

FINAL REPORT

REPORT TITLE: **Consumer Market Research of VAP and PHP
Oyster Products to Increase Gulf Oyster
Consumption and Reduce V. vulnificus Related
Illnesses**

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GULF AND SOUTH ATLANTIC FISHERIES FOUNDATION, INC
Grant Number: NA 16RG2195 R/LR –Q-29
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January 2006- December 31, 2007

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I. Consumer Market Research of VAP and PHP Oyster Products to Increase Gulf Oyster Consumption and Reduce *V. vulnificus* Related Illnesses

Submitted by: Ruth Posadas, Bureau Director, Seafood technology Bureau,
Office of Marine Fisheries, Mississippi Department of Marine Resources

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II. Abstract: This report is a summary of the efforts made by the Mississippi Department of Marine Resources' Seafood Technology Bureau and Seafood Marketing Bureau Research Team in collaboration with Dr. Benedict Posadas of the Mississippi State University Coastal Research and Extension Center. He conducted the market segmentation analysis of the research survey on identification of market segments of Post Harvest Processed (PHP) raw oyster products in Coastal Mississippi and California in the previous research project. Included in this report are the different strategies adopted such as: education, promotion and public outreach to inform the public and the consumers about the alternatives to eating raw oysters; to inform the public on seafood safety for the purpose of reducing foodborne pathogen illnesses including *V. vulnificus* related illnesses.

III. Executive Summary:

The Seafood Technology Bureau of the Mississippi Department of Marine Resources was given the task to help in the promotion of the VAP and PHP raw oyster products as a means to reduce *Vibrio vulnificus* illnesses due to consumption of raw oyster products.

Preparation, development and reprinting of PHP and VAP promotional and educational materials were a major part of the task. Planning for the events and getting volunteers to help during the events contributes to the success of every public outreach effort.

Vibrio education is a voluntary effort for the state of Mississippi, whereas in other Gulf States *Vibrio* education is mandatory. Being a member of the Gulf States, Mississippi is a team player especially in the field of *Vibrio* education. Doing public outreach, education and promotion of the VAP and PHP oyster products and promoting seafood safety through *Vibrio* education is a pro-active effort to help the shellfish industry, not only in Mississippi but throughout the Gulf

Coast region. Although education and public outreach efforts have been started in the past, continuing efforts to include other parts of the state and out of state have been the target of these efforts. People and establishments who have not been targeted before like Chefs of restaurants, nursing homes, hospitals and medical clinics (specifically the gastro-enterologists, internists and emergency room personnel), schools, colleges and universities have been given the promotional materials. New events were sought out in the Midwest and Northern part of the country to expand on the promotional efforts. Local efforts have remained steady, reaching out during the regular seafood festivals and events to visitors and first time attendees. This will be an on-going concern for the Bureau, to increase public outreach efforts and saturate people with the information so they would know the VAP and PHP raw oyster products as alternatives to eating raw oysters.

This is a collaborative project by the Gulf States mandated by the Gulf Oyster Industry Program. The federal funding was provided by the Florida Sea Grant College Program under the National Sea Grant Program of National Oceanographic and Atmospheric Administration, awarded to the Gulf and South Atlantic Fisheries Foundation, Inc, who granted funding to the agencies of the states of Florida (Florida Department of Agriculture and Consumer Services), Louisiana (Louisiana Seafood Promotion and Marketing Board) and Mississippi (Mississippi Department of Marine Resources).

IV. Purpose:

Millions of Americans love to eat oysters, especially raw oysters on the shell, however, a very small segment of the population, who eat raw or undercooked oysters could succumb to a serious illness or even death from **Vibrio vulnificus**, a naturally occurring organism in the warm waters of the Gulf. With every case of Vv illness announced over the different news media, a decreasing percentage of people refrains from eating or consuming oysters irregardless of whether they are cooked or raw. This is just one of the main reasons why sales of raw oysters have declined over the last 15 years.

The Gulf Coast seafood industry through the Gulf Oyster Industry Council recognized this problem and supported this project to promote the sale and consumption of oysters. This was a necessary step to help revive the oyster industry especially that after Hurricane Katrina devastated the coast. The Mississippi oyster industry almost disappeared when 96% of the oyster reefs were destroyed 2 ½ years ago. Rebuilding the industry had taken an extra meaning and working side by side with the other states in the region for the oyster industry is a must. These are additional efforts, but these are the needed support for the new technologies to be promoted for the good of the industry. The response has been tremendous. The present suppliers of the PHP raw oyster products could not supply the demand, according to one of the PHP oyster processor.

The primary goal of the project is to do the segmentation analysis. The secondary goal is education and promotion of VAP and PHP raw oyster products to the different segments of the consuming public. The tertiary goal is to promote seafood safety with emphasis on **Vibrio vulnificus** and **Vibrio** education to increase the understanding of this bacteria and how to prevent one from becoming ill.

V. Approach:

The segmentation analysis was given to MSU-CREC. The researcher for the segmentation studies by Dr. Benedict Posadas of the Mississippi State University's Coastal Research and Extension Center since he conducted the economic analysis of the previous studies of the Mississippi Gulf Oyster Project. When consumer preferences survey for PHP raw oyster products in coastal Mississippi were conducted, Dr. Posadas did the marketing study of these three commercially available PHP technologies and developed an economic model for the seafood industry. Research on the segmentation analysis is submitted as a separate report. Results of this project will assist oyster processors, distributors, and researchers in the determination of the important qualities of the PHP oyster products as important quality attributes perceived by the respondents or consumers during the survey which could be used for the development and promotion of the raw oyster products.

The second and tertiary goal was undertaken using the same approach. This was to participate in the different public events, conferences, fairs, festivals and mail- outs of materials to hospitals, clinics and doctor's offices. A seafood safety pocket folder containing Vibrio, PHP and VAP promotional and educational materials was provided to targeted consumers and the general public. The Seafood Technology Bureau and the Seafood Marketing Bureau have made extra efforts to maintain the visibility and the promotion of these products in every public outreach and marketing promotional trip made.

An opportunity to extend the promotion of PHP and VAP for oysters was accomplished by reprinting the first volume of the oyster cookbook and distributing the oyster cookbook as the main promotional material provided to visitors at the Mississippi Welcome Centers in the Interstate-10 in both the west and east side of Mississippi bordering Louisiana on the East and Alabama in the West. A second volume of an Oyster cookbook was developed by editing and using a century old oyster cookbook by Mrs. De Salis in his "Oysters a la Mode" recipe book published in 1888 by the Longman's, Green and Company.

The report also summarizes the different public outreach events with pictures through Power Point slides made for all the events attended.

B. The members of the Mississippi Research Team are the following:

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Dr. Benedict C. Posadas

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VI. Findings

Please see attached final report, presentations and photologues of public outreach events attended:

- A. The Market Segmentation Analysis of Post Harvest Processed Raw Oyster Products in Coastal Mississippi and Southern California by Dr. Benedict C. Posadas
- B. 2007 Final Report Market Segmentation Analysis Appendices
- C. Public outreach, education and promotional events attended and participated (Please see attached Progress reports and Power Point presentation):

2006

- a. Public outreach on Seafood Safety (Vibrio vulnificus and PHP oysters) at Hurley, MS on April 8, 2006
- b. Participated in Biloxi Crawfish Festival on April 21-23, 2006 and April 28-30, 2006
- c. Distribution of Oyster Cookbooks Volume 1 to all seafood retail stores in Coastal Mississippi
- d. Participated in Biloxi Seafood Festival on September 15 -16, 2006
- e. Participated in the Gautier Mullet Festival on October 14, 2006
- f. Participated in the Jackson County Fair at Pascagoula, MS on October 22-28, 2006
- g. Participated in the Tourism Week of Hancock County and the opening of the Bay St. Louis' bridge. It was a public outreach event at the Mississippi Welcome Center in Waveland, MS. Served over seven hundred people who came that day and visited the welcome center and over two busloads of people who attended the bridge opening ceremony to participate in the Hancock County Centennial Celebration. It was the first welcome center event that the Bureau had attended. Several Boxes of Oyster cookbooks were distributed.

2007

- a. Participated in Celebrate the Gulf 2007 on March 31, 2007. 1,000 people
- b. Participated in Biloxi Seafood Festival on September 15-16-2007
- c. Participated in Gautier Mullet Festival – October 20, 2007 at the Old Place, Gautier, Mississippi. 20,000 people
- d. Participated in the Jackson County Trade Fair- October 21-27, 2007 Pascagoula Fairgrounds, Mississippi. 50,000 people

- e. Participated in the Seafood Safety Education and Public Outreach 2007 on October 31, 2007 at Colmer Middle School in Pascagoula, MS. 470 students and several teachers in every class

2006-2007 Seafood Marketing Bureau Efforts

- a. IBSS –International Boston Seafood Show (50,000 attendees per yr. 4 day event)
- b. Jackson Business Expo- (5,000 attendees per year 3 day event)
- c. Biloxi Crawfish Festival – (50,000 attendees per year a 2 week event)
- d. 2007 Nat'l Restaurant Association- (75,000 attendees 2 ½ day event)
- e. Biloxi Seafood Festival- (40,000 attendees 2 day event)
- f. Louisiana Restaurant Show –(13,300 attendees 2 day event)
- g. West Coast Seafood Show- (40,000 attendees 2 day event)
- h. Biloxi's Chef's of the Coast- (1,500 attendees)

Note: These events are not funded separately by other sources of funds but as part of the team, they have promoted the PHP and VAP raw oyster products in all the events that they've attended. They have distributed Oyster Cookbooks and PHP brochures and pamphlets during these events.

H. Public Conference Activities

- a. Attended and participated at the ISSC's *Vibrio vulnificus* Education Sub-committee workshop at Salt Lake City, UT on April 4-7, 2006
- b. Participated in the Advisory Meeting of GSAFFI in Kenner, LA. on August 25, 2006
- c. Participated at the Gulf and South Atlantic States shellfish conference in New Bern, NC on August 27-30, 2006
- d. Participated in the Seafood Science and Technology Conference of the Americas on November 13-16, 2006
- e. Participation in Oyster Stewardship meetings along the Gulf Coast
- f. Attended the Interstate Shellfish Sanitation Conference' *Vibrio vulnificus* Education Sub-committee meeting at Albuquerque, New Mexico on April 2006
- g. Sponsored a joint Gulf State Director's Meeting on December 4-5, 2007.

I. Others

- a. Participation in the Mentorship Program for 3 months in the years 2006 and 2007, where the Bureau will accept trainees to train and educate on shellfish, seafood safety, PHP oyster technologies, oyster VAP and other shellfish matters
- b. Seafood Basic HACCP Training and Sanitation Procedures Training Dec. 5-7, 2006 at the MSU-CREC Building at the Popp's Ferry Road, Biloxi, MS. Seafood Safety materials including *Vibrio* educational materials and PHP promotional materials were given away to trainees of both courses.
- c. Assisted Dr. Linda Andrews in the Hazard Analysis Critical Control Point Training and Sanitation Course at Bayou La Batre, AL on May 2007 by providing *Vibrio vulnificus* educational materials included in the training packets.

- d. Provided PHP educational and promotional materials to the Gulf and South Atlantic Fisheries Foundation, Inc., Georgia State University, New Mexico Health Department, Georgia Health Department, North Carolina Health Department, South Carolina Health Department, Alabama health Department, MSU- Experimental Seafood Laboratory and MSU- Coastal Research and Extension Center, Mississippi-Alabama Sea Grant Office, Louisiana State University, Tennessee Health Department and to the National Marine Fisheries Service/ National Oceanographic Atmospheric administration office at Pascagoula, MS for their own distribution and dissemination to their constituency.
- e. Semi-annual mail-outs to 91 newly certified Seafood Dealers (11 new dealers) on seafood safety articles including updated ISSC- NSSP regulations and educational materials on Post Harvest Processing of Oysters and **Vibrio vulnificus** ;

J. Educational and Promotional Materials used:

CD/DVD = DMR's "Available technologies for Post Harvest Processing of Oysters"
 Video =DMR's "Available technologies for Post Harvest Processing of Oysters"
 Video = 2001 "Vibrio vulnificus Training video"
 Poster =DMR's "Post-harvest Processing Technologies for Oysters",
 Brochure =DMR's "Available Technologies for Post Harvest Processing of Oysters"
 Fact sheets = DMR's"Post-harvest Oyster Processing Technologies"
 Brochure = ISSC's"The Risk of Eating Raw Oysters or Clams"
 Brochure = FDA's "Fight Bac! Four Simple Steps to Food Safety"
 Brochure = NFI's "Food Safety: Fish and Shellfish Raw Seafood"
 Brochure =ISSC's "A Call to Action: Illegal Shellfish Harvesting, Legal Intervention"
 Brochure = ISSC's "Don't Dump...Pump"
 Brochure = DMR's "Mississippi Oyster Seafood Safety"
 Slides = ISSC's Vibrio vulnificus Training Kit
 Books = DMR "Seafood Recipes- South Mississippi Style" Volume 1 & 2
 Fact Sheets = ISSC's "Vibrio vulnificus Fact Sheet for Health Care Providers"
 PowerPoint Presentation = "Available Technologies for Post Harvest Processing of Oysters"
 Brochure= "BeOysterAware"

VII. Evaluation

The over-all goals and objectives of the project originally planned for the project were accomplished. The remaining additional work planned will be continued for the second year. Time and personnel constraints have caused delays in fulfilling all that was planned to do. The promotional and educational efforts were expanded through collaborative efforts because of budget constraints. Results of the project will be posted on the web, produced and distributed among the different cooperators, among the interested member states of the ISSC, and the

seafood industry. Continuing efforts will be made to send these materials to the different seafood organizations, state health agencies and regional hospitals staff development offices. In all public events, fairs, conferences and meetings, these materials will be given away. Most results are presented directly to the industry through public meetings with the industry, individual companies and industry associations. Much of the information is channeled towards the extension workers and other researchers. Local college and university or regional libraries will be presented with the published materials.

The results of the whole project is part of the collaborative effort to promote post harvest processed and value added raw oyster products as a means to reduce ***Vibrio vulnificus*** illnesses and as an alternative choice to raw oysters for people who maybe immune-compromised. These products may be adopted and commercially developed for the benefit of those people who still want to have a bite of their favorite delicacy.