 13 ounce cans.

(National Marketing Services Office, BCF, U.S. Dept. of the Interior, 100 E. Ohio St., Rm. 526 Chicago, Illinois 60611.)

TUNA -- CANNED CONVENIENCE FOR BUSY DAYS

Tuna does it again! That versatile performer, always ready and reasonable, stars again in a recipe that is just right for leisurely entertaining. Tuna, everybody's finny favorite, goes to a picnic or wears a party dress with equal ease and a minimum of effort. Crusty-Tuna-Bean Bake, a new Bureau of Commercial Fisheries recipe, spells good eating any time of year but is especially appropriate when the homemaker is short of time.

In this easy recipe, the tuna is blended with mushroom soup, bread crumbs, eggs, and onion to make a tuna crust. The green beans, plus pimiento and dill weed for flavoring variety, make the filling; and shredded cheddar cheese crowns the top. Baked in a moderate oven until thoroughly heated and the cheese is bubbly, this tasty casserole is ready to serve. This casserole may be prepared a day ahead and refrigerated until baking time.

Tuna is one of the greatest of all protein foods and also supplies vitamins and minerals in abundance. There is no waste in the compactly packed and compressed cans which assures 100 percent value to the consumer. The tuna industry had the homemaker's convenience in mind in choosing its three different pack styles. Solid-pack tuna is great for salads; chunk-style is just right for casseroles or skillet dishes; and grated or flaked tuna's small bits are ready for sandwiches or dips. Tuna is available in cans for individual servings ($3\frac{1}{4}$ to $3\frac{1}{2}$ ounces); enough for two ($6\frac{1}{2}$ to 7 ounces); medium-sized families ($9\frac{1}{4}$ ounces); and larger families ($12\frac{1}{2}$ to 13 ounces).



CRUSTY TUNA-BEAN BAKE

2 cans ($6\frac{1}{2}$ or 7 ounces each) tuna	2 packages (9 ounces each) frozen cut green beans	Drain and flake tuna. Mix tuna with $\frac{1}{2}$ cup soup, dry bread crumbs, onion, eggs, salt, and pepper. Line a well-greased baking dish, 13 by 9 by 2 inches, with tuna mixture letting the mixture extend up the sides of the dish. Cook beans according to directions on package, omitting butter or margarine. Combine beans, remaining soup, pimiento, dill weed, and pepper. Pour bean mixture into tuna lining and spread evenly. Place cheese around edge of bean mixture. Sprinkle cheese with paprika. Bake in a moderate oven 350° F., for 30 to 45 minutes. Makes 12 servings.
2 cans ($10\frac{1}{2}$ ounces each) condensed cream of mushroom soup	$\frac{1}{4}$ cup diced pimiento	
1 cup dry bread crumbs	$\frac{1}{2}$ teaspoon dill weed	
1 cup finely chopped onion	1 teaspoon pepper	
2 eggs, beaten	$\frac{1}{8}$	
1 teaspoon salt	1 cup shredded sharp cheddar cheese	
1 teaspoon pepper	Paprika	

Tuna Cheesies, Tuna Nuggets, Tuna Puffs, and Tuna Tomato Teasers are just four of 26 tempting seafood recipes found in Nautical Notions For Nibbling, Fishery Market Development Series No. 10. For your copy, send 45¢ to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

National Marketing Services Office, BCF, U.S. Department of the Interior, 100 East Ohio Street, Rm. 526, Chicago, Illinois 60611.)

BCF PUTS SNAP IN SNAPPER

Up until a few months ago, if Mrs. Housewife, U.S.A., wished to prepare red snapper for her table, she had to fillet or steak the fish in her kitchen. Although the fishing industry would have delighted in providing a ready-to-cook item, the fish would not cooperate. It seems that even with the best of care a few weeks of frozen storage would bring about a reaction in the flesh causing it to turn brown.

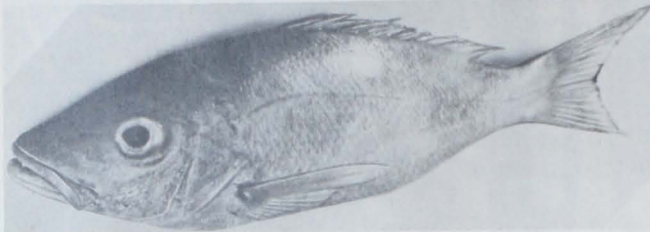


Fig. 1 - The distinctive red snapper, a popular gourmet fish throughout the U.S., is now available frozen through a new process developed by BCF technologists.

The BCF Technological Laboratory in Seattle was aware of this problem. If it could be solved, a tremendous new retail market for red snapper would be created. Snapper has long been known as a gourmet dish, such as baked red snapper with sour cream stuffing--or as quick-and-easy broiled fillet with lemon butter sauce.

The Research

The laboratory staff felt that the browning of the flesh was due to chemical processes taking place even at frozen storage temperature. In this day of new food-manufacturing processes, there are easily applied, safe additives that may be used to combat undesirable changes.

Sifting among the 20 or so available additives was a formidable task. Some were eliminated out of hand as not being at all useful or not suitable to the process. An even dozen were chosen as promising. These were applied either by dipping the fillet into a solution, or by injecting the fish with it. Also used were two methods of packaging the frozen product--a heavy glaze, or a package from which air could be eliminated entirely or replaced with an inert gas.

After two years of testing, the laboratory found a way of delaying or preventing the darkening of color. Dipping the fish fillets or steaks in a weak solution of TDP (thiodipropionic acid) and freezing in an air-free package would allow high-quality frozen storage for at least 12 months. The new product was taste-tested by 100 families and given an excellent report.

News of the breakthrough was communicated to the fishing community and food processors. Judging from the enthusiasm with which the process was greeted, we may expect to see ready-to-eat snapper in the frozen-food section of the retail market very soon. (Source: National Marketing Services Office, BCF, U. S. Department of the Interior, 100 East Ohio Street, Rm. 526, Chicago, Illinois 60611.)

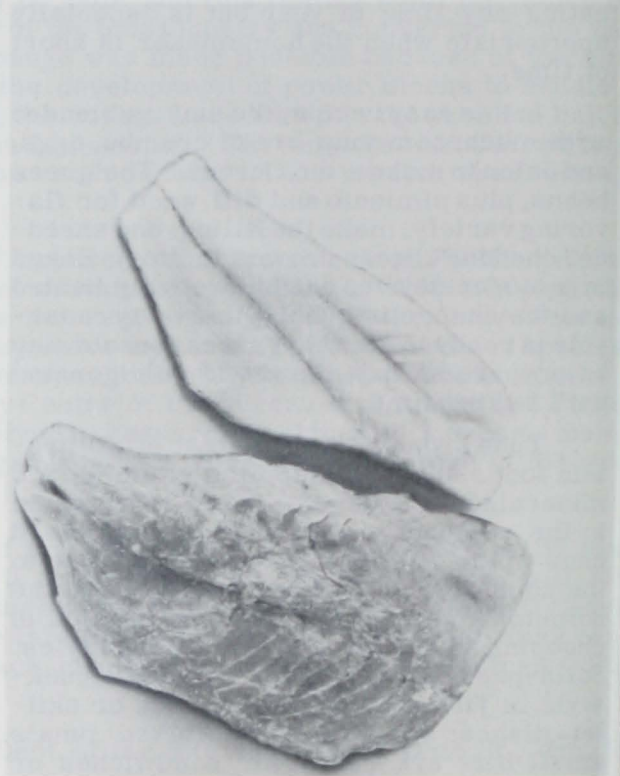


Fig. 2 - Two red snapper fillets were kept in storage for the same period of time. The smaller fillet was treated with the new BCF process; the larger fillet was not treated and shows oxidation and browning.

SAVORY HALIBUT

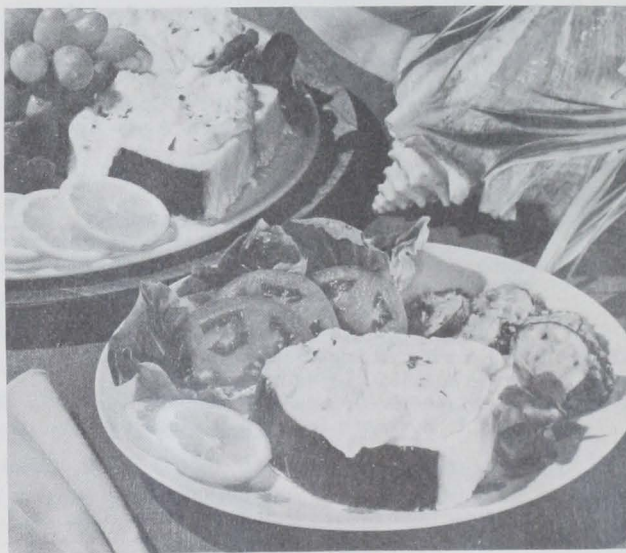
North Pacific halibut has long been a favorite food for good eating. This largest member of the curious-looking flatfish family, and one of the tastiest of all fish, is taken along the continental shelf and slope of the North Pacific adjacent to Alaska, British Columbia, and Washington State. An excellent source of high-quality protein, vitamins, and minerals, halibut steaks are also a favorite with dieters because of the low sodium and fat content. The flesh is white, firm, and tender; and its mild satisfying flavor adapts readily to many preparation methods.

Savory Halibut, a BCF recipe, presents the halibut in a zippy, sour cream-green onion sauce with just a touch of basil. Topped with Parmesan cheese just before baking, the final touch is a few minutes under the broiler--just enough for the sour cream mixture and the cheese to turn golden brown and bubbly. This easily prepared recipe will be a favorite that you will want to serve often. Fortunately for halibut fanciers, North Pacific halibut steaks are available fresh or frozen the year round. So go ahead and indulge your fancy.

SAVORY HALIBUT

2 pounds halibut steaks, fresh or frozen	$\frac{1}{4}$ teaspoon basil
1 cup sour cream	$\frac{1}{4}$ teaspoon white pepper
$\frac{1}{2}$ cup sliced green onion	$\frac{1}{4}$ cup grated Parmesan cheese
1 teaspoon salt	

Thaw frozen steaks. Remove skin and bones and cut into 6 portions. Place fish in a single layer in a well-greased baking dish, 2 x 8 x 2 inches. Combine remaining ingredients except Parmesan cheese. Pour sauce over fish. Sprinkle with Parmesan cheese. Bake in a moderate oven, 350° F., for 20 to 25 minutes or until fish flakes easily when tested with a fork. To brown, place fish in the broiler about 3 inches from source of heat and broil 4 to 5 minutes or until lightly browned and bubbly. Makes 6 servings.



Washington State has so many tasty fish and shellfish to share with the nation, we want to tell you about her brand new "Marine Fish Cookbook." The 39-page booklet has recipes for sole and flounder, rockfish, cod, sturgeon, albacore (tuna), smelt, and shad as well as halibut. The 9-page section on halibut contains recipes from the National Fishermen and Traders, Inc.--and who could know more about cooking halibut than the wife of a halibut fisherman? The book costs 50¢ and is available from the State of Washington Department of Fisheries, General Administration Building, Olympia, Washington 98501. A companion booklet, "Shellfish Cookbook," is available from the same source and the cost is 25¢.

National Marketing Services Office, BCF U.S. Department of the Interior, 100 East Ohio Street, Rm. 526, Chicago, Ill. 60611.)