



Home Canning of Fish

UPDATED BY SUZANNE DRIESSEN, FOOD SAFETY EDUCATOR, UNIVERSITY OF MINNESOTA EXTENSION

EDITED BY ELIZABETH WHITE, UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE

Canning is widely used commercially for preserving fish and other seafoods. Canned salmon, tuna, mackerel, sardines, crab, clams and oysters can be found in almost every grocery store. Fish can also be safely canned at home if proper processing procedures are used.

The factors affecting the quality and safety of canned fish vary according to the type of fish, the size of the jars and the canning process used. Producing canned fish that is both safe and of high quality involves more than just putting fish into a jar, sealing it and giving the jar a heat treatment. Different types of fish differ in fat content, moisture content and firmness or fragility of the flesh. For example, salmon have a thick, tough skin that won't split or abrade during handling and heating, while the skin on suckers will split and slough if treated the same way.

Many species of freshwater fish are suitable for canning—trout, northern pike, smelt and carp, as well as suckers and salmon. However, panfish like walleye, pike, crappies and bass are much better preserved by freezing.

Preparing the Jars

Wide-mouth standard glass canning jars are the most convenient for packing fish. You can use half-pint, pint or quart jars, but know that directions are different for pint/half-pint jars and quart jars. All jars should be thoroughly washed and

inspected for cracks or nicks on the rim that would prevent thorough sealing. Use new metal vacuum-seal lids with separate metal screw bands. Preheat the lids according to the manufacturer's instructions.

Porcelain-lined zinc lids are not recommended for canning fish because it is more difficult to attain an adequate seal. For similar safety reasons, we do not recommend using metal cans—closing or seaming metal cans requires special equipment and knowledge that is not generally available to home canners.

Smoked fish can also be canned safely by following the same processing steps described for fresh fish.

Preparing the Fish

Remove the entrails (internal organs) and carefully wash the fish to remove all blood and slime within two hours of catch. Rinse under cold running water. Keep iced or refrigerated until packing. If fish is frozen, thaw it completely in the refrigerator.

Dress the fish by removing the head, tail fins and excess belly flap. Skin and bones do not have to be removed before canning. Bones will become soft and edible and are a good source of calcium. Fillet or cut into pieces that will fit in the jar. Small fish like smelt are usually packed whole (minus the head and tail).

A NOTE OF CAUTION

There is always a risk of food poisoning (botulism) whenever low-acid foods like fish are canned. Fish live in an environment that contains bacteria called "*Clostridium botulinum*." The spores of these organisms are found on the surface and in the gut of fish. When fish or any low-acid food containing either the living bacteria or its spores is improperly canned, this bacteria can grow and produce a toxin that is one of the most potent poisons known—it can kill any person or animal consuming it.

To avoid this deadly hazard, the canning of low-acid foods requires temperatures well above the boiling point of water for periods of time that vary according to the characteristics of the food being canned. **Such temperatures can be attained only with a steam pressure canner.** Other canning methods—like the boiling water-bath canning method—should NEVER be used for canning fish or other low-acid foods. See "Principles of Home Canning," USDA, go.wisc.edu/4mks81.





Packing the Jars

Pre-heat jars to 140 degrees F in a pot of water prior to filling. Pack the fish into each jar. Do NOT add liquid. If desired, add 1 teaspoon salt per pint. Leave 1 inch of headspace. Clean jar rims with a dry paper towel. Attach jar lids and rings. Tighten rings until you feel resistance. Air cannot escape if rings are on too tight, causing lids to buckle and jars to break.

Pressure Canning the Fish: Pint or Half-Pint Jars

Note: See next section for directions for quart jars.

Place the jars on a rack in a steam pressure canner containing 2 to 3 inches of hot water.

See “Using Pressure Canners,” National Center for Home Food Preservation nchfp.uga.edu/publications/uga/using_press_canners.html.

See pressure canning process video fcs.uga.edu/ext/food/nchfp_videos/PressureCanningProcess.mp4.

Place the lid on the canner and fasten lid tightly. Leave weight off the vent port or open the petcock to allow air to escape. Turn on the stove or heating element to the highest setting. Heat and allow steam to flow freely from the canner for 10 minutes.

Then close the petcock or place a weighted pressure control on the steam vent. (Follow manufacturer’s instructions.) Canner will pressurize during the next 3 to 10 minutes.

Note the time when the pressure inside the canner reaches the correct pressure. You must maintain this pressure for the designated time to properly heat-treat the jars. Write the starting time down on paper—don’t count on your memory, and don’t guess!

PRESSURE AND PROCESS TIMES

Dial-gauge canners: pint jars

100 minutes at 11 lbs.

Pressure [PSI] at altitudes of:

0-2000 feet = 11 lbs.

2001-4000 feet = 12 lbs.

4001-6000 feet = 13 lbs.

60001-8000 feet = 14 lbs.

Weighted-gauge canners: pint jars

100 minutes

0-1000 feet at 10 lbs.

above 1,000 feet at 15 lbs.

Keep your eye on the pressure gauge. Regulate the heat to maintain the correct pressure.

If the pressure drops below the required level **at any time** during the processing time, you must bring the pressure back

up to the correct pressure and start the timing process over again. For safety’s sake, you must have a complete uninterrupted 100 minutes at the required pressure. Moderate over-processing will not hurt the quality of the canned fish.

Pressure Canning the Fish: Quart Jars

Place the jars on a rack in a steam pressure canner containing 3 quarts of hot water.

See “Using Pressure Canners,” National Center for Home Food Preservation nchfp.uga.edu/publications/uga/using_press_canners.html.

See pressure canning process video fcs.uga.edu/ext/food/nchfp_videos/PressureCanningProcess.mp4.

Place the lid on the canner and fasten lid tightly. Leave weight off the vent port or open the petcock to allow air to escape. Turn on the stove or heating element to the highest setting. Heat the canner on high for 20 minutes. If steam is flowing freely in a steady stream at the end of 20 minutes, allow it to escape for an additional 10 minutes. If steam is not flowing in a steady stream, continue to heat the canner until it does. Then allow the steam to escape for an additional 10 minutes. This step is vital to ensure that the temperature is the same throughout the canner. The total time needed to heat and vent the canner should never be less than 30 minutes.

Then close the petcock or place a weighted pressure control on the steam vent. (Follow manufacturer’s instructions.) Canner will pressurize during the next 3 to 10 minutes.

Note the time when the pressure inside the canner reaches the correct pressure. You must maintain this pressure for the designated time to properly heat-treat the jars. Write the starting time down on paper—don’t count on your memory, and don’t guess!

PRESSURE AND PROCESS TIMES

Dial-gauge canners: quart jars

160 minutes at 11 lbs.

Pressure [PSI] at altitudes of:

0-2000 feet = 11 lbs.

2001-4000 feet = 12 lbs.

4001-6000 feet = 13 lbs.

60001-8000 feet = 14 lbs.

Weighted-gauge canners: quart jars

160 minutes

0-1000 feet at 10 lbs.

above 1,000 feet at 15 lbs.

Keep your eye on the pressure gauge. Regulate the heat to maintain the correct pressure.



If the pressure drops below the required level **at any time** during the processing time, you must bring the pressure back up to the correct pressure and start the timing process over again. For safety's sake, you must have a complete uninterrupted 160 minutes at the required pressure. Moderate over-processing will not hurt the quality of the canned fish.

Cooling and Storing the Jars

At the end of the processing time, remove the canner from the stove and turn off the heating element. Wait until the pressure drops to zero. This could take 30 – 45 minutes. Then remove the vent weight or open the petcock before removing the cover. Remove lid tilting it away from you so steam does not burn your face.

Remove the jars from the canner with a jar lifter. Place on a towel or cooling rack, leaving a 1-inch space between the jars. Allow to cool for 12 to 24 hours. Do NOT tighten ring bands or push down on the lids until the jars are completely cool; the sealing compound is still soft and you could break the seal. Once the jars have cooled, carefully check each one to make sure it has sealed properly. Lids should curve downward in the middle and do not move or click when pressed with a finger.

If any of the jars fail to seal—or if for any reason you doubt whether the proper amount of time or pressure was used—put new lids on these jars and reprocess them completely within 24 hours. Otherwise, immediately refrigerate these fish and consume them within two days. You can also freeze unsealed jars.

Remove the lid bands. Wipe jars with a clean wet cloth. Label with contents and date. Store canned fish in a cool, dry storage area. For best quality, eat within one year of canning.

Some Points to Remember

- Don't guess at anything.
- Be sure your pressure canner is in good working condition.
- Be sure the pressure gauge on the canner is accurate. Check it at least once a year—your local county cooperative extension service office can help you do this.
- Never can fish using only a boiling water bath canner or an oven for processing.

Related Sea Grant Publications

"Home Smoking of Fish" by David Stuiber, Mary E. Mennes and C. E. Johnson. Wisconsin Sea Grant publication. Madison: University of Wisconsin, updated 2014 by Suzanne Driessen.

"Home Freezing of Fish" by David A. Stuiber. Wisconsin Sea Grant publication. Madison: University of Wisconsin, updated 2014 by Suzanne Driessen.

"Home Pickling of Fish" by David Stuiber and Mary E. Mennes. Wisconsin Sea Grant publication. Madison: University of Wisconsin, updated 2014 by Suzanne Driessen.

Sources

"Canning Fish in Quart Jars," University of Alaska Fairbanks Cooperative Extension Service, 2004. nchfp.uga.edu/how/can_05/alaska_can_fish_qtjars.pdf

"The Complete Guide to Home Canning," U.S. Department of Agriculture, Agriculture Information, Bulletin No. 539, 2009. nchfp.uga.edu/publications/usda/GUIDE%205%20Home%20Can.pdf

RECIPE Up-North Salmon Supper (serves six)

Combine all ingredients (except those for topping) and mix together carefully.

Place in well-greased 9 x 4½ x 3-inch loaf pan or 2-quart round casserole dish.

Top with cracker crumbs and chunks of butter.

Bake at 350 degrees F for 45-60 minutes.

Serving suggestion: Top with creamed peas (frozen or canned).

1 pint (2 cups) canned salmon or sucker

1 cup creamed cottage cheese

1 cup grated cheddar cheese

2 eggs, slightly beaten

3 tablespoons chopped green pepper

3 tablespoons chopped onion

1 cup cracker crumbs

1 teaspoon Worcestershire sauce

1 tablespoon lemon juice

½ teaspoon salt

For the topping

½ cup cracker crumbs

2 tablespoons butter