

A Guide to Small-Scale Fish Processing Using Local Kitchen Facilities







Introduction

For some aquaculture producers, small-scale processing may provide an opening to diversify their markets, increase revenues, maintain business viability, and enhance economic opportunities. This brochure highlights some observations and results from an Illinois-Indiana Sea Grant pilot study that explored the feasibility of short-term fish processing for small- to medium-scale producers interested in processing fish to service the local food economy. This brochure is for informational purposes only and is meant for fish farmers interested in using government inspected or certified local kitchen facilities for fish processing.

Watch a video clip on the purpose of the pilot study:

EXPLORING SMALL-SCALE SEAFOOD PROCESSING



https://youtu.be/_Xd323W6Ug

1. Planning

The first step to developing a new product is planning! Have a good understanding of what your processed product will be and how you plan to sell it. Some market forms of processed finfish products include whole-dressed (scaled, gutted, eviscerated and degilled), drawn fish (whole dressed fish with head on), headed and gutted (whole dressed fish with head removed), fish steaks or chunks (cross-section slices), and fillets, with skin on or no skin. Knowing this will help you identify required training programs, select a processing location, available facilities/equipment, and develop safe handling and operating procedures for your aquaculture business.

Here are a few questions to think about to get you started:

- ❓ What is my finished product?
- ❓ How much finished product do I intend to produce?
- ❓ How will I package, store, and transport my product?
- ❓ Who am I going to sell it to? (i.e., intended user and consumer)?
- ❓ Where am I going to sell (i.e., in-state or out of state)?

Your response to the above questions will be helpful for guiding you to carefully think through each step of developing a processed fish product as part of your business and successfully marketing it.

2. Training

Food safety is very critical when producing a food product for consumption. It is important that fish handling, processing, storage, and distribution activities be carefully executed at all points along the food chain—from the time of harvest to the point of sale to customers—by

following government and industry requirements and recommended guidelines. The following two trainings are essential for any farmer thinking of processing their fish/seafood.

Hazard Analysis and Critical Control Points (HACCP)

HACCP training is a requirement to process seafood, including farmed fish and fishery products (FDA Seafood HACCP regulation 21 CFR 123). As you handle seafood, it's critical that you understand your role in the food chain, accept responsibility for your actions during the entire process, and ensure that you supply a safe seafood product to your customers. Your responsibilities include maintaining the quality of the product by implementing proper control measures and safeguards to prevent any hazard, and keeping record of these. Hazards can be biological, chemical or physical. Some hazards are associated with the product, while others are associated with the way in which the product is processed. HACCP training identifies these hazards, critical points during processing steps, and their controls, which is a sequence of handling procedures to protect the seafood product. You will learn some facts about food during the training, including the hazards associated with fish/fishery products, handling practices, nutrients, water content, optimal pH (acidity or alkalinity) and temperature, food atmosphere, the importance of oxygen, packaging, and more.

Seafood HACCP training happens in two-parts. Segment 1 is typically completed as an online course through accredited training programs and course providers. This part must be completed before you can start Segment 2. The second part is typically a one-day in-person training. You will need to register for the Segment 2 training directly with the instructor.

You can inquire about participating in a training by contacting these organizations:

Segment 1—Online Training:

Cornell University: seafoodhaccp.cornell.edu/Intro/index.html

Segment 2—In Person Training:

Association of Food and Drug Officials and the Seafood HACCP Alliance: www.afdo.org/training/sha/seafood-haccp/

The alliance provides contact information on accredited course providers, alliance approved curriculums, and education materials.

Training Materials

Free or low-cost training materials are also available through Florida Sea Grant and the University of Florida:

www.flseagrant.org/seafood/haccp/

After your HACCP training is completed, you will be qualified to develop a HACCP plan that clearly outlines the identified hazards and critical control

points, and their limits, and how you manage food safety. The plan should provide details on every step of the process and activities from harvest to the end product.

An example of a small-scale seafood HACCP is available at:

www.flseagrant.org/wp-content/uploads/Fresh-Tuna-Loins-September_2017.pdf

Before you start processing, it is recommended to have your completed HACCP plan reviewed by a health inspector to ensure that your plan is compliant with local and state rules and regulations. Contact your county Department of Health to make an appointment.

You can listen to training experiences and perspectives of some Midwest fish farmers about the Seafood HACCP:

SEAFOOD HACCP TRAINING

Experiences & Perspectives



<https://youtu.be/GV5o9WLt700>



Optional Training

Additional trainings are not necessarily required to process your fish but are very useful for gaining more knowledge of basic safe food handling procedures. Some local commercial kitchens may require you to have one of these trainings to use their facility.

ServSafe Food Handler

This training provides a sanitation certification credential for anyone producing food for sale. Further information about this training can be found at:

www.servsafe.com/

For businesses required to develop a HACCP plan, two prerequisite training programs are highly recommended to provide the background needed to develop foundational standard operating procedures (SOPs) to support a HACCP plan. These prerequisite training programs are not required.

Sanitation Control Procedures (SCP)

SCP is a valuable training for developing and implementing SOPs, as mandated by the U.S. Food and Drug Administration (FDA), for seafood processing. This training covers sanitation methods, cross-contamination prevention, proper handling of toxic compounds, protecting food from adulterants and pests, hand washing, and employee health. Training books are available whether you participate in formal training or are self-taught.

Free or low-cost training materials are available through Florida Sea Grant and the University of Florida:

www.flseagrant.org/seafood/haccp/

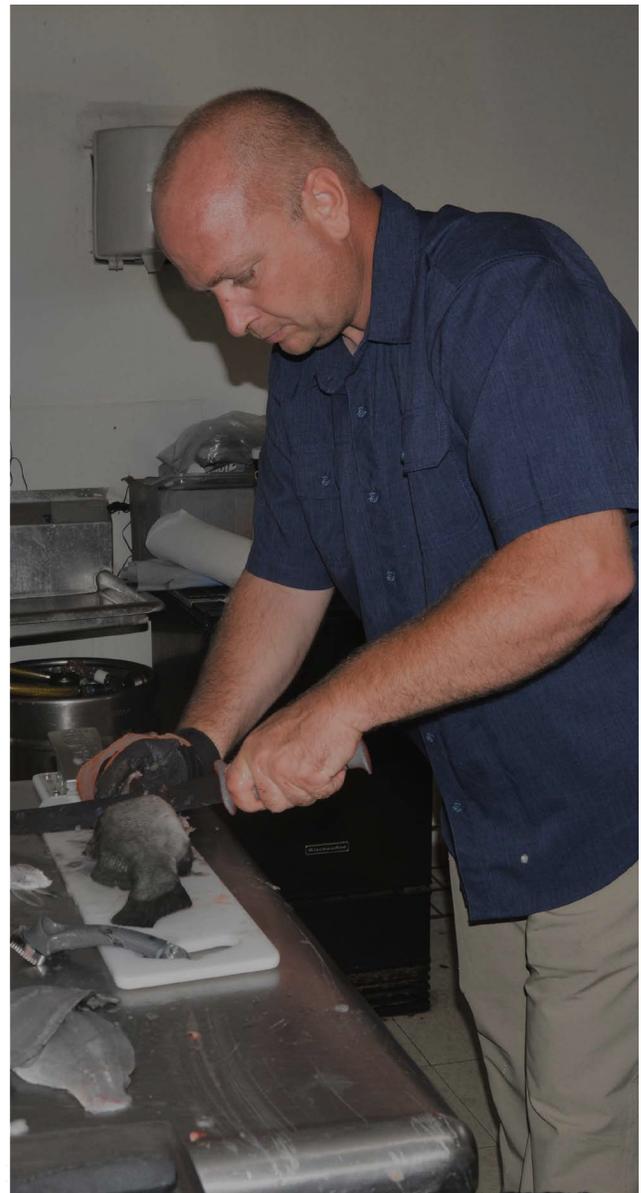
You can inquire about participating in a training by contacting:

Association of Food and Drug Officials & the Seafood HACCP Alliance: www.afdo.org/training/sha/seafood-haccp/

Good Manufacturing Practices (GMP)

The FDA Good Manufacturing Practices regulations, commonly known as GMPs, apply to all facilities that manufacture, process, pack, or hold food that is intended for humans. This training covers facility and equipment sanitation, personnel health and hygiene, and pest control, among other topics. Compliance with GMPs is required for seafood processors.

Further information about online training can be found at: instituteforfoodsafety.cornell.edu/trainings/good-manufacturing-practices-registration/





Steve Koss, Koss Family Farm - Illinois

3. Local Kitchen Facilities

The pilot study identified three types of facilities that are suitable for small-scale fish processing. These are shared-use commercial kitchens, local restaurant kitchens, and on-farm kitchens. State and county health departments inspect and certify these facilities for food processing. These kitchens are required to comply with all federal, state, and county regulatory requirements for processing food and have the required permits. They have seafood-handling capabilities that include stainless steel workstations and prep tables, food-grade equipment, freezer and cold storage, water supply and plumbing for drainage, ventilation, wastewater discharge, and more.

Shared Commercial Kitchen

A shared kitchen is a commercially-licensed or certified space that has a commercial prep and processing area, professional-grade equipment, utensils, appliances, and storage facilities that are rented out for specified periods—by the hour or by the day. Basically, the shared-use kitchen can be rented by individuals and small business enterprises to prepare or handle food for customers. The kitchen may be privately owned, established as a for-profit business, or it may be a non-profit, institutional-owned facility. Two kitchens were explored—one privately owned and one institutionally owned.

The privately owned facility required membership. Here are the recommended steps:

- 1 Schedule a tour of the facility to assess whether it is ideal for processing your fish.
- 2 Complete a Shared User Kitchen Agreement that needs to be signed by both parties. The agreement often includes chain-of-custody requirements to ensure food safety.
- 3 State entities regulate for-profit kitchens, therefore approval may be needed from the relevant state agency.
- 4 If membership is required, complete a membership application and pay the membership fee.
- 5 Obtain proof of liability insurance up to an amount specified by the kitchen.
- 6 Obtain a ServSafe certification within one year of receiving membership approval.

The institutionally owned facility could be an educational, healthcare, religious, or other non-profit institution. Ideally, it will follow similar steps as above except it does not require a membership fee and an approved application from a state agency. It is important to first check if the facility allows seafood processing. The renting process would typically involve:

- 1 Completing a User Services Contract/Agreement, which will include various stipulations.
- 2 Providing proof of general liability or product liability insurance.
- 3 Providing copy of food service and/or ServSafe certification.
- 4 Providing security deposit of a specified amount.

For this study, the research team developed a partnership with a local high school to collaborate on its aquaponics fish production facility as well as use its commercial-type kitchen to process fish. Similar arrangements could be made with institutions that are interested in processing local products to further their local sourcing and sustainability policy. Though it was not explored in the pilot study, some religious organizations advertise renting or leasing services for their kitchens.



Amy Shambach of IISG demonstrates to staff of Metro Farms how to fillet a fish.

Restaurant Kitchen

Restaurants typically have some down time. The restaurant that took part in this study did not operate on Mondays and Saturdays so the management offered their kitchen facilities at these times to farmers for processing fish. The study revealed that local restaurants that offer locally sourced food on their menus may be open to working with local farmers. A restaurant that allows a farmer to process fish in the kitchen may include the product on their seafood menu.

Fish farmers interested in exploring this option need to develop relationships in the local community and leverage opportunities in the local food system.



Phil Shambach filleting tilapia in a family-owned restaurant in Waldron, Indiana.

On-farm Processing Kitchen

On-farm processing can happen when you have a commercially inspected kitchen on your farm. In this scenario, you are responsible for all aspects of food safety and will need to make sure that your facility and operating procedures are compliant with local and state regulations for processing, storage, and wastewater discharge. For more information about regulations and requirements for operating an on-farm commercial inspected kitchens, contact your county Department of Health.



Nathan Richards and Steve Koss filleting tilapia in the processing room at Koss Family Farms in Illinois.

The cost to build an on-farm processing room is highly dependent on wastewater discharge. When processing, you will be potentially discharging water, blood, and cleaning and sanitation products. One farmer who took part in the study discovered that discharge detergents used in post-processing clean-up was a barrier to on-farm processing.

Summary

There are opportunities for farmers producing fish on a small to medium scale that have interest in processing their fish for direct sales to consumers and/or through local markets such as local independent restaurants and grocery stores. This brochure highlighted the trainings and locally available resources that farmers need to consider when planning to develop a processed fish product for the market.

Additional Resources

Food and Drug Administration. Fish and Fishery Products Hazards and Controls Guidance: Fourth Edition. June 2021 www.fda.gov/media/80637/download.

Sanitation Control Procedures for Processing Fish and Fishery Products: First Edition. 2000 www.flsea-grant.org/wp-content/uploads/SGR119_text_searchable_complete.pdf.

Special Thanks

Don Patterson and Treana Johnson, Metro Farms - Illinois; Mike Searcy, White Creek Farms of Indiana LLC - Indiana; Leland Meador, Hanilu Farms - Indiana; Phil Shambach, Tippco Fish Inc. - Indiana; Steve Koss and Nathan Richards, Koss Family Farms - Illinois; Mindy Romano, Kountry Fresh - Illinois; Staff at Chicago High School of Agricultural Sciences - Illinois; Dr. Darlene Samuel, University of Illinois Extension - Illinois

Acknowledgements

Funding is provided by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA Grant NA18OAR4170082).



