

## For more Information

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This brochure is a documentation of three currently available Post-Harvest Processing (PHP) technologies. It is not a definitive publication of all commercially available PHP technologies on oysters. This brochure is part of the project “*Integrated Oyster Market Research, Product Development and Evaluation, Promotion and Consumer Education of the Gulf of Mexico’s Oyster Industry*” undertaken by the Seafood Technology Bureau of the Mississippi Department of Marine Resources in collaboration with the Bureau of Seafood and Aquaculture Marketing, Florida Department of Agriculture and Consumer Services and the Louisiana Seafood Promotion and Marketing Board.

The Florida Sea Grant Program, through the Gulf and South Atlantic Fisheries Foundation, Inc., funded this collaborative project to provide information to anyone interested in pursuing post-harvest processing of oysters. A Web site has been developed in conjunction with this project: [www.gulfoysters.net](http://www.gulfoysters.net).

*Post-harvest processing (PHP) technologies for oysters continue to be developed to provide safer oysters to consumers. The Gulf oyster industry increasingly adopts solutions offered by modern technology in its efforts to continue to promote quality, food safety and extended shelf life of oysters.*

*Some of the post-harvest processing technologies currently being considered for evaluation are irradiation (electric beam irradiation, X-ray, cobalt and microwave technology), high pulse magnet and value added product (smoked, char-grilled, steamed, pickled, marinated or pre-cooked convenience meals).*

## Acknowledgements

**Gulf Oyster Industry Initiative**

**NOAA/National Sea Grant Program**

**Florida Sea Grant College Program**

**Mississippi Seafood Marketing Program**

**Mississippi State University  
Coastal Research & Extension Center**

*Special Thanks to:*

*Mississippi Seafood Industry*

*Louisiana Seafood Industry*

*Ameripure Processing Company, Inc.*

*Motivatit Seafoods, Inc.*



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Printed 2006

This Brochure was prepared by the Mississippi Department of Marine Resources with funding from the Gulf & South Atlantic Fisheries Foundation, Inc. under award NA03NMF4270393 from the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, or U.S. Department of Commerce.

## Available Technologies for Post-Harvest Processing of Oysters



*For the Promotion of Food  
Safety, Quality and Extended  
Shelf Life of Oysters...*



Mississippi Department of  
Marine Resources

# INDIVIDUALLY QUICK FROZEN (IQF)

Freezing oysters to increase storage life has long been practiced by the industry (Figures 1 and 2). Borrowed from other sectors of the food industry, the IQF method of processing oysters certainly has its own niche in the market. Aside from the resulting decrease of microorganisms including *Vibrio* bacteria to non-detectable levels, extended shelf life is a major selling point of the process.



Fig. 1 Half shell oysters on a tray being frozen through the IQF machine tunnel.



Fig. 2 Trays of half shell oysters go through the glazing machine to seal the natural juice of oysters.

# HEAT-COOL PASTEURIZATION (HCP)

Pasteurization is a patented process using hot and cold-water treatment to lower the levels of *Vibrio* bacteria to non-detectable levels. In-shell oysters are placed in warm water (126 degrees Fahrenheit) for 24 minutes (Figure 3) and then immediately dipped in cold water (40 degrees Fahrenheit) (Figure 4) to stop the cooking process of the meat. The cold water dipping lasts 15 minutes before the oysters are packed for the half shell market or sent for further processing as shucked meat.



Fig. 3 Cartload of oyster trays dipped in hot water bath for 24 minutes.



Fig. 4 Cartload of oysters is immediately cooled down to 40 degrees Fahrenheit for 15 minutes.

# HIGH HYDROSTATIC PRESSURE (HHP)

This is a patented process of treating harvested oysters using high pressures of 35,000 to 40,000 (psi) (Figure 5 and 6). Oysters undergo pressurization for 3-5 minutes in order to kill spoilage bacteria and decrease other microorganisms including *Vibrio* bacteria to non-detectable levels. This process can be adapted for both the half shell and the shucked meat of the oyster. The pressure helps in releasing the adductor muscle from the shell, making it easy to remove the oyster from the shell.



Fig. 5 Titanium-made isolators used in the HHP processing of oysters.



Fig. 6 Stainless steel cylinders hold oysters for the pressurization process.