## S gF ha H e

Producing high quality home-smoked sh is a popular recreational activity and a point of pride for many Alaskans. In earlier times, smoking was a form of food preservation; large amounts of salt and long smoking times were used to help preserve the sh. Now sh is smoked more for avor and appearance. Today's lightly salted and smoked sh is not a preserved product; the amounts of salt and smoke used are NOT su cient to prevent bacterial spoilage. Most food poisoning bacteria can and will grow under the conditions normally found in preparation and storage of smoked sh. *Clostridium botulinum*, the bacteria that may cause botulism, is the most harmful of these bacteria.

A safe, home-smoked product requires a good understanding of the procedures and precautions needed to prevent food poisoning. is publication explains why certain procedures must be followed and precautions taken to prepare safe, high-quality smoked sh.

Smoking sh usually includes ve steps. ese are:

- Product preparation
- Salting or brining
- Equilibration and drying
- Smoking and cooking (hot or cold smoke)
- Product packaging and storage

Careful handling, as described in this publication, will help minimize the potential for bacterial spoilage and food poisoning and yield a high quality nished product.

Almost any sh can be smoked. Fatty sh, such as salmon and black cod, can be brined and smoked

much more easily than lean sh. Low-fat sh, such as grayling and halibut, absorb salt quickly, and it is easy to get the esh too salty.

Only high-quality fresh or frozen sh should be used for smoking. Using poor-quality, freezer-burned sh will produce a poor smoked product. Smoking will not hide poor quality; it will call attention to the problem.

When preparing sh for smoking, it is important to keep the preparation area clean and sanitary. Keeping the work area, cutting boards, knives and hands clean will help prevent bacterial contamination. Do not, under any circumstances, place your nished smoked sh on unclean, unsanitized surfaces that have previously held raw sh. is could result in cross-contamination; spoilage bacteria could transfer from the raw to the nished product.

Rinse and clean all sh carefully to remove slime, dirt and blood and to help remove harmful bacteria. en llet or split the sh, leaving the skin on the llet. Cut the llet into uniformly sized pieces so that no parts will get oversalted. Pieces should not be more than one inch thick. Pieces smaller than 1

the addition of any wood chips for between 30 minutes and 3 hours. e time required for the additional drying will depend upon the temperature and air circulation in the smoker and the general humidity level (o en high in Southcentral and Southeast Alaska). If possible, avoid the longer times because the potential for bacterial spoilage becomes greater.

- e fourth step of the process is smoking. ere are many recipes for smoking using different times and temperatures, but only two basic methods:
- 1. "Hot" smoke: the internal product temperature reaches 160°F and higher. A cooked, smoked product such as kippers is produced.
- 2. "Cold" smoke: the internal product temperature is below 90°F. e resulting product is a raw, smoked sh such as lox or Nova Scotia-style salmon.

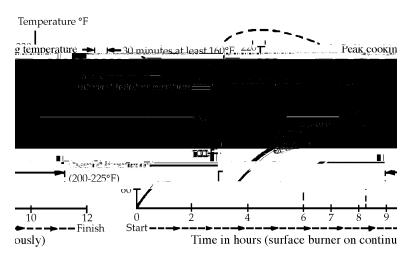
For most people, hot smoking is the most popular product and easiest to produce in home smokers.

Also, the temperatures recommended for hot smoking are high enough to kill most bacteria. Cold smoke temperatures are not hot enough to kill bacteria and actually may promote growth of bacteria.

Recommendations for each smoking method:

## **Hot Smoking**

- Heat the sh to 160°F internal temperature (use a thermometer) for at least 30 minutes at some time during the smoking cycle, preferably toward the end. is temperature will kill most food spoilage bacteria, and combined with proper refrigeration will ensure a safe product. A typical sh smoking cycle (gure 1) should bring the internal temperature of the sh to 160°F within 6 to 8 hours a er placing it in the smoker.
- Use a standard meat thermometer to monitor internal temperature. Insert the thermometer into the thickest part of the sh.
- It is best to wait 3 to 5 hours before raising the



cycle.

- internal temperature of the sh to 160°F. is will prevent curd formation and "exploded" pieces that occur when the temperatures are elevated too quickly.
- If the smoker does not heat hot enough to produce an internal temperature of 160°F in the sh, the smoked sh can be transferred to a home oven set at 300°F for a nal heat treatment. Bring internal sh temperature to 160°F and bake for at least 30 minutes. Adjust the oven temperature as needed throughout this baking period to maintain the 160°F internal temperature. Be sure that hands, utensils and work surfaces are clean when transferring sh from smoker to oven to avoid cross-contamination.
- Depending on the desired nished product, smoking should take anywhere from 6 to 15 hours. Shorter heating and smoking times will result in moister nished products.

## **Cold Smoking**

If cold-smoked sh will not be cooked prior to eating, the freezing step (page 2) is necessary to destroy harmful parasites that may be present in uncooked sh.

• Temperature control is very critical. Never allow the internal product temperature to exceed 90°F. At 95°F, the sh will start to cook.

erly protected smoked salmon will last for 2 to 3 months.

You MUST refrigerate or freeze the nished product in order to keep the smoked sh SAFE. Even vacuum-packaged smoked sh MUST be kept refrigerated or frozen. NEVER leave smoked sh at room temperatures. Please refer to FNH-00221, Storing and Mailing Vacuum Packaged Fish.

Heavy salt brine: 2½ pounds (4½ cups) of salt per