A National Survey of Consumer Preferences for Branded Gulf Oysters and Risk Perceptions of Gulf Seafood

PROJECT REPORT

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*Daniel R. Petrolia**
Department of Agricultural Economics
Mississippi State University

William C. Walton
Department of Fisheries & Allied Aquacultures
Auburn University

Sarah Acquah
Department of Agricultural Economics & Agricultural Business
New Mexico State University

** Corresponding author: d.petrolia@msstate.edu*

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Executive Summary

Three restaurant taste panels and an online consumer survey were conducted during 2012-2013 to assess whether Gulf consumers would be willing to pay a premium for place-name specific (i.e., "branded") Gulf oysters over typical "generic" Gulf oysters, and whether consumers in other U.S. markets would be willing to pay for branded Gulf oysters compared to other U.S. branded oysters.

Panelists in the two Gulf Coast taste panels had strong preferences for local oyster varieties *when they were aware of oyster variety names and harvest locations* (i.e., during labeled rounds). In the absence this information (i.e., during blind rounds), panelists had no such preferences, and in the case of the Houston taste panel, actually had a significant distaste for the local Galveston Bay variety. Panelists in the Chicago taste panel had strong preferences for the Island Creek oyster, in both the blinded and labeled rounds, although during the labeled rounds, the Point aux Pins oysters fared equally well (statistically) to the Island Creeks. Additionally, during the labeled rounds, the Apalachicola Bay and Point aux Pins oysters were statistically more likely to be chosen over the San Antonio Bay oysters.

Respondents to the online survey tended to have higher perceptions of quality and seafood safety regarding their own regionally-produced oysters relative to oysters from other regions. There was limited variation in perceptions from one Gulf Coast variety to another, with the exception of the Apalachicola Bay variety being rated higher in several cases, and the more general "Gulf of Mexico" category being rated lower.

Online survey results indicate that, consumers living in eastern Gulf states such as Georgia and Florida may be willing to pay a premium for branded Gulf oysters, particularly oysters from Florida and Louisiana. Gulf consumers living in Alabama, Mississippi, Louisiana, and Texas, however, did not show any strong preferences for branded oysters relative to cheaper generic ones. Among non-Gulf consumers, survey results indicate that while a price discount may be needed to sell branded Gulf oysters relative to local oysters (i.e., relative to, say, East Coast oysters in East Coast markets), that Gulf oysters generally fared no worse than other non-local oysters (i.e., West Coast oysters in East Coast markets). Of the Gulf oysters tested, Atlantic Coast respondents appear to prefer Louisiana oysters. Pacific Coast respondents appear to be indifferent between most Atlantic Coast and Gulf Coast varieties.

Also, it appears that relatively few respondents were concerned about the *Deepwater Horizon* oil spill when answering questions about oysters, although these concerns did affect preferences for Gulf Coast oysters negatively in some cases. Less than 1% of all respondents indicated any concern regarding *Vibrio vulnificus*, bacteria, or similar. However, such concerns, though not cited explicitly, may yet be latent in the reported perceptions of oysters from various Gulf Coast locations.

These results would indicate that there is some room for opportunity for branded Gulf Coast oysters along these other two coasts in places where other non-local oysters are marketed successfully. The major challenge appears to be whether the price discount necessary to entice consumers in these other markets to buy Gulf Coast oysters relative to local varieties is yet sufficiently high as to remain a profitable enterprise for Gulf Coast producers. The price discounts estimated here in the range of $5-$10 per half-dozen sounds like a steep discount, but given the large differential in retail prices in Atlantic and Pacific markets - where oysters retail anywhere from $15 to $25 per half-dozen-- compared to Gulf Coast markets – where they retail in the neighborhood of $7 to $10 -- it is possible that even with the discounts, the prices received in these alternative markets may remain profitable.

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INTRODUCTION

The Gulf states of Alabama, Florida, Louisiana, Mississippi, and Texas harvested 94,068 MT of the eastern oyster during the 2000-2009 period, accounting for over 90% of total production for the U.S. Yet the value of the Gulf states' harvest represents only 76% of the total market value because Gulf oysters sell at significantly lower prices relative to those produced in non-Gulf states (National Marine Fisheries Service, 2011). Based on available data, Louisiana farmed oysters brought a wholesale price of approximately 13¢ apiece, while oysters farmed (intensively) in Alaska and Massachusetts commanded roughly 38¢ and 47¢ apiece, respectively (National Marine Fisheries Service, 2011). While many factors affect these prices, the extensive, on-bottom method of oyster farming practiced in Louisiana has primarily targeted production of large quantities of affordable oysters, which are sold by the sack to processors and typically sold as shucked meats (in sharp contrast to the sales by piece along the northeast Atlantic and Pacific coasts for the live shellstock market). Finally, the condition and appearance of extensively cultured oysters is highly dependent upon season and harvest location, which can lead to large variation in the quality of the product on the half shell market (Walton, pers. obs.).

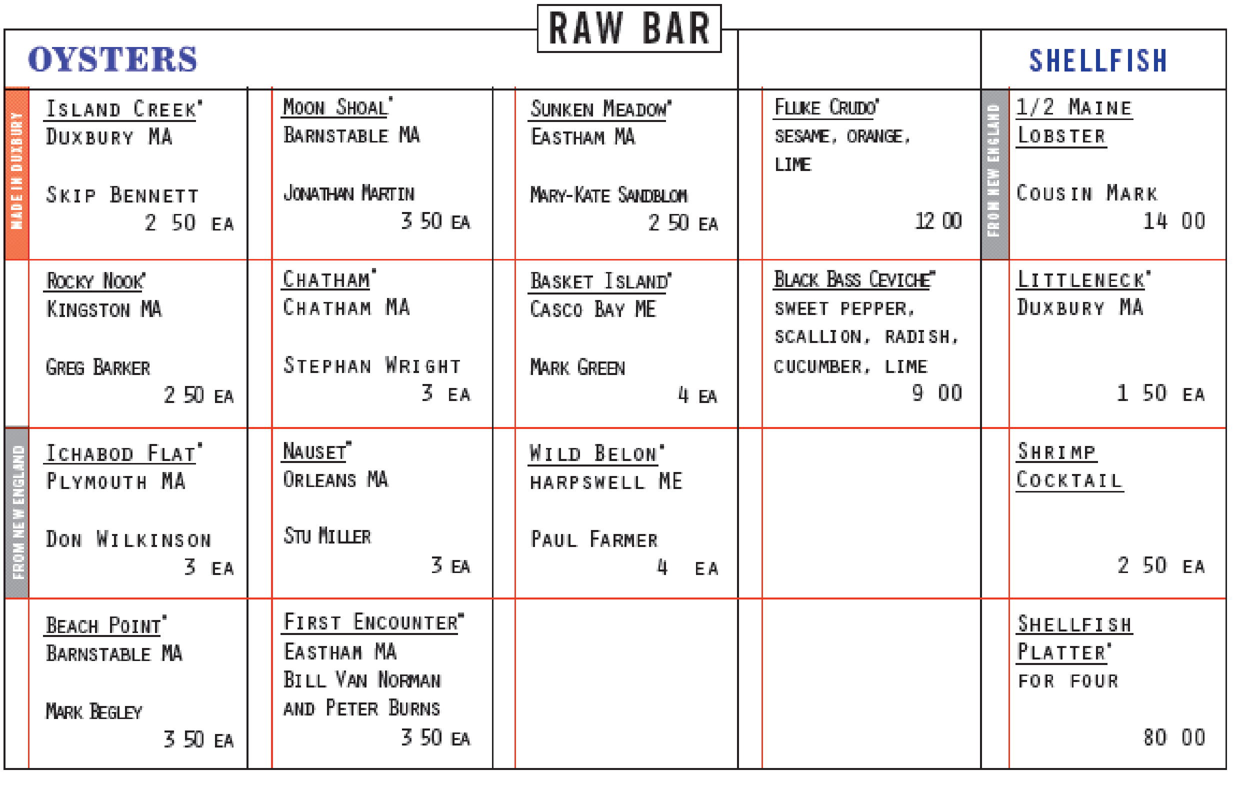
Although they are the same species (eastern oyster, *Crassostrea virginica*), oysters marketed along the Atlantic Coast sell under regional names such as Wellfleets (from Cape Cod), Blue Points (Long Island), and Chincoteagues (Virginia). See Figures 1 and 2 for examples of how oysters are typically marketed in oyster bars outside of the Gulf Coast. Gulf oysters, on the other hand, are usually sold as generic oysters, as Jacobsen (2011) says, "indicative of a region that pays less attention to the nuances of different raw oysters than to their culinary possibilities." See Figure 3 for an example of how oysters are typically marketed along the Gulf Coast. The major exceptions on the Gulf coast are Apalachicolas (Florida), which comprise the bulk of Florida's oyster harvest. Although there is no clear evidence that they sell at a premium, there is anecdotal evidence to suggest that a market has developed for these branded oysters and that additional opportunities may exist. Working with industry members (Louisiana Foods, Ameripure, Wintzell's Oyster House, Bon Secour Fisheries, etc.), promotional tastings of place-named oysters conducted in 2011 in Galveston, TX (during a Foodways Texas symposium) and Dauphin Island, AL (during a promotional event with the Food Channel's Alton Brown) indicate the potential for demand for these premium oysters. Jim Gossen (owner of Louisiana Foods) has reported that several restaurants in Texas have begun selling a variety of named oysters for a premium price (personal communication).

An alternative source of oyster production is farm-raised oysters. Although they currently make up only a very small portion of production in the Gulf, they sell at a premium in high-end restaurants because of their superior aesthetic qualities. A commercial demonstration project is ongoing at Point aux Pines near Bayou La Batre, AL, where currently 50,000 are produced annually, grown in suspended plastic baskets in waist-deep water. This alternative production method allows for greater control of aesthetic characteristics, yielding a potentially higher-value product.

On the negative side, oyster producers in the Gulf have other marketing challenges to contend with, including the lingering effects of the *Deepwater Horizon* oil spill that severely depressed demand for Gulf seafood. The results of a consumer preference survey conducted by Harrison and Degeneffe (2010) shortly after the oil spill found that up to 60 percent of respondents indicated a reduction in their household consumption of seafood as a result of the oil spill in October 2010, although this number fell to 23% when again surveyed in December 2010. Particularly relevant to this proposal, the survey found that although households in Gulf states were more concerned with finfish consumption, over half of the non-Gulf households surveyed were concerned primarily with shellfish consumption, including oysters**.** Additionally, the chronic problem of the bacteria *Vibrio vulnificus*, and associated negative consumer perceptions, limit oyster consumption in the summer months and create an opportunity for national buyers to negotiate a lower price.

The potential for geographical branding and a relative shift in focus from quantity to quality, provides an opportunity for Gulf oyster producers to reach new markets, increase existing market share, and/or increase market value. However, the potential for such gains may be compromised by the negative effects on demand resulting from the *Deepwater Horizon* spill as well as risk from bacterial infections (*Vibrio vulnificus*).

We designed and administered an online choice experiment on a national panel of U.S. oyster consumers to identify factors (positive and negative) influencing Gulf seafood demand in general, and Gulf oyster demand in particular. This analysis entailed the collection of consumer perceptions, including risk perceptions, and the role of these perceptions on preferences. This work was complemented by in-person taste panels conducted at restaurants in Point Clear, Alabama, Houston, Texas, and Chicago.



RAW BAR

OYSTERS					SHELLFISH
MADE IN DUXBURY — Island Creek* Duxbury MA, Skip Bennett, 2 50 ea	Moon Shoal* Barnstable MA, Jonathan Martin, 3 50 ea	Sunken Meadow* Eastham MA, Mary-Kate Sandblom, 2 50 ea	Fluke Crudo* sesame, orange, lime, 12 00	FROM NEW ENGLAND — 1/2 Maine Lobster, Cousin Mark, 14 00
Rocky Nook* Kingston MA, Greg Barker, 2 50 ea	Chatham* Chatham MA, Stephan Wright, 3 ea	Basket Island* Casco Bay ME, Mark Green, 4 ea	Black Bass Ceviche* sweet pepper, scallion, radish, cucumber, lime, 9 00	Littleneck* Duxbury MA, 1 50 ea
FROM NEW ENGLAND — Ichabod Flat* Plymouth MA, Don Wilkinson, 3 ea	Nauset* Orleans MA, Stu Miller, 3 ea	Wild Belon* Harpswell ME, Paul Farmer, 4 ea		Shrimp Cocktail, 2 50 ea
Beach Point* Barnstable MA, Mark Begley, 3 50 ea	First Encounter* Eastham MA, Bill Van Norman and Peter Burns, 3 50 ea			Shellfish Platter* for four, 80 00

Figure 1. Example oyster bar menu from the East Coast. This one is from Island Creek Oyster Bar in Boston.

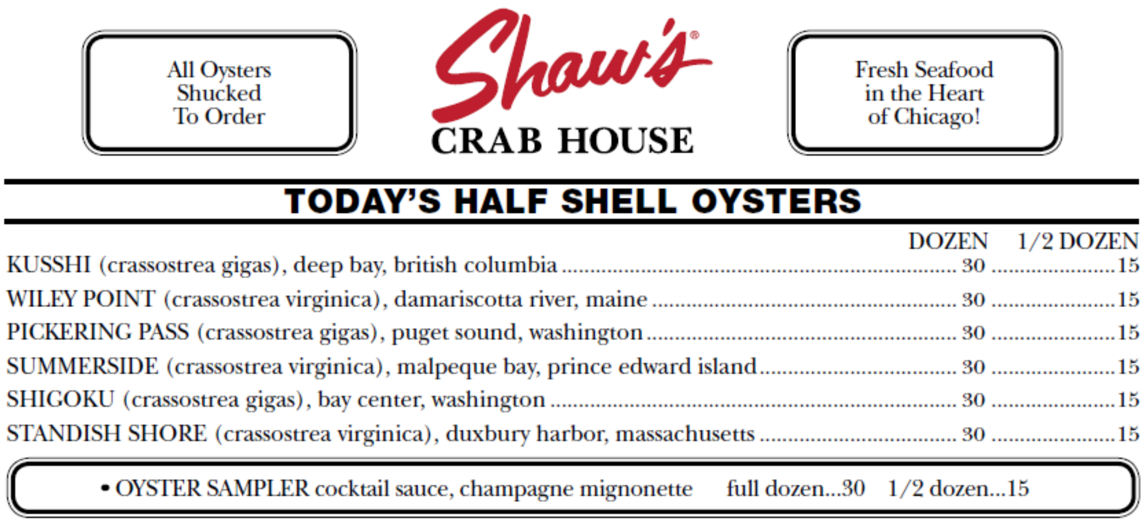
Hypotheses

This work tested the following hypotheses:

1. Consumers (Gulf and/or national) are willing to pay a price premium for geographically- or otherwise-branded Gulf oysters.
2. Consumers (Gulf and/or national) are willing to pay a price premium for oysters with a specific suite of improved attributes.
3. Consumers (Gulf and/or national) are willing to pay a premium (or may have negative willingness to pay) for farm-raised Gulf oysters.

4. Consumer risk perceptions regarding the effect of the Deepwater Horizon oil spill and/or *Vibrio vulnificus* have a significant effect on WTP for Gulf oysters, and/or have an interaction effect on one or more of the above treatments.

This work was a bi-state, multi-institution, multi-disciplinary effort: Dr. Petrolia is a environmental/natural-resource economist at Mississippi State University with extensive experience with survey methods to value goods and services in the Gulf Coast region. Dr. Walton is a marine fisheries and extension specialist at Auburn University with extensive experience with shellfish restoration, fisheries and aquaculture, both in New England and the Gulf coast region.


All Oysters Shucked To Order

Shaw's CRAB HOUSE

Fresh Seafood in the Heart of Chicago!

TODAY'S HALF SHELL OYSTERS

	DOZEN	1/2 DOZEN
KUSSHI (crassostrea gigas), deep bay, british columbia	30	15
WILEY POINT (crassostrea virginica), damariscotta river, maine	30	15
PICKERING PASS (crassostrea gigas), puget sound, washington	30	15
SUMMERSIDE (crassostrea virginica), malpeque bay, prince edward island	30	15
SHIGOKU (crassostrea gigas), bay center, washington	30	15
STANDISH SHORE (crassostrea virginica), duxbury harbor, massachusetts	30	15

• OYSTER SAMPLER cocktail sauce, champagne mignonette full dozen...30 1/2 dozen...15

Figure 2. Example oyster bar menu from a Chicago seafood restaurant. This one is from Shaw's Crab House.

The work addressed the following two research priorities identified by Mississippi-Alabama Sea Grant for the Safe and Sustainable Seafood Supply Focus Area:

1. Determine national public perception of Gulf of Mexico seafood safety and its health benefit.
2. Develop new products and innovative marketing approaches to increase seafood affordability and availability or to add value to existing products or by-products.

World Famous Oysters on the Half Shell and Delicious Seafoods

Felix's proudly serves LOUISIANA seafood!

Oysters on the Half-Shell

Half Dozen		Dozen	
$8.75		$13.95	
Oysters Rockefeller		**Char-grilled**	
Oysters Bienville		**Oysters du Jour**	
Half Dozen	11.45	Half Dozen	11.45
Dozen	18.45	Dozen	19.45

Starters

Seafood Gumbo	7.95
Cup of Seafood Gumbo	5.95
Cup of Red Beans	4.95
Cup of Jambalaya	4.95
Cup of Etouffe	8.95
Add Crawfish Tails	3.95
Turtle Soup	6.95
Onion Rings	6.95
Shrimp Cocktail or Remoulade	10.95
Louisiana Alligator	11.95
Blackend or Fried	
Fried Crab Fingers	11.95
Fried Crawfish Tails	7.95
Fried Pickles	6.95

Salads

Garden Salad	7.95
Lettuce Wedge Salad	7.95
Caesar Salad	7.95
Seafood Salad	13.95
baby mixed greens topped with Louisiana lump crabmeat, and boiled Louisiana shrimp	
Add grilled chicken to any salad	5.95
Add 5 grilled or 5 fried shrimp	6.95
Add 5 fried oysters to any salad	7.95

available dressings: Italian, ranch, bleu cheese, caesar, remoulade

We accept most credit cards. No personal checks. 18% gratuity may be added for 6 or more. Not responsible for lost or stolen property. No separate checks, up to 5 payments are accepted.

Po-Boy Sandwiches

Served with Fries

Felix Special	13.95
shrimp and oyster	
Roast Beef Poboy	11.95
Shrimp Po-Boy	10.95
Oyster Po-Boy	15.95
Soft Shell Po-Boy	16.95
Crawfish Po-Boy	9.95
Catfish Po-Boy	9.95
Hamburger	7.95
Cheeseburger	8.95
Grilled Shrimp Po-Boy	11.95
with olive oil, romaine lettuce, black olives and red onions	
1/2 Po-Boy & Side	12.95
shrimp, crawfish, catfish, or oyster with side of étouffée, jambalaya, gumbo or red beans	
Hot Sausage Po-Boy	10.95
dressed with blue cheese coleslaw	
Club Sandwich	10.95
turkey, bacon, lettuce, tomato, and mayo	

Platters

all platters served with hushpuppies, french fries and coleslaw

Fried Shrimp Platter	16.95
Fried Shrimp & Oyster Platter	16.95
Fried Catfish Platter	15.95
Fried Oyster Platter	19.95
Fried Soft-Shell Crab Platter	market
Fried Seafood Platter	20.45
(shrimp, oysters and catfish)	
Add Fried Soft-Shell Crab	9.95
Catch of the Day	market
Gulf Shrimp	16.95
grilled or blackened, served with choice of side and sautéed veggies	
Grilled Chicken Breast	10.95
choice of side and sautéed veggies	

New Orleans Favorites

Red Beans and Rice	10.95
with Andouille sausage	

World Famous Oysters on the Half Shell and Delicious Seafoods

Jambalaya	11.95
with shrimp, Italian sausage, chicken and smoked sausage	
Crawfish Étouffée	13.95
Hamburger Steak	11.95
with gravy and onions, comes with fries and coleslaw	
Bayou Platter Sampler	13.95
red beans, Jambalaya & étouffée	

a la carte Side Orders

French Fries	3.95
Sweet Fries	3.95
Side Salad	3.95
Sautéed Veggies	3.95
Coleslaw	2.95

Children's Menu

Children 12 and under

Fried Catfish	6.95
Fried Shrimp	7.95
Grilled Cheese	4.95
Chicken Tenders	6.95
Hamburger	6.95

all children's menu items served with french fries

Desserts

New Orleans Bread Pudding	5.95
w\ Whiskey Sauce	
Creole Pecan Pie	5.95
New York Style Cheese Cake	5.95
Chocolate or Raspberry	

Beverages

Fountain Sodas	2.75
Coke, Diet Coke, Sprite, Barq's Root Beer	
Coffee or Ice Tea	2.25
Hot Tea or Iced Coffee	2.25
Milk or Juice	3.75

NOTICE

There may be a risk associated with consuming raw shellfish, as is the case with other raw protein products. If you suffer from chronic illness of the liver, stomach or blood, or have other immune disorders, you should eat these products fully cooked.

Figure 3. Example of a typical oyster bar menu from the Gulf Coast. This one is from Felix's in New Orleans.

Industry Input

The project sought industry input on taste panel and survey design, oyster descriptions, selection of restaurants to host taste panels, and other important decisions. Our industry advisory panel consisted of the following individuals:

- **Jim Gossen** (distributor, Louisiana Foods)
- **Michael Herzog** (Director of Food & Beverage, Grand Hotel Marriott Resort, Point Clear, AL)
- **Rowan Jacobsen** (author of *A Geography of Oysters: The Connoisseur's Guide to Oyster Eating in North America*)
- **Chris Nelson** (oyster processor & distributor, Bon Secour Fisheries)
- **Jon Rowley** (noted food critic and a leader of the 'oyster revival')
- **Robb Walsh** (food critic and author of *Sex, Death & Oysters*)

Additionally, the following individuals provided product samples and/or hosted a taste panel:

- **Steve Crockett** (Owner, Point-aux-Pins Oyster Farm, AL)
- **Jim Gossen** (Louisiana Foods)
- **Michael Herzog** (Director of Food & Beverage, Marriott Grand Resort, Point Clear, AL)
- **Steve LaHaie** (General Manager, Shaw's Crab House, Chicago, IL)
- **Brian Caswell** (Chef/Owner, Reef, Houston, TX)

REVIEW OF RELATED LITERATURE

Recent literature specific to studies of oysters preferences include Bruner, Huth, McEvoy, and Morgan (2011), who studied consumers' willingness to pay for post-harvest processed raw oysters using experimental n^{th}-price auction markets. The results of the experiment indicated that relatively uninformed consumers are willing to pay equivalent amount for post-harvest processed raw oysters and traditional raw oysters. Their results further reveals that after the blind taste consumers were willing to pay a price premium for the traditional raw oysters while the mean bid for post-harvest processed raw oysters substantially declined. They posit that the decline in the amount of bid for post-harvest processed raw oysters suggest that processing technologies degrade the taste of oysters resulting in consumers' willingness to pay a price premium for traditional raw oysters.

Morgan et al. (2011) conducted an online survey of oyster consumers in seven coastal U.S. states. They find that the severity of risk, as provided in the form of information in the survey (fear appeal), is an important driver of behavioral change. They find that consumers presented with information about the potential for death from consuming raw oysters significantly decreased demand even though the average consumer is not at risk. In the absence of such information, however, consumption increased. At-risk consumers react differently to information treatments: provision of health-risk information to at-risk consumers of raw oysters increased demand. Results indicate that if only post-harvest processed oysters are available, consumers will decrease demand due to perceived negative changes in taste which outweighed reduced risk of illness. This result was also true among at-risk consumers.

Morgan, Martin, and Huth (2009) conducted a combination telephone-online contingent behavior survey on oyster consumers in Florida under positive and negative information treatments, with particular focus on risks associated with *Vibrio vulnificus*. They found that consumers of raw and cooked oysters behave differently under news of an oyster-related human mortality: whereas cooked oyster consumers take precautionary measures against risk, raw oyster consumers exhibit optimistic bias and increase consumption. Also, they found significant impacts on behavior due to information source: oyster consumers, especially of raw oysters, were most responsive to information provided by non-profit, non-governmental organizations. They found no effect of post-harvest treatment on demand.

Martinez-Cordero, Fong and Haws (2009) conducted a survey of restaurant owners and managers from oyster aquaculture cooperatives in Bahia Santa Maria. The objective was to know their opinions and beliefs regarding a number of oyster attributes. Their results showed that Bahia Santa Maria oyster aquaculture cooperatives considered consistency in supply, uniformity in size and shell life as the three most important attributes of oysters.

Kow et al. (2008) conducted a survey of Australian residence to understand the factors that relate to consumers' choices of oysters. They found that labelling factors-- labeling of cite of catch, date of catch, name of the oyster, and fresh/defrost -- accounted for 23% of the total variation in choice, followed by safety/quality factors, and factors related to season, trying different types of oysters, price, packaging and future expectations. Liu et al. (2006) conducted a survey of some selected state capital cities of Australia to understand consumer purchase behavior for oysters. The survey results showed that correct labelling were critical issues to future oyster consumption.

Hanson et al. (2003) conducted a survey to know the opinions of U.S. consumers' towards oysters. The results of the survey revealed that respondents who eat oysters considered price, product safety concerns and lack of fresh products as the top three reasons for not consuming oysters more frequently. They concluded that oyster consumers will increase their consumption if the oyster products were sold at lower price, product safety was guaranteed and fresh oysters were more available. With regards to non-consumers, they reported that taste, texture, and smell were the most cited reasons for not consuming oysters.

Posadas, Andrews, and Burrage (2002), using surveys conducted in Houston, Texas; Boston, Massachusetts; Baltimore, Maryland; and Gulfport, Mississippi sought to understand consumer preferences and attitudes towards irradiated oysters. The survey results indicated oyster taste, appearance, sliminess, smell, safety, color, grittiness and internal waste as the limiting factors that influence consumers' consumption decision.

In a mail survey of shellfish consumers in the U.S. Northeast, Manalo and Gempesaw (1997) found that product safety is a major concern for oyster consumers and that safety assurances in the form of inspection information and source information were relatively more important to consumers than price as specified in the study. Lin and Milon (1993) investigated factors that influence consumers' decision to consume oysters. A rating scale was used to measure perceptions of five food attributes including safety, taste, nutritional value, freshness, and cost. The results of the analysis reported that taste perceptions were highly significant determinants of oyster consumption decisions.

OVERVIEW OF ECONOMIC THEORY, VALUATION METHODS, AND ECONOMETRIC MODELS

Consumer preferences can often be inferred from actual market behavior, i.e., by observing actual purchase decisions. When a new market good is introduced, however, there is no existing market data from which to infer preferences and/or market potential. Therefore, the value of such new goods is difficult to measure. Theoretical concepts of economic welfare used to evaluate the value of goods include consumer surplus, compensating and equivalent variation, and compensating and equivalent surplus (see Kolstad 2011). Compensating variation is the theoretical measure assumed here, as it applies to the case of stated-preferences where utility is held constant and initial utility is used as the base utility from which to evaluate an increase in the quantity / quality of the good offered (see Kolstad 2011).

Compensating variation can be defined as the monetary compensation (positive or negative) needed in order to return an individual to his original level of wellbeing (or, "utility" in economics jargon) after the quantity change occurs. Figure 4 shows compensating variation graphically where Y on the vertical axis represents income, or equivalently, consumption of all other market goods, and q on the horizontal axis represents quantity of the specific good being evaluated (in this case, oysters). Suppose a person has income Y_0 and the current quantity / quality of oysters is q_0. This person is then at point A and has a utility of U_0. Then there is an increase in the quantity / quality of oysters consumed q from q_0 to q_1. This change moves consumption from point A to point B and raises the person's utility to U_1. An indifference curve shows the locus of points that give a person the same level of well-being or utility. I_{U0} is an indifference curve with initial utility of U_0, and I_{U1} is a new indifference curve with new, higher utility of U_1. In Figure 4, compensating variation is the difference between income levels Y_0 and

Y_1 because, if, from consumption point B, you take away this amount of income, the person will once again be at his initial utility level, U_0, at consumption point C. In this case, the compensating variation represents the individual's maximum willingness to pay (WTP) to obtain the quantity / quality change from q_0 to q_1.

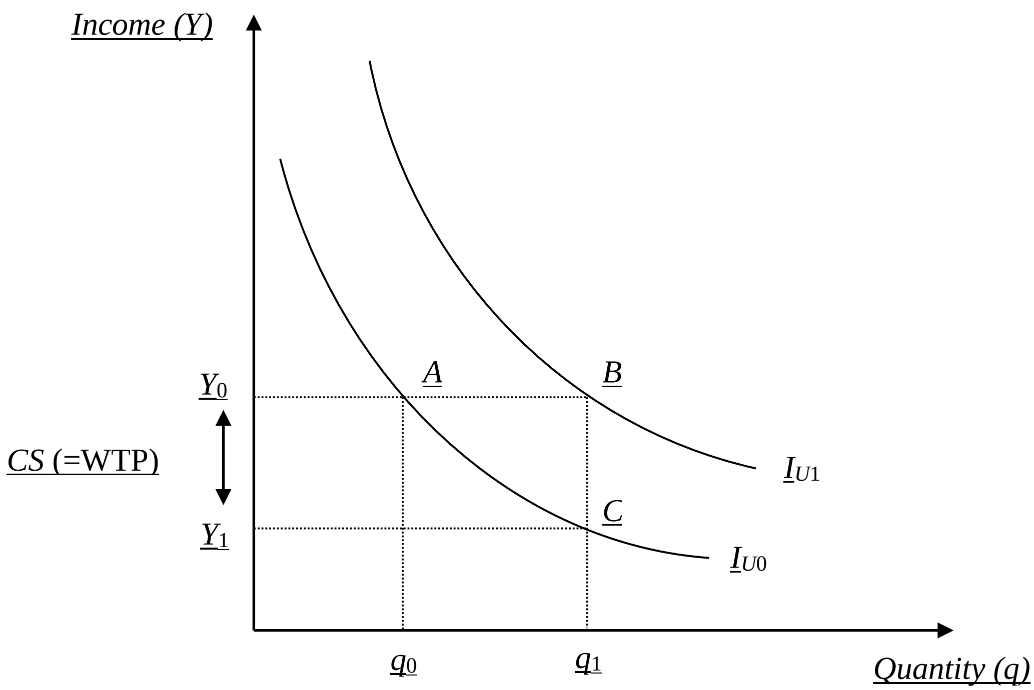


Figure 4. A theoretical exposition of the concept of compensating variation.

Choice Experiment

A choice experiment (CE) is one of several tools used to estimate the value of both market and non-market goods, and has been used extensively (see Adamowicz et al. 1998; Brownstone and Train 1999; Boyle et al. 2001; Layton and Brown 2000; Lusk, Fox, and Roosen 2003; Revelt and Train 1998). A choice experiment is designed not to elicit preferences for a single alternative, but to elicit respondents' preferences over attributes such as quantity, quality, appearance (color, shape), brand, harvest location, and price (Adamowicz et al., 1998). Typically, each respondent is asked to evaluate several randomly-assigned scenarios, each of which is composed of several competing alternatives comprised of some set of attributes, and individuals are asked to choose the one alternative they prefer the most. This approach provides the researcher with multiple choice observations per respondent. Choice sets are usually designed to minimize the number of respondents or choices per respondent needed to achieve an expected level of accuracy. Usually, this implies the objective of maximizing orthogonality and balance (Huber and Zwerina 1996; Lusk and Norwood 2005). Additionally, if the researcher is able to use prior information about the expected coefficients, utility balance can also be an objective to further increase efficiency. The utility-balanced choice design limits the number of dominated alternatives (Huber and Zwerina 1996).

The choice experiment approach is also appealing because it is based on the economic theory of choice (specifically, random utility theory (Louviere, Hensher, and Swait, 2000)) and allows for multi-attribute valuation. Individuals consciously or subconsciously make decisions by comparing alternatives and selecting an action which we call a *choice outcome*. Thus, one may assume that a given alternative is a bundle of attributes, each of which provides utility/ disutility to the respondent (Lancaster 1966), and the choice experiment allows for estimation of the marginal utility of attributes. In other words, the choice experiment allows for identification of which attributes contribute the most to consumer preferences, and how individuals trade off one attribute for another.

As simple as the observed outcome may be to the decision maker, the analyst who is trying to explain this choice outcome through some captured data will never have available all the information required to be able to explain the choice outcome fully. Due to the large amount of variability in the reasoning underlying decisions made by a population of individuals (called *heterogeneity*), it is the goal of the choice analyst to maximize the amount of measured variability (*observed* heterogeneity) and minimize the amount of unmeasured variability (*unobserved* heterogeneity). The main task of the choice analyst is to capture such information through data collection and to recognize that any information not captured in the data is still relevant to an individual's choice and must somehow be included in the effort to explain choice behavior (Hensher, Rose, and Greene, 2005).

Best/Worst Scaling / Rank-Order Explosion

The best-worst (BW) elicitation format has also emerged of late as an alternative to the above formats (Flynn and Marley 2012; Flynn et al. 2007; Marley and Louviere 2005; Potoglou et al. 2011; Scarpa et al. 2011). The BW format asks respondents to indicate the "best" alternative and then to indicate the "worst" alternative, and then, of the remaining alternatives, to indicate the "best" of those remaining, then the "worst", etc., until a full ranking is achieved. The argument is made that choosing "bests" and "worsts" is a relatively easy task for respondents, and yields more information per choice set than the standard question format. Thus, it represents a further extension of the choice experiment format with the potential to increase survey administration cost efficiency even further.

Our best-worst format is an application of "Case III" best-worst elicitation (the multi-profile case; see Flynn and Marley 2012), and included a single question with three alternatives, and elicited the "best" and "worst" choice of the three alternatives, thus yielding a full ranking. This ranking was then decomposed following the method of rank-order explosion proposed by Chapman and Staelin (1982), which, in our cases, yields two choice observations for each choice question asked: a three-alternative observation (first-best case) and a two-alternative observation (second-best case). Thus, our best-worst format entails a single question that yields two choice observations.

The Random Utility Model

The random utility model is a well-known model to analyze discrete stated preference responses. Hanemann (1984) was the first to develop a basic model for the random utility, and McFadden (1974) utilized a framework for the random utility. For simplicity, we discuss the random utility model in a binary (two) choice setting in which the respondent indicates whether he is for or against some proposed action. The multinomial-choice setting, which is used in the present study, is a generalization of this form. This discussion follows Haab and McConnell (2002). In the binary case there are two choices or alternatives, either "for" or "against" the proposed action. Let indirect utility for respondent *j* be written

$$u_{ij} = u_i(y_j, \mathbf{z_j}, \mathbf{x_i}, \varepsilon_{ij})$$

where $i = 1$ if the program is implemented, and $i = 0$ is for the status quo. y_j is the j^{th} respondent's discretionary income, and $\mathbf{z_j}$ is an m-dimensional vector of respondent characteristics, $\mathbf{x_i}$ is a vector of choice-specific attributes, and ε_{ij} is a component of preference known by the individual respondent but not observed by the researcher. Based on this model, respondent *j* will answer yes to a program with required payment of t_j if utility with the program, minus the payment, exceeds utility of the status quo:

$$u_1(y_j - t_j, \mathbf{z_j}, \mathbf{x_j^1}, \varepsilon_{1j}) > u_0(y_j, \mathbf{z_j}, \mathbf{x_j^0}, \varepsilon_{0j})$$

Because a random part of preferences is unknown, only a probability statement about yes or no can be made. The probability of a yes response is the probability that the respondent believes that he is better off if the proposed program is implemented and he makes the required payment, so that $u_1 > u_0$. For respondent *j*, this probability is

$$\Pr(yes_j) = \Pr(u_1(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^1}, \varepsilon_{1j}) > u_0(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^0}, \varepsilon_{0j}))$$

Two modeling decisions are needed to estimate the model. First, the functional form of utility must be specified. Second, the distribution of ε_{ij} must be specified. All approaches clearly identify that the indirect utility function be additively separable in deterministic (*v*) and random parts:

$$u_i(y_j, \mathbf{z_j}, \mathbf{x_i}, \varepsilon_{ij}) = v_i(y_j, \mathbf{z_j}, \mathbf{x_i}) + \varepsilon_{ij}$$

Using the additive specification of the equation, the probability of respondent *j* becomes

$$\Pr(yes_j) = \Pr(v_1(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^1}) + \varepsilon_{1j}) > v_0(y_j, \mathbf{z_j}, \mathbf{x_i^0}) + \varepsilon_{0j}))$$

This also can be written as

$$\Pr(yes_j) = \Pr\left[v_1(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^1}) - v_0(y_j, \mathbf{z_j}, \mathbf{x_i^0}) > \varepsilon_{0j} - \varepsilon_{1j})\right]$$

However, the differences in the random components between the status quo and the proposed program cannot be identified. Therefore, the random term can be written as $\varepsilon_{ij} \equiv \varepsilon_{1j} - \varepsilon_{0j}$, a single random term. Then let $F_{\varepsilon}(a)$ be the probability that the random variable ε_{ij} is less than *a*. Therefore the probability of a yes is

$$\Pr(yes_j) = 1 - F_{\varepsilon}\left[-(v_1(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^1}) - v_0(y_j, \mathbf{z_j}, \mathbf{x_i^0}))\right]$$

At this point, a more specific indirect utility function is needed for estimation. For example, the linear indirect utility function, which is the simplest and most commonly estimated function, is specified as follows. The linear indirect utility function results when the deterministic part of the preference function is linear in income and covariates

$$v_{ij}(y_j, \mathbf{z_j}, \mathbf{x_i}) = \delta_i + \beta_i y_j + \boldsymbol{\alpha_i}\mathbf{z_j} + \boldsymbol{\gamma_i}\mathbf{x_i}$$

where δ_i is a coefficient on a constant utility term, $\boldsymbol{\alpha_i}$ is an m-dimensional vector of parameters, so that $\boldsymbol{\alpha_i}\mathbf{z_j} = \sum_{k=1}^{m} \alpha_{ik} z_{jk}$. The deterministic utility for the proposed program is then

$$v_{1j}(y_j - t_j, \mathbf{z_j}, \mathbf{x_i^1}) = \delta_1 + \beta_1(y_j - t_j) + \boldsymbol{\alpha_1}\mathbf{z_j} + \boldsymbol{\gamma_1}\mathbf{x_i^1}$$

where t_j is the price offered to the j^{th} respondent. The status quo utility is

$$v_{0j}(y_j, \mathbf{z_j}, \mathbf{x_i^0}) = \delta_0 + \beta_0 y_j + \boldsymbol{\alpha_0}\mathbf{z_j} + \boldsymbol{\gamma_0}\mathbf{x_i^0}$$

The change in deterministic utility is

$$v_{1j} - v_{0j} = \delta_1 - \delta_0 + (\beta_1 - \beta_0)y_j - \beta_0 t_j + (\boldsymbol{\alpha_1} - \boldsymbol{\alpha_0})\mathbf{z_j} + \boldsymbol{\gamma_1}\mathbf{x_i^1} - \boldsymbol{\gamma_0}\mathbf{x_i^0}$$

If one assumes that the marginal utility of income and the marginal utility of the environmental good attributes are constant between the two states, then $\beta_1 = \beta_0$, $\boldsymbol{\gamma_1} = \boldsymbol{\gamma_0} = \boldsymbol{\gamma}$, and the utility difference becomes

$$v_{1j} - v_{0j} = \delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0})$$

where $\boldsymbol{\alpha} = \boldsymbol{\alpha_1} - \boldsymbol{\alpha_0}$ and $\delta = \delta_1 - \delta_0$. With the deterministic part of preferences specified, the probability of responding yes becomes

$$\Pr(yes_j) = \Pr(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0}) + \varepsilon_j > 0)$$

where $\varepsilon_j \equiv \varepsilon_{1j} - \varepsilon_{0j}$ as defined already.

Econometric (Multiple Regression) Analysis

Binary-Choice Model

Recall from above that the probability of a yes vote can be expressed as

$$\Pr(yes_j) = \Pr(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0}) + \varepsilon_j > 0).$$

We know that

$$\begin{aligned}\Pr(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0}) + \varepsilon_j > 0) &= \Pr(-(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0})) < \varepsilon_j) \\ &= 1 - \Pr(-(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0})) > \varepsilon_j) \\ &= \Pr(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0}) > \varepsilon_j)\end{aligned}$$

The last equality exploits the symmetry of the distribution. For symmetric distributions $F(x) = 1 - F(-x)$. Suppose that $\varepsilon_j \sim N(0, \sigma^2)$. If we convert $\varepsilon_j \sim N(0, \sigma^2)$ to a standard normal (N(0,1)) variable, and let $\theta = \varepsilon / \sigma$, then $\theta \sim N(0,1)$ and

$$\Pr(\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0}) > \varepsilon_j) = \Pr\left(\frac{\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0})}{\sigma} > \theta_j\right)$$
$$= \Phi\left(\frac{\delta - \beta t_j + \boldsymbol{\alpha}\mathbf{z_j} + \boldsymbol{\gamma}(\mathbf{x_i^1} - \mathbf{x_i^0})}{\sigma}\right)$$

Where $\Phi(x)$ is the cumulative standard normal, i.e., the probability that a unit normal variate is less than or equal to *x*. This is the probit model.

Multinomial-Choice Model

For the multinomial-choice case, let the probability of choosing alternative *j* be

$$\Pr(y_i = j) = \frac{\exp(\mathbf{x}_{it}^* \boldsymbol{\gamma}^*)}{\sum_{i=1}^{J} \exp(\mathbf{x}_{it}^* \boldsymbol{\gamma}^*)}$$

where $\mathbf{x}_{it}^*$ and $\boldsymbol{\beta}^*$ are defined as follows. Let the deterministic component of the random-utility model be expressed as:

$$\begin{aligned} v_i &= \mathbf{x}_i\boldsymbol{\beta} + (\mathbf{z_i}\mathbf{A})' \\ &= \mathbf{x}_i\boldsymbol{\beta} + (\mathbf{z_i} \otimes \mathbf{I}_J)\text{vec}(\mathbf{A}') \\ &= (\mathbf{x}_i, \mathbf{z_i} \otimes \mathbf{I}_J)\begin{pmatrix} \boldsymbol{\beta} \\ \text{vec}(\mathbf{A}') \end{pmatrix} \\ &= \mathbf{x}_i^*\boldsymbol{\beta}^* \end{aligned}$$

Where $\boldsymbol{\beta}$ is a *p x 1* vector of alternative-specific coefficients and $\mathbf{A} = (\alpha_1 ... \alpha_J)$ is a *q x J* matrix of individual-specific coefficients. It is necessary to fix one of the α_j to the constant vector to normalize the location. Here, $\mathbf{I}_J$ is the *J x J* identity matrix, vec( ) is the vector function that creates a vector from a matrix by placing each column of the matrix on top of the other, and $\otimes$ is the Kronecker product.

Nested Logit Model

We assume that an individual i obtains utility U_{ij} from choosing the alternative j among the set of alternatives, and the individual i chooses the alternative that gives the highest level of utility which is known as random utility model (RUM). We specify U_{ij} as

$$U_{ij} = V_{ij}(\mathbf{X}_{ij}, \mathbf{Z}_i) + \varepsilon_{ij}$$

where V_{ij} is observed component of utility which consists of a vector of alternative-specific attributes $\mathbf{X}_{ij}$ and a vector of individual-specific characteristics $\mathbf{Z}_i$ and ε_{ij} is an error component. Assuming ε_{ij} is independently and identically distributed (IID) with Gumbel (type 1 extreme value) distributions, the model can be estimated using conditional logit model. Conditional logit model has the independence from irrelevant alternatives (IIA) property following from the IID assumption, and it is convenient as regards to estimation but is not appealing as regards to consumer behavior (Greene 2012). The IIA property can be relaxed by using nested logit model that sorts alternatives into groups and allows each group to have different variances in the error components. For two-level nested logit model, the probability of an individual i chooses an alternative j within a branch (group) b is

$$P_{ijb} = P_{ij|b}P_b = \left(\frac{\exp(\mathbf{x'}_{ij|b}\boldsymbol{\beta})}{\sum_{j=1}^{J_b} \exp(\mathbf{x'}_{ij|b}\boldsymbol{\beta})} \right) \left(\frac{\exp[\lambda_b(\mathbf{z'}_{ib}\boldsymbol{\gamma} + IV_{ib})]}{\sum_{b=1}^{B} \exp[\lambda_b(\mathbf{z'}_{ib}\boldsymbol{\gamma} + IV_{ib})]} \right)$$

where $IV_{ib} = \ln\left(\sum_{j=1}^{J_b} \exp(\mathbf{x'}_{ij|b}\boldsymbol{\beta})\right)$. The parameter λ_b is inversely proportional to the variance of the error term[1], and when it equals 1, the model reverts to the multinomial logit model (Greene 2012).

[1] $\lambda_b = \dfrac{\pi^2}{6\sigma_b^2}$

CONSUMER TASTE PANELS

Experimental Design

An experiment was design to test consumer preferences over multiple oyster varieties and prices. The experimental design was generated using NGene software. Appendix A contains the design syntax and output. The design for the Alabama and Texas taste panels was a 12-row design that included 4 alternatives (branded oyster A, branded oyster B, generic Gulf oyster, and none of the above), and the Chicago panel was a 12-row design that included three alternatives (branded oyster A, branded oyster B, and branded oyster C).[2] The design was optimized according to s-efficiency (Choice Metrics 2012). Branded oysters included in each taste panel are reported in Table 1. In the two panels held in Gulf coast cities, "generic" Gulf oysters were featured in each choice set, as this represents the predominant means by which Gulf oysters are sold in Gulf coast markets. Prices included in the panel were $6, 8, 10, 12, 14, and 16 per half-dozen for the two Gulf panels, and $10, 12, 14, 16, 18, and 20 per half-dozen for the Chicago panel.

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[2] We decided to omit the "none of the above" alternative in the Chicago taste panel after almost no participants utilized it during the previous two panels. This simplified the design as well as the choice task for the participants.

Table 1. Oyster varieties tested at each taste panel.

	Point Clear, AL *Lakewood Golf Club, Grand Hotel Marriott Resort*	**Houston, TX** *Reef Restaurant*	**Chicago, IL** *Shaw's Crab House*
Gulf Coast Varieties	Apalachicola Bay, FL	Apalachicola Bay, FL	13 Miles, Apalachicola Bay, FL
	Champagne Bay, LA	Champagne Bay, LA	
	Lonesome Reef, Galveston Bay, TX	Lost Reef, Galveston Bay, TX	Grassy Points, San Antonio Bay, TX
	Point aux Pins, Grand Bay, AL	Point aux Pins, Grand Bay, AL	Point aux Pins, Grand Bay, AL
	Gulf of Mexico (Generic)	Gulf of Mexico (Generic)	
Atlantic Coast Varieties	James River, Chesapeake Bay, VA	Conway Royales, Malpeque Bay, PEI	Island Creeks, Duxbury Bay, MA
	Sewansecott Ocean Salts, VA	Onsets, Buzzards Bay, MA	Wiley Points, Damariscotta River, ME
Pacific Coast Varieties			Shigokus, Willapa Bay, WA

Administration

Three taste panels were conducted. The first was held December 7, 2012 at the Lakewood Golf Club at the Grand Hotel Marriott Resort in Point Clear, Alabama. The second was held February 13, 2013 at Reef in Houston, Texas. The third was held November 11, 2013 at Shaw's Crab House in Chicago, Illinois. For all three taste panels, the host venue was allowed to recruit participants from each's own customer base.[3] Participants were asked to review a sign a consent form upon arrival at the event site. They were then allowed to sit anywhere they liked. Participants were asked to treat the event as they would a regular trip to an oyster bar. Thus, they were allowed to drink and converse as they normally would, with the exception of discussing the oysters themselves (and their opinions of them) once the tasting began. Most participants appeared to have adhered to these rules. Participants were generally discouraged from amending the oysters with any excessive condiments. Only a few actually requested such, and were limited to lemon juice and hot sauce (upon request).

After participants were all seated, an introduction was given by the session moderator (Petrolia) to provide general information about the reason for the taste panel (to better understand consumer preferences for raw oysters), what participants would be asked to do during the panel, and to explain in detail the vote cards. For the latter, the vote cards for the first round were handed out to facilitate explanation. Participants were then given the opportunity to ask any clarifying questions. After all participants' questions and concerns were addressed, the first round of oysters were served.

[3] This allowed each venue to use the event promotionally, providing them with some added "benefit" to hosting it.

The session consisted of four rounds. Each round consisted or 3 individual oysters, each a different variety. During the first two rounds, the oysters were served blind, i.e., participants were not told which varieties of oysters they were evaluating. After evaluating the three oysters, participants filled out a vote card for that round. The vote card indicated the posted (hypothetical) price per half-dozen for each alternative. In the blind rounds, these were simply "A", "B", and "C". Participants indicated which of the three alternatives they were "Most Likely to Buy" at the posted prices, and which of the three alternatives there were "Least Likely to Buy" at the posted prices. They were also invited to write down any additional comments on the vote card that they wished to share. See Figure 5 for an example vote card for blinded rounds and Figure 6 for an example vote card for labeled rounds.

For the third and fourth rounds, participants were provided with the specific variety of each alternative as well as a brief description of each that mimicked what one would normally find on a menu. Table 2 contains the descriptions used for each oyster variety. At the conclusion of the four tasting rounds, participants were asked to complete a short questionnaire. Appendix B contains the questions included in the taste panel questionnaire.

4301	***Price per half-dozen***	**I am MOST LIKELY to buy:**	**I am LEAST LIKELY to buy:**
A	**$14**		
B	**$10**		
C	**$14**		

Figure 5. Example taste panel vote card for blind rounds.

7303	***Price per half-dozen***	**I am MOST LIKELY to buy:**	**I am LEAST LIKELY to buy:**
Point aux Pins, Grand Bay, AL *Raised and harvested by hand from the waters of Grand Bay, Alabama.*	**$14**		
Shigokus, Willapa Bay, WA *Raised and harvested by hand from the waters of Willapa Bay, Washington.*	**$10**		
Island Creeks, Duxbury Bay, MA *Raised and harvested by hand from the waters of Duxbury Bay, Massachusetts.*	**$14**		

Figure 6. Example taste panel vote card for labeled rounds.

Table 2. Oyster variety descriptions used during the labeled rounds of the taste panels.

	Oyster Variety	Menu Descriptions
Gulf Varieties	13 Miles, Apalachicola Bay, FL	*Wild oysters harvested by tongs from the waters of Apalachicola Bay, Florida.*
	Apalachicola Bay, FL	*Harvested by tongs from the waters of Apalachicola Bay, Florida.*
	Champagne Bay, LA	*Raised and harvested by hand from the waters of Champagne Bay, Louisiana.*
	Grassy Points, San Antonio Bay, TX	*Wild oysters harvested by hand from the waters of San Antonio Bay, Texas.*
	Lonesome Reef, Galveston Bay, TX	*Hand-selected oysters harvested from the waters of Galveston Bay, Texas.*
	Lost Reef, Galveston Bay, TX	*Hand-selected oysters harvested from the waters of Galveston Bay, Texas.*
	Point aux Pins, Grand Bay, AL	*Raised and harvested by hand from the waters of Grand Bay, Alabama.*
	Gulf of Mexico (Generic)	*Harvested from the coastal waters along the Gulf of Mexico.*
Atlantic Coast Varieties	Conway Royales, Malpeque Bay, PEI	*Hand-selected oysters harvested from the waters of Canada's Malpeque Bay, Prince Edward Island.*
	Island Creeks, Duxbury Bay, MA	*Raised and harvested by hand from the waters of Duxbury Bay, Massachusetts.*
	James River, Chesapeake Bay, VA	*Hand-selected oysters harvested from the James River in Chesapeake Bay, Virginia.*
	Onsets, Buzzards Bay, MA	*Raised and harvested by hand from the waters of Buzzards Bay, Massachusetts.*
	Sewansecott Ocean Salts, VA	*Raised and harvested by hand from the waters of Virginia's barrier islands on the Atlantic Ocean.*
	Wiley Points, Damariscotta River, ME	*Raised and harvested by hand from the waters of the Damariscotta River, Maine.*
Pacific Coast Varieties	Shigokus, Willapa Bay, WA	*Raised and harvested by hand from the waters of Willapa Bay, Washington.*

Results

Panelist Characteristics

A total of 60, 31, and 78 individuals participated in the Point Clear, AL, Houston, TX, and Chicago, IL taste panels, respectively. Table 3 reports the mean age and proportion of males for each panel. Panelists were asked to indicate all of the venues from which they source their oysters. Table 4 reports the number of panelists that indicated each source. The great majority indicated ‘restaurants’, but about half of the panelists at the Point Clear panel also indicated ‘seafood markets’. Panels were asked to indicate the frequency of raw oyster consumption (Table 5). Over half of the Point Clear panelists indicated seasonally (cold-weather months only), with just over a quarter indicating monthly. The Houston panel had similar responses. For the Chicago panel, however, 39 percent indicated that they rarely consumed raw oysters, 32 percent responded monthly, and 23 percent responded seasonally. Less than 10 percent of panelists indicated weekly consumption of raw oysters across panels.

Panelists were asked to indicate the quantity of oysters typically consumed in one meal (Table 6). Here, regional differences are highlighted. Sixty-four percent of the Chicago panelists indicated a half-dozen or fewer, whereas that percentage is cut in half for the two Gulf Coast panels. For the two Gulf Coast panels, over 40 percent indicate one dozen, whereas for the Chicago panel over half indicate a half-dozen. Twenty-eight percent of the panelists at Point Clear indicated 2 dozen or more, and 17 percent indicated 2 dozen or more in Houston. For Chicago, this group represented only 7 percent.

Table 3. Summary of panel participants.

Panel	Number of Participants	Mean Age	Proportion of Males
Point Clear, AL	60	53.7	0.55
Houston, TX	31	44.9	0.41
Chicago, IL	78	36.0	0.53

Table 4. Number of panelists that obtain raw oysters from each source.

Panel	Restaurant	Seafood Market	Distributor	Grocery	Self-Harvest	Other	Number of Panelists
Point Clear, AL	37	15	6	1	3	1	49
Houston, TX	29	4	4	1	0	1	29
Chicago, IL	69	4	5	3	0	2	75

Table 5. Distribution of panelists' frequency of raw oyster consumption.

Panel	Weekly	Monthly	Seasonally (cold-weather months only)	Rarely / Special Occasions only
Point Clear, AL	0.08	0.27	0.55	0.10
Houston, TX	0.03	0.24	0.66	0.07
Chicago, IL	0.07	0.32	0.23	0.39

Table 6. Distribution of panelists' typical quantity of raw oysters consumed in one meal.

Panel	Less than half a dozen	Half a dozen	1 dozen	2 dozen	More than 2 dozen
Point Clear, AL	0.06	0.24	0.41	0.18	0.10
Houston, TX	0.03	0.34	0.45	0.07	0.10
Chicago, IL	0.11	0.53	0.29	0.04	0.03

Panelist Perceptions

The next set of questions asked of panelists focused on attributes of the oysters that are important to them. The first asked about the importance of knowing where the oysters were harvested from (Table 7). The great majority indicated that this was important. The next question asked about the importance of knowing whether the oysters were wild-caught or cultivated (Table 8). On this question, the Point Clear panel stood out from the other two. In Point Clear, over half were indifferent and 31 percent disagreed that it was important. In the other two panels, however, panelists leaned more toward being indifferent or agreeing that it was important. In Houston, 55 percent agreed that it was important. In Chicago, 40 percent were indifferent and 43 percent agreed that it was important.

Panelists were then asked about the importance of the oysters being produced and harvested in a "sustainable manner" (Table 9). This question was intentionally worded vaguely. Responses were fairly consistent across panels, with agreement on the importance of this being highest among the Houston panelists. The next question asked about the importance of knowing whether oysters were post-harvest treated or not to kill bacteria (Table 10). Note well that they were not asked whether they preferred treated or non-treated oysters, but simply whether knowing which the oysters were was important. Chicago had the highest proportion of panelists that were indifferent (50 percent), and Houston had the highest proportion of panelists that agreed that this was important (66 percent).

The last question asked whether price was the most important factor when buying oysters (Table 11). Most panelists disagreed or were indifferent, with Houston having the highest proportion that disagreed (79 percent).

Table 7. Distribution of responses to the statement "Knowing where the oysters were harvested from or if they are a particular brand is very important to me when buying oysters."

Panel	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point Clear, AL	0.12	0.43	0.27	0.12	0.06
Houston, TX	0.14	0.66	0.17	0.03	0.00
Chicago, IL	0.16	0.40	0.21	0.19	0.04

Table 8. Distribution of responses to the statement "Knowing whether the oysters were wild-caught or cultivated (farm-raised) is very important to me when buying oysters."

Panel	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point Clear, AL	0.08	0.08	0.53	0.27	0.04
Houston, TX	0.10	0.45	0.31	0.10	0.03
Chicago, IL	0.07	0.36	0.40	0.13	0.04

Table 9. Distribution of responses to the statement "Knowing whether the oysters were produced and harvested in a sustainable manner is very important to me when buying oysters."

Panel	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point Clear, AL	0.16	0.39	0.27	0.16	0.02
Houston, TX	0.24	0.55	0.21	0.00	0.00
Chicago, IL	0.29	0.35	0.27	0.08	0.01

Table 10. Distribution of responses to the statement "Knowing whether the oysters were post-harvest treated or not (to kill bacteria) is very important to me when buying oysters."

Panel	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point Clear, AL	0.10	0.29	0.37	0.18	0.06
Houston, TX	0.38	0.28	0.24	0.10	0.00
Chicago, IL	0.12	0.27	0.50	0.08	0.03

Table 11. Distribution of responses to the statement "Price is the most important factor for me when buying oysters."

Panel	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point Clear, AL	0.00	0.18	0.31	0.41	0.10
Houston, TX	0.03	0.03	0.14	0.55	0.24
Chicago, IL	0.03	0.16	0.28	0.43	0.11

Choice Experiment Results

This section summarizes the results of the choice experiment portion of the taste panel, i.e., consumer preferences over the oysters sampled.

Point Clear, Alabama Taste Panel

Table 12 reports the proportion of votes cast for each oyster variety during the Point Clear taste panel. Results are separated into "blind" round and "labeled" round results. In each panel, the panelists were not told any specifics about the three oysters served during the first and second rounds. These are the "blind" rounds. During the third and fourth rounds, panelists were told the variety of each oyster, its place of origin, and given a brief description of each.

During the blind rounds, results indicate that the relatively-lower-priced generic Gulf oyster was chosen as the "most likely to buy" 42 percent of the time and "least likely to buy" only 29 percent of the time. The Point aux Pins oyster was chosen as "most likely to buy" 39 percent of the time, but also chosen as "least likely to buy" 39 percent of the time. There appear to be no clear patterns or extremes during the blind rounds.

Switching to the labeled rounds, however, we see a shift in preferences. The "home favorite" Point aux Pins oyster is chosen as "most likely to buy" 60 percent of the time, but chosen as “least likely to buy” only 17 percent of the time. Preferences for the Galveston Bay and Virginia oysters shifts decidedly in the negative direction, with the James River oyster being chosen as “least likely to buy” 65 percent of the time. Note well, however, that these results in this table are for summary purposes and do not indicate statistical significance. For this, we turn to the econometric results, reported in Table 13.

The results of the econometric analysis for the blind rounds indicates that there were no statistical differences between the base-case generic Gulf oyster and any of the branded oyster varieties at the 95% confidence level. In other words, there was no statistic difference in preferences detected. Additionally, results indicate that the price effect was not significant. This may indicate that respondents ignored the price information provided during the experiment. Additionally, results indicate no pairwise statistical differences between any of the non-generic oyster varieties, indicated by the same letter “a” in the column next to the reported odds ratios. This indicates that all oyster varieties belong, statistically, to the same group. Overall, this model is not statistically significant, indicated by the weak, and not statistically significant, Wald statistic.

For the labeled rounds, however, the econometric model indicates some statistical differences. The James River oyster was statistically less likely to be chosen relative to the Generic Gulf oyster. No other oyster variety was statistically more or less likely to be chosen over the Generic Gulf oyster. The price effect was not significant during the labeled rounds either. In this case, results do indicate some pairwise statistical differences among non-generic varieties. Results indicate that the odds of choosing the Point aux Pins oyster (with group classification “a”) are statistically greater than that of the Galveston Bay and James River oysters (assigned group classification “b” or “c”). The odds of choosing the James River oyster is statistically lower than choosing any other oyster (indicated by the letter "c" which only the James River oyster has).

Table 12. Proportion of votes by oyster variety during the Point Clear, AL taste panel.

	BLIND ROUNDS (1 & 2)			*LABELED ROUNDS (3 & 4)*		
Oyster Variety	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**
Gulf of Mexico (Generic)	42%	29%	29%	37%	40%	23%
Point aux Pins, Grand Bay, AL	39%	23%	39%	60%	23%	17%
Apalachicola Bay, FL	26%	53%	21%	53%	13%	33%
Champagne Bay, LA	33%	31%	36%	53%	18%	29%
Lonesome Reef, Galveston Bay, TX	29%	32%	39%	22%	42%	36%
Sewansecott Ocean Salts, VA	21%	38%	41%	14%	43%	43%
James River, Chesapeake Bay, VA				6%	29%	65%

Table 13. Regression results for Point Clear, AL panel. Coefficients transformed into odds-ratios.

	Blind Rounds			*Labeled Rounds*		
	Odds Ratio		**Std. Err.**	**Odds Ratio**		**Std. Err.**
Price	0.95	a	0.05	1.02		0.07
Apalachicola Bay	1.23	a	0.38	1.06	a,b	0.53
Champagne Bay	1.02	a	0.40	0.78	a,b	0.34
Galveston Bay	0.92	a	0.32	0.64	b	0.28
Point aux Pins	0.89	a	0.29	1.86	a	0.63
James River				**0.26**	c	0.12
Sewansecott	0.66		0.23	0.82	a,b	0.41
(Omitted Base: Generic Gulf: Odds Ratio = 1)						
	No. Observations = 187			No. Observations = 187		
	Log-Likelihood = -165.94			Log-Likelihood = -149.92		
	Wald Chi-sq (6) = 5.11			Wald Chi-sq (7) = 30.41***		

Coefficients signficantly different from zero at the 95% confidence level shown in bold.
a, b, c indicate like groups. An oyster variety assigned a particular letter(s) is not significantly different at the 95% confidence level from that of all other varieties with the same letter(s).

Houston, Texas Taste Panel

Table 14 reports the proportion of votes cast for each oyster variety during the Houston taste panel. During the blind rounds, results indicate that the relatively-lower-priced generic Gulf oyster was chosen as the "most likely to buy" 40 percent of the time and "least likely to buy" 34 percent of the time. The Point aux Pins and Apalachicola oysters had the lowest proportions of being chosen as "most likely to buy". The non-Gulf Onsets and Conway Royales had the lowest proportions of "least likely to buy" votes.

Switching to the labeled rounds, however, we see some evidence of a shift in preferences. The "home favorite" Lonesome Reef oyster out of Galveston Bay is chosen as "most likely to buy" 53 percent of the time, but chosen as "least likely to buy" only 16 percent of the time. The Onsets actually have the highest proportion of "most likely to buy" votes (55 percent). The Apalachicola Bay and Champagne Bay oysters received the lowest proportions of "most likely to buy" votes, but it was the Point aux Pins and Champagne Bay oysters that received the highest proportion of "least likely to buy" votes. Note well, however, that these results in this table are for summary purposes and do not indicate statistical significance. For this, we turn to the econometric results, reported in Table 15.

The results of the econometric analysis for the blind rounds indicates that none of the branded varieties were statistically different from the base-case generic Gulf oyster. Additionally, results indicate that the price effect was not significant. This may indicate that respondents ignored the price information provided during the experiment. Results indicate some pairwise statistical differences among non-generic varieties. Results indicate that the odds of choosing the Conway Royales oyster (with group classification "a") are statistically greater than that of choosing the Apalachicola Bay and Galveston Bay oysters (assigned group classification “b”).

For the labeled rounds, however, the econometric model indicates some statistical differences. Both the Galveston Bay and Onset oysters were statistically more likely to be chosen relative to the Generic Gulf oyster, with an estimated odds of being chosen 2.71 times more frequently relative to the generic Gulf oyster. No other oyster variety was statistically more or less likely to be chosen over the Generic Gulf oyster. The price effect was not significant during the labeled rounds either. Results indicate some pairwise statistical differences among non-generic varieties. Results indicate that the odds of choosing the Galveston Bay oyster (with group classification “a”) is statistically greater than that of choosing the Point aux Pins oyster (assigned group classification “b” or “c”). The most interesting finding of the Houston taste panel is the during the blind rounds, the local Galveston Bay oyster fared the worst, but during the labeled rounds, fared the best.

Table 14. Proportion of votes by oyster variety during the Houston, TX taste panel.

	BLIND ROUNDS (1 & 2)			***LABELED ROUNDS (3 & 4)***		
Oyster Variety	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**
Gulf of Mexico (Generic)	40%	26%	34%	30%	40%	30%
Point aux Pins, Grand Bay, AL	15%	38%	46%	28%	11%	61%
Apalachicola Bay, FL	0%	50%	50%	18%	65%	18%
Champagne Bay, LA	43%	29%	29%	24%	12%	64%
Lost Reef, Galveston Bay, TX	38%	21%	42%	53%	32%	16%
Onsets, Buzzards Bay, MA	38%	50%	13%	55%	40%	5%
Conway Royales, Malpeque Bay, PEI	43%	38%	19%			

Table 15. Regression results for Houston, TX panel. Coefficients transformed into odds-ratios.

	Blind Rounds			*Labeled Rounds*		
	Odds Ratio		**Std. Err.**	**Odds Ratio**		**Std. Err.**
Price	1.05		0.09	0.89		0.07
Apalachicola Bay	0.26	b	0.19	1.60	a,b	0.66
Champagne Bay	1.61	a,b	1.06	1.01	a,b	0.62
Galveston Bay	0.44	b	0.27	**2.71**	a	1.31
Point aux Pins	0.54	a,b	0.25	0.78	b	0.39
Conway Royales	1.25	a	0.70			
Onsets	1.23	a,b	0.80	**2.67**	a,b	1.27
(Omitted Base: Generic Gulf: Odds Ratio = 1)						
	No. Observations = 92			No. Observations = 105		
	Log-Likelihood = -78.36			Log-Likelihood = -83.35		
	Wald Chi-sq (7) = 8.27			Wald Chi-sq (6) = 17.48***		

Coefficients signficantly different from zero at the 95% confidence level shown in bold. a, b indicate like groups. An oyster variety assigned a particular letter(s) is not significantly different at the 95% confidence level from that of all other varieties with the same letter(s).

Chicago, Illinois Taste Panel

Table 16 reports the proportion of votes cast for each oyster variety during the Chicago taste panel. During the blind rounds, the Island Creek oysters were voted “most likely to buy” 55 percent of the time and voted “least likely to buy” only 17 percent of the time. By comparison, the Point aux Pins oysters were voted “most likely to buy” 31 percent of the time and voted “least likely to buy 24 percent of the time.

Switching to the labeled rounds, it appears that preferences change away from the Grassy Point oysters, being voted “most likely to buy” only 18 percent of the time, but voted “least likely to buy” 49 percent of the time. Wiley Points and Shigokus appears to do slightly better in the labeled rounds. Note well, however, that these results in this table are for summary purposes and do not indicate statistical significance. For this, we turn to the econometric results, reported in Table 17.

For the econometric analysis, we specified the Island Creek oyster as the “base”, so all results are relative to how other oysters fared relative to the base Island Creek oyster. Results indicate that all oyster varieties tested during the blind rounds were statistically less likely to be chosen relative to the Island Creeks. Of these, however, results indicate that the Gulf varieties fared slightly better than the non-Gulf varieties. Price was not significant. Results indicate some pairwise statistical differences. Results indicate that the odds of choosing the Point aux Pins oyster (with group classification “a”) is statistically greater than that of choosing the Shigokus and Wiley Points (assigned group classification “b” only).

Moving over to the labeled rounds, preferences appear to have changed. In this case, only two varieties are statistically different from the base: the Shigokus and Grassy Points were statistically less likely to be chosen relative to the Island Creeks. Thus, all the other varieties fared, statistically, equally well. Price effects were not significant. Results indicate some pairwise statistical differences. Results indicate that the odds of choosing the 13-Mile, Point aux Pins, and Wiley Points (with group classification “a”) are statistically greater than that of choosing the Grassy Points (assigned group classification “b”).

Table 16. Proportion of votes by oyster variety during the Chicago, IL taste panel.

	BLIND ROUNDS (1 & 2)			***LABELED ROUNDS (3 & 4)***		
Oyster Variety	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**	**Most Likey to Buy**	**In-between**	**Least Likely to Buy**
Point aux Pins, Grand Bay, AL	31%	46%	24%	26%	43%	31%
13 Miles, Apalachicola Bay, FL	28%	39%	32%	35%	35%	30%
Grassy Points, San Antonio Bay, TX	42%	25%	33%	18%	33%	49%
Island Creeks, Duxbury Bay, MA	55%	28%	17%	39%	39%	22%
Wiley Points, Damariscotta River, ME	24%	28%	48%	45%	22%	34%
Shigokus, Willapa Bay, WA	21%	34%	46%	39%	20%	41%

Table 17. Regression results for Chicago, IL. Coefficients transformed into odds-ratios.

	Blind Rounds			*Labeled Rounds*		
	Odds Ratio		**Std. Err.**	**Odds Ratio**		**Std. Err.**
Price	1.00		0.03	1.05		0.03
13-Miles, Apalachicola Bay	**0.45**	a,b	0.12	0.75	a	0.18
Grassy Points, San Antonio Bay	**0.49**	a,b	0.13	**0.43**	b	0.11
Point aux Pins	**0.59**	a	0.14	0.71	a	0.16
Shigokus	**0.32**	b	0.09	**0.58**	a,b	0.15
Wiley Points	**0.31**	b	0.08	0.83	a	0.21
(Omitted Base: Island Creeks: Odds Ratio = 1)						
	No. Observations = 288			No. Observations = 290		
	Log-Likelihood = -246.24			Log-Likelihood = -253.07		
	Wald Chi-sq (6) = 24.67***			Wald Chi-sq (6) = 15.15**		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

a, b indicate like groups. An oyster variety assigned a particular letter(s) is not significantly different at the 95% confidence level from that of all other varieties with the same letter(s).

ONLINE HOUSEHOLD SURVEY

Experimental Design

An experiment was design to test consumer preferences over multiple oyster varieties, attributes, and prices. The experimental design was generated using NGene software. All designs were optimized according to s-efficiency (NGene 2011). There were four separate designs based on two survey formats: the first was based on whether a generic Gulf oyster was included as one of the alternatives, and the second was based on the number of attributes included. Because generic Gulf oysters are the typical type of oysters sold in the Gulf Coast region, a survey was designed for Gulf coast markets that included this alternative. Because such oysters are not marketed outside of the Gulf Coast and because it was not expected that this oyster would be the one with the highest potential to be marketed outside of the Gulf, all surveys administered to non-Gulf Coast respondents did not include this alternative. An alternative design was constructed to include the generic Gulf oyster as the fixed third alternative in each choice set. When the generic Gulf oyster variety was included, the design was constrained so that the generic Gulf oyster price was always less than the other branded alternatives offered.

Regarding the number of attributes included, we constructed a "High-Information" design that included five attributes: oyster brand/name, price, size, saltiness level, and production method (wild or cultivated). We also constructed a "Low-Information" design that included only two attributes: oyster brand/name and price. These two treatments were used to test if preferences were sensitive to the quantity and type of information describing the oysters provided. They also reflect typical variations in restaurant menus regarding what information is provided to customers. It is possible that providing additional information regarding size, taste, and production method can reduce the relative importance of the label / geographic origin of the oyster. For the generic Gulf oyster only, size was fixed at the level “sizes vary” and saltiness was fixed at the level “saltiness varies” to reflect the true variation in size and saltiness found in a typical order of generic Gulf oysters. All other oyster varieties took on one of the specific levels (i.e., “small”, “medium”, or “large”; “sweet”, “mildly salty”, “salty”) with the following exceptions to reflect the true characteristics of particular oyster varieties: the production method of Point aux Pins was fixed at “Cultivated” and the saltiness level of Hood Canal oysters was constrained to be either “mildly salty” or “salty”. To provide guidance to respondents regarding the size levels, a visual was included to show what a typical “small”, “medium”, and “large” oyster look like (see Figure 7). Appendix A contains the design syntax and output for each of the four designs. Table 18 summarizes the attributes and their levels used in the online survey.

The survey was designed to elicit a full ranking of the oysters by way of “Best-Worst” scaling, wherein respondents indicate the “best” and “worst” alternatives. In this particular context, respondents were asked to indicate which of the three alternatives they were “Most Likely to Buy” at the posted prices (i.e., “best”), and which of the three alternatives there were “Least Likely to Buy” at the posted prices (i.e., “worst”). See Figures 8-11 for examples of choice sets for the four design treatments.

Table 18. Attributes and their levels used in the experiment design. The low-information treatment included only the oyster variety and price per half-dozen.

Oyster Varieties	Production Method	Size	Saltiness	Price per half-dozen
Point aux Pins, Grand Bay, AL	Wild	small	sweet	$7
Champagne Bay, LA	Cultivated	medium	mildly salty	8
Apalachicola Bay, FL		large	salty	9
Lonesome Reef, Galveston Bay, TX		sizes vary*	saltiness varies*	10
Bay St. Louis, MS				11
Portersville Bay, AL				12
Chesapeake Bay, VA				14
Cape Cod, MA				16
Moonstones, Point Judith Pond, RI				18
Willapa Bay, WA				
Hood Canal, WA				
Netarts Bay, OR				
Gulf of Mexico (generic)				

* Applies to generic Gulf oyster only

Figure 7. This is the visual provided to survey respondents to provide guidance on the size attribute.

Oysters on the half-shell	*Price per half - dozen*	*Most likely to buy*	*Least likely to buy*
Point aux Pins, Grand Bay, Alabama	*$12*		
Cape Cod, Massachusetts	*$18*		
Gulf of Mexico	*$9*		

[ ] I am not willing to buy any of these oysters at these prices

Figure 8. Example Low-Information Choice Set Including Generic Gulf Oyster.

Oysters on the half-shell	*Price per half - dozen*	*Most likely to buy*	*Least likely to buy*
Apalachicola Bay, Florida	*$10*		
Willapa Bay, Washington	*$16*		
Chesapeake Bay, Virginia	*$12*		

[ ] I am not willing to buy any of these oysters at these prices

Figure 9. Example Low-Information Choice Set Not Including Generic Gulf Oyster.

Oysters on the half-shell	*Price per half - dozen*	*Most likely to buy*	*Least likely to buy*
Point aux Pins, Grand Bay, Alabama *Cultivated oysters, medium sized, mildly salty*	*$12*		
Cape Cod, Massachusetts *Wild oysters, small size, sweet*	*$18*		
Gulf of Mexico *Wild oysters, sizes vary, saltiness varies*	*$9*		

[ ] I am not willing to buy any of these oysters at these prices

Figure 10. Example High-Information Choice Set Including Generic Gulf Oyster.

Oysters on the half-shell	*Price per half - dozen*	*Most likely to buy*	*Least likely to buy*
Apalachicola Bay, Florida *Wild oysters, large sized, mildly salty*	*$10*		
Willapa Bay, Washington *cultivated oysters, small size, sweet*	*$16*		
Chesapeake Bay, Virginia *Cultivated oysters, medium sized, mildly salty*	*$12*		

[ ] I am not willing to buy any of these oysters at these prices

Figure 11. Example High-Information Choice Set Not Including Generic Gulf Oyster

Administration

The GfK Group (GfK, formerly Knowledge Networks) conducted the survey on behalf of Mississippi State University. The survey was conducted using sample from KnowledgePanel®, and consisted of two distinct stages and populations (Half fielded in Mid-April 2013, with Wave 2 fielded in November 2013). The two population groups targeted were Gulf Oyster Markets and National Markets. Additionally, a short follow up survey was conducted after Wave 2 to recollect profile data for select cases that were identified as having missing data previously.

Sample Markets

Select U.S. metro areas were identified as being key markets for raw oyster consumption. These markets were segmented into "Gulf" and "Non-Gulf" markets, in terms of whether Gulf oysters typically sell in those markets and in terms of how oysters are typically marketed (i.e., as "generic" Gulf oysters or as branded oysters). Table 19 reports the specific metro areas that were included in the sample.

Table 19. U.S. markets from which survey sample was drawn.

Gulf Markets	**Non-Gulf Markets**
Atlanta-Sandy Springs-Marietta, GA	Boston-Cambridge-Quincy, MA-NH
Baton Rouge, LA	Chicago-Naperville-Joliet, IL-IN-WI
Charleston-North Charleston, SC	Las Vegas-Paradise, NV
Houston-Baytown-Sugar Land, TX	New York-Newark-Edison, NY-NJ-PA
Jacksonville, FL	Portland-South Portland, ME
Miami-Fort Lauderdale-Miami Beach, FL	San Francisco-Oakland-Fremont, CA
Mobile, AL	Seattle-Tacoma-Bellevue, WA
New Orleans-Metairie-Kenner, LA	St. Louis, MO-IL
Tallahassee, FL	Washington-Arlington-Alexandria, DC-VA
Tampa-St. Petersburg-Clearwater, FL	Baltimore-Towson, MD

Panel Recruitment Methodology

When GfK began recruiting in 1999 as Knowledge Networks, the company established the first online research panel (now called KnowledgePanel®) based on probability sampling covering both the online and offline populations in the U.S. Panel members are recruited through national random samples, originally by telephone and now almost entirely by postal mail. Households are provided with access to the Internet and a netbook computer, if needed. Unlike Internet convenience panels, also known as "opt-in" panels, that include only individuals with Internet access who volunteer themselves for research, KnowledgePanel recruitment has used dual sample frames to construct the existing panel. As a result, panel members come from listed and unlisted telephone numbers, telephone and non-telephone households, and cell phone only households, as well as households with and without Internet access, which creates a representative sample. Only persons sampled through these probability-based techniques are eligible to participate on KnowledgePanel. Unless invited to do so as part of these national samples, no one on their own can volunteer to be on the panel.

Sample Definition

The target population consists of the following: General population adults age 18+ who were English language survey takers in one of the pre-identified regions (either the Gulf Oyster Market Region, or the National Market Region). After collecting 18 cases during the pretest, specific targets by state and study type were targeted, as shown in Table 20.

Table 20. Sample targets by wave and market type.

Survey	Gulf Markets	Non-Gulf Markets	Neither (Oversample)
Wave 1	N=200	N=125	N=0
Wave 2	N=200	N=125	N=100
Total	N=400	N=250	N=100

To sample the population, GfK selected respondents based on the below variable definitions, and then screened in field to verify. The survey consists of three stages: initial screening of a small portion of sample to collect 25-30 completes (Pretest) to check for survey timing, incidence, and logic assignment, followed by Wave 1 to target about 50% of the expected Main proportion. Finally, the remaining 50% of the Main sample was collected, which included the additional 100 oversample cases. To qualify for the pilot or main survey, a Knowledge Panel member must:

- be older than 18.
- reside in one of the pre-identified states/market areas.
- reconfirm state residence in field and provide full demographic information for weighting purposes (off panel survey takers only).

Data Collection Field Period and Survey Length

The data collection field periods were as shown in Table 21:

Table 21. Data collection field periods.

Stage	**Start Date**	**End Date**
Pretest	4/09/2013	4/10/2013
Wave 1	4/16/2013	5/02/2013
Wave 2	11/07/2013	11/18/2013
Re-Ask	2/18/2014	3/05/2014

Participants completed the main survey in 12 minutes (median).

Survey Completion and Sample Sizes

The number of respondents sampled and participating in the survey, the survey completion rates for the screener and main interview, and the incidence/eligibility rate are presented in Table 22.

Table 22. Key Survey Response Statistics.

	N Sampled	**N Complete**	**Survey**	**Qualified for**	**Incidence**
Pretest	333	112	33.6%	18	16.1%
Wave 1	3,965	2,411	69.8%	381*	15.8%
Wave 2	2,914	1,396	47.9%	456	32.7%
Re-Ask	55	42	76.4%	42	76.4%

*Includes random dropping procedure performed by GFK to account for oversample in Wave 1. GFK originally delivered 331 cases to the client, and later added back in 50 cases that were dropped.

While 3,807 cases qualified for the main survey, 6,879 were sampled for the main survey. Of the 3,807 cases completing the main survey, 837 cases were determined to be valid cases to be included in the final analyses. This includes cases that were added back in from Wave one after originally being dropped.

Survey Cooperation Enhancements

Besides the standard measures taken by GfK to enhance survey cooperation, the following steps were also taken:

- Email reminders to non-responders were sent on day three of the field period.
- Additional email reminders to non-responders were sent on day 6 and day 10 of the field period.

- Incentives ranging from $0 to $10 depending on response during the risk analysis exercise.

Results

Respondent Characteristics

Table 23 reports the distribution of respondents from each market in each of four market areas: Eastern Gulf Coast, Western Gulf Coast, Atlantic Coast, and Pacific Coast. Sample was stratified by population, which explains the uneven distribution of panelists from the various markets. Tables 24-26 report responses to various questions regarding respondent frequency of oyster consumption, quantity consumed, source of oysters.

Table 23. Distribution of respondents by survey region and

Market Area	**Number of**
Eastern Gulf Coast	**315**
Atlanta-Sandy Springs-Marietta, GA	104
Charleston-North Charleston, SC	10
Jacksonville, FL	28
Miami-Fort Lauderdale-Miami Beach, FL	84
Tallahassee, FL	11
Tampa-St. Petersburg--Clearwater, FL	78
Western Gulf Coast	**140**
Baton Rouge, LA	14
Houston-Baytown-Sugar Land, TX	87
Mobile, AL	4
New Orleans-Metairie--Kenner, LA	35
Atlantic Coast	**222**
Baltimore-Towson, MD	15
Boston-Cambridge-Quincy, MA-NH	31
Chicago-Naperville-Joliet, IL-IN-WI	30
New York-Newark-Edison, NY-NJ-PA	89
Portland-South Portland, ME	1
St. Louis, MO-IL	18
Washington-Arlington-Alexandria, DC-VA	38
Pacific Coast	**53**
Las Vegas-Paradise, NV	11
San Francisco-Oakland-Fremont, CA	27
Seattle-Tacoma-Bellevue, WA	15
Total	**673**

Table 24. Responses to the question "How often do you eat raw oysters on the half shell?" by market region.

	Market				
	Eastern Gulf Coast	**Western Gulf Coast**	**Atlantic Coast**	**Pacific Coast**	**Total**
Weekly, year round	2	3	2	2	9
Monthly, year round	28	14	29	5	76
Weekly, during cold-weather months only	4	4	3	1	12
Monthly, during cold-weather months only	19	12	7	2	40
3-4 times per year	129	57	84	25	295
1-2 times per year	132	50	97	18	297
Refused	1	0	0	0	1
Total	315	140	222	53	730

Table 25. Responses to the question "How many oysters do you usually eat in one meal when you eat raw oysters on the half shell?" by market region.

	Market				
	Eastern Gulf Coast	**Western Gulf Coast**	**Atlantic Coast**	**Pacific Coast**	**Total**
Less than ½ a dozen	32	14	36	12	94
½ a dozen	102	55	96	25	278
1 dozen	142	58	78	11	289
2 dozen	28	10	8	5	51
More than 2 dozen	10	2	3	0	15
Refused	1	1	1	0	3
Total	315	140	222	53	730

Table 26. Responses to the question "Where do you usually buy raw oysters (either unopened or on the half shell)? Check all that apply." by market region.

	Market			
	Eastern Gulf Coast	**Western Gulf Coast**	**Atlantic Coast**	**Pacific Coast**
Restaurant	263	128	181	39
Seafood Market	82	23	65	14
Grocery Store	21	9	21	4
Distributor	9	2	3	3
Self-Harvest	6	3	3	2
Other	9	3	7	3

Respondent Perceptions

Respondents were asked a serious of questions regarding their perceptions of what attributes are important when buying raw oysters, as well as their perceptions of oyster quality and seafood safety of various water bodies around the U.S.

Table 27 reports the means and standard deviations of responses to six questions regarding the importance of various oyster attributes, segmented by market area. Respondents were asked to indicate the extent to which they agreed or disagreed with each statement, where a 1 was "strongly disagree" and a 10 was "strongly agree". Tests of statistical differences in the means across market areas (rows) were tested using pair-wise t-tests. The letters "*a"* and *"b"* next to the reported means indicate the results of these tests. Market areas that share the same letter were not statistically different at the 95% confidence level, whereas market areas denoted with different letters were significantly different. For example, none of the means of the responses to the first question – regarding the importance of knowing where oysters were harvested from -- was significantly different from each other. Thus, they are all assigned the same letter "*a*".

The importance of brand name was not significantly different across respondent markets. Knowing if oysters are wild-caught or cultivated was significantly more important among Atlantic Coast respondents relative to western Gulf Coast and Pacific Coast respondents. The importance of knowing whether oysters were produced and harvested in a sustainable manner was not significantly different across respondent markets. Preferences for buying post-harvest treated oysters (to kill bacterial) was significantly lower among Pacific Coast respondents relative to all others. Finally, price was significantly more important among western Gulf Coast respondents relative to eastern Gulf Coast and Pacific Coast respondents.

Table 27. Mean and standard error of responses to the question "Please rate how strongly you AGREE or DISAGREE with the following statements, where a 1 is Strongly Disagree and a 10 is Strongly Agree."

		Market							
		Eastern Gulf Coast		**Western Gulf Coast**		**Atlantic Coast**		**Pacific Coast**	
Knowing where the oysters were harvested from is very important to me when buying oysters.	*Mean*	6.97	*a*	6.73	*a*	7.00	*a*	6.55	*a*
	Std. Err.	0.16		0.26		0.18		0.41	
Knowing if the oysters are a particular brand name is very important to me when buying oysters.	*Mean*	4.55	*a*	4.54	*a*	4.84	*a*	4.15	*a*
	Std. Err.	0.15		0.23		0.17		0.34	
Knowing whether the oysters were wild-caught or cultivated (farm-raised) is very important to me when buying oysters	*Mean*	6.42	*a,b*	6.16	*b*	6.79	*a*	5.89	*b*
	Std. Err.	0.16		0.24		0.16		0.34	
Knowing whether the oysters were produced and harvested in a sustainable manner is very important to me when buying oysters.	*Mean*	6.55	*a*	6.01	*a*	6.42	*a*	6.30	*a*
	Std. Err.	0.15		0.23		0.17		0.40	
I prefer to buy oysters that have been post-harvest treated to kill bacteria.	*Mean*	5.98	*a*	5.89	*a*	6.06	*a*	5.00	*b*
	Std. Err.	0.15		0.23		0.17		0.33	
Price is the most important factor for me when buying oysters.	*Mean*	5.27	*b*	5.88	*a*	5.40	*a,b*	4.85	*b*
	Std. Err.	0.15		0.23		0.17		0.39	

a,b indicate results of t-tests of the means: means that share the same letter have no statistical differences across markets at the 95% confidence level; different letters indicate statistical differences.

Table 28 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for eastern Gulf coast respondents to the question “Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent." A “>” indicates that the location indicated in the row had a statistically higher mean perceived quality rating than the location indicated in the column, whereas a “<” indicates that the location in the column had a statistically higher rating than the location indicated in the column. For example, in Table 28, the row and column for the “Gulf of Mexico” location is highlighted to show all the comparisons of this location to all others. So for each location, some comparisons are shown along the row, and others are shown along the column. A blank indicates that the rating was not statistically different between the row and column locations.

Among Gulf Coast locations, eastern Gulf Coast respondents perceived Apalachicola Bay oyster quality to be significantly higher than that of Galveston Bay and Mobile Bay. Additionally, all specific Gulf Coast locations were perceived to have higher-quality oysters relative to the more general “Gulf of Mexico” location. Results indicate significantly higher perceived oyster quality for two of the three Atlantic Coast locations -- Cape Cod and Chesapeake Bay -- relative to all Gulf Coast locations. Results were mixed for Long Island Sound. Results also indicate significantly higher perceived oyster quality for all three Pacific Coast locations relative to all Gulf Coast locations (with one exception of Coastal Northern California versus Apalachicola Bay, which was not significantly different). Thus, eastern Gulf Coast respondents tend to perceive the quality of oysters from the specified Atlantic and Pacific Coast locations to be higher than those on the Gulf Coast, and tend to perceived very little difference in quality from one Gulf Coast location to another. However, perceived oyster quality tends to be significantly lower when respondents are asked about the "Gulf of Mexico" compared to a specific location on the Gulf Coast.

Table 29 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for western Gulf coast respondents to the same question as above. Results indicate no significant differences in perceived oyster quality whatsoever between Gulf Coast locations, including the general "Gulf of Mexico" location. Results comparing Gulf Coast locations to Atlantic and Pacific Coast are mixed. Mean oyster quality ratings are significantly lower for Long Island Sound and Coastal Oregon relative to all Gulf Coast locations, and those of Chesapeake Bay are significantly lower compared to Coastal Louisiana, Galveston Bay, Mobile Bay, and the general "Gulf of Mexico" location. Thus, compared to eastern Gulf Coast respondents, western Gulf Coast respondents tend to perceive much less difference in oyster quality across locations.

Table 28. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent." among eastern Gulf Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 315

Location	Mean	Std. Dev.	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	7.8	0.2											
Coastal Louisiana	7.6	0.2											
Galveston Bay, TX	7.5	0.2	<										
Mississippi Sound, MS	7.6	0.2											
Mobile Bay, AL	7.4	0.2	<										
Gulf of Mexico	7.1	0.2	<	<	<	<	<						
Cape Cod, MA	8.5	0.1	>	>	>	>	>	>					
Chesapeake Bay, VA	8.3	0.1	>	>	>	>	>	>	<				
Long Island Sound, NY	7.9	0.2			>		>	>	<	<			
Coastal N. California	8.1	0.2		>	>	>	>	>	<				
Coastal Oregon	8.3	0.2	>	>	>	>	>	>			>	>	
Puget Sound, WA	8.5	0.2	>	>	>	>	>	>			>	>	

Note: The "Gulf of Mexico" row and column are highlighted to demonstrate how to read the table.

Table 29. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent." among western Gulf Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 140

Location	Mean	Std. Dev.	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	7.6	0.3											
Coastal Louisiana	7.8	0.3											
Galveston Bay, TX	7.7	0.2											
Mississippi Sound, MS	7.6	0.2											
Mobile Bay, AL	7.7	0.2											
Gulf of Mexico	7.8	0.2											
Cape Cod, MA	7.5	0.3											
Chesapeake Bay, VA	7.2	0.3		<	<		<	<					
Long Island Sound, NY	7.0	0.3	<	<	<	<	<	<	<				
Coastal N. California	7.4	0.3											
Coastal Oregon	7.0	0.3	<	<	<	<	<	<	<			<	
Puget Sound, WA	7.3	0.3											

Table 30 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for Atlantic Coast respondents to the same question as above. Among Gulf Coast locations, results indicate significantly higher perceived quality for Apalachicola Bay relative to all other Gulf Coast locations, except for Coastal Louisiana which was not significantly different from any Gulf Coast locations. Results also indicate that Atlantic Coast respondents had significantly higher perceptions of oyster quality for Cape Cod and Chesapeake Bay relative to all Gulf Coast locations. For Long Island Sound, however, no significant differences were found when compared to four of the six Gulf Coast locations, and in fact, quality perceptions were significantly lower compared to Apalachicola Bay and Coastal Louisiana. Regarding Pacific Coast locations, perceived quality was higher for all three Pacific Coast locations relative to four of the six Gulf Coast locations, but not significantly different when compared to Apalachicola Bay and Coastal Louisiana. Thus, Atlantic Coast respondents tend to perceive very little differences in quality between Gulf Coast locations, and they tend to have higher perceptions of quality for Atlantic and Pacific Coast oysters. However, Apalachicola Bay and Coastal Louisiana tend to rate on par with Pacific Coast locations, and actually rate higher than Long Island Sound.

Table 31 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for Pacific Coast respondents to the same question as above. Results indicate no significant differences between any two Gulf Coast locations. Results also indicate significantly higher perceived quality of all Atlantic and Pacific Coast locations relative to Gulf Coast locations, with a few exceptions: Long Island Sound is not statistically higher than Apalachicola Bay or Coastal Louisiana, and Coastal Northern California and Coastal Oregon is not significantly higher than Coastal Louisiana.

Table 30. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent." among Atlantic Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 222

Location	**Mean**	**Std. Dev.**	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	7.4	0.2											
Coastal Louisiana	7.4	0.2											
Galveston Bay, TX	7.0	0.2	<										
Mississippi Sound, MS	7.0	0.2	<										
Mobile Bay, AL	7.0	0.2	<										
Gulf of Mexico	6.7	0.2	<	<	<	<							
Cape Cod, MA	8.2	0.2	>	>	>	>	>	>					
Chesapeake Bay, VA	7.9	0.2	>	>	>	>	>	>	<				
Long Island Sound, NY	6.9	0.2	<	<					<	<			
Coastal N. California	7.6	0.2			>	>	>	>	<		>		
Coastal Oregon	7.7	0.2			>	>	>	>	<		>		
Puget Sound, WA	7.8	0.2			>	>	>	>	<		>		

Table 31. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent." among Pacific Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 53

Location	**Mean**	**Std. Dev.**	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	6.9	0.5											
Coastal Louisiana	7.1	0.4											
Galveston Bay, TX	6.6	0.5											
Mississippi Sound, MS	6.8	0.4											
Mobile Bay, AL	6.9	0.4											
Gulf of Mexico	6.8	0.5											
Cape Cod, MA	7.8	0.4	>	>	>	>	>	>					
Chesapeake Bay, VA	7.8	0.3	>	>	>	>	>	>					
Long Island Sound, NY	7.5	0.4			>	>	>	>					
Coastal N. California	8.3	0.4	>		>	>	>	>					
Coastal Oregon	8.1	0.4	>		>	>	>	>					
Puget Sound, WA	8.9	0.2	>	>	>	>	>	>	>	>	>	>	>

Table 32 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for eastern Gulf Coast respondents to the question “Please rate what you perceive to be the overall level of food safety of seafood in general from the following places, where a 1 is Poor and a 10 is Excellent." Results are similar to those found on the previous question regarding oyster quality. Perceived ratings of seafood safety for Apalachicola Bay is significantly higher relative to all other Gulf Coast locations. The rating for Mississippi Sound is also significantly higher than that of Galveston Bay. Seafood safety ratings are significantly higher for all Atlantic and Pacific Coast locations relative to Gulf Coast locations, with the exception of Long Island Sound compared to Apalachicola Bay.

Table 33 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for western Gulf Coast respondents to the same question as above. Results are very mixed. Perceived seafood safety ratings are significantly higher for Apalachicola Bay and Coastal Louisiana relative Galveston Bay, Mobile Bay, and the general “Gulf of Mexico” location. The rating for Mississippi Sound is also significantly higher than that of Galveston Bay. Comparing these locations to Atlantic and Pacific Coast locations, results indicate that perceived seafood safety ratings are significantly higher for Cape Cod relative to Galveston Bay and Mobile Bay. However, those of Chesapeake Bay and Coastal Oregon are significantly lower than those of Apalachicola Bay, and those of Long Island Sound are lower than both Apalachicola Bay and Coastal Louisiana.

Table 32. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to be the overall level of food safety of seafood in general from the following places, where a 1 is Poor and a 10 is Excellent." among eastern Gulf Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 315

Location	Mean	Std. Dev.	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	8.0	0.2											
Coastal Louisiana	7.7	0.2	<										
Galveston Bay, TX	7.5	0.2	<										
Mississippi Sound, MS	7.8	0.2	<		>								
Mobile Bay, AL	7.8	0.2	<										
Gulf of Mexico	7.2	0.2	<	<	<	<	<						
Cape Cod, MA	8.7	0.1	>	>	>	>	>	>					
Chesapeake Bay, VA	8.4	0.2	>	>	>	>	>	>	<				
Long Island Sound, NY	8.1	0.2		>	>	>	>	>	<	<			
Coastal N. California	8.5	0.2	>	>	>	>	>	>			>		
Coastal Oregon	8.6	0.2	>	>	>	>	>	>			>		
Puget Sound, WA	8.6	0.2	>	>	>	>	>	>			>		

Table 33. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to the overall level of food safety of seafood in general from the following places, where a 1 is Poor and a 10 is Excellent." among western Gulf Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 140

Location	Mean	Std. Dev.	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	8.0	0.3											
Coastal Louisiana	7.9	0.2											
Galveston Bay, TX	7.4	0.3	<	<									
Mississippi Sound, MS	7.7	0.3			>								
Mobile Bay, AL	7.5	0.3	<	<									
Gulf of Mexico	7.5	0.3	<	<									
Cape Cod, MA	7.9	0.3			>		>						
Chesapeake Bay, VA	7.5	0.3	<						<				
Long Island Sound, NY	7.4	0.3	<	<					<				
Coastal N. California	7.6	0.3											
Coastal Oregon	7.5	0.3	<						<				
Puget Sound, WA	7.7	0.3									>		

Table 34 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for Atlantic Coast respondents to the same question as above. Results are very similar to those of the oyster quality ratings reported earlier. Apalachicola Bay is rated significantly higher than all other Gulf Coast locations, and the general "Gulf of Mexico" location is rated significantly lower than all other Gulf Coast locations. Cape Cod and Chesapeake Bay are rated significantly higher than all Gulf Coast locations, with the exception of Chesapeake Bay relative to Apalachicola Bay. Long Island Sound is rated significantly higher than the general "Gulf of Mexico" location, but significantly lower than Apalachicola Bay. All Pacific Coast locations are rated significantly higher than all Gulf Coast locations, except for Coastal Northern California and Coastal Oregon relative to Apalachicola Bay.

Table 35 reports the means, standard deviations, and results of pair-wise t-tests of differences in the means of responses across locations for Pacific Coast respondents to the same question as above. Only a few significant differences were found among Gulf Coast locations. Apalachicola Bay is rated significantly higher for seafood safety relative to Mississippi Sound, Mobile Bay, and the general "Gulf of Mexico" location. Galveston Bay is rated significantly higher than the Gulf of Mexico location as well. Cape Cod, Chesapeake Bay, Coastal Northern California, and Coastal Oregon are rated significantly higher than all Gulf Coast locations except for Apalachicola Bay. Puget Sound is rated significantly higher than all Gulf Coast locations. Long Island Sound is not rated significantly differently from any Gulf Coast locations.

Table 34. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to the overall level of food safety of seafood in general from the following places, where a 1 is Poor and a 10 is Excellent." among Atlantic Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 222

Location	**Mean**	**Std. Dev.**	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	7.8	0.2											
Coastal Louisiana	7.4	0.2	<										
Galveston Bay, TX	7.5	0.2	<										
Mississippi Sound, MS	7.4	0.2	<										
Mobile Bay, AL	7.4	0.2	<										
Gulf of Mexico	6.8	0.2	<	<	<	<	<						
Cape Cod, MA	8.3	0.2	>	>	>	>	>	>					
Chesapeake Bay, VA	8.0	0.2		>	>	>	>	>					
Long Island Sound, NY	7.2	0.2	<					>	<	<			
Coastal N. California	8.0	0.2		>	>	>	>	>	<		>		
Coastal Oregon	8.0	0.2		>	>	>	>	>					
Puget Sound, WA	8.3	0.2	>	>	>	>	>	>			>	>	

Table 35. Means, standard deviations, and results of t-tests of means differences of responses to the question "Please rate what you perceive to the overall level of food safety of seafood in general from the following places, where a 1 is Poor and a 10 is Excellent." among Pacific Coast respondents. Signs are shown for those that are significantly different at the 95% confidence level only. N = 53

Location	**Mean**	**Std. Dev.**	Apalachicola Bay, FL	Coastal Louisiana	Galveston Bay, TX	Mississippi Sound, MS	Mobile Bay, AL	Gulf of Mexico	Cape Cod, MA	Chesapeake Bay, VA	Long Island Sound, NY	Coastal N. California	Coastal Oregon
Apalachicola Bay, FL	7.5	0.4											
Coastal Louisiana	7.0	0.5											
Galveston Bay, TX	7.2	0.5											
Mississippi Sound, MS	7.0	0.5	<										
Mobile Bay, AL	6.7	0.5	<										
Gulf of Mexico	6.6	0.5	<		<								
Cape Cod, MA	7.9	0.3		>	>	>	>	>					
Chesapeake Bay, VA	7.9	0.4		>	>	>	>	>					
Long Island Sound, NY	7.3	0.4							<				
Coastal N. California	8.2	0.3		>	>	>	>	>			>		
Coastal Oregon	8.3	0.3		>	>	>	>	>			>		
Puget Sound, WA	8.8	0.2	>	>	>	>	>	>	>	>	>	>	

At the end of all of the oyster choice sets and oyster perceptions questions, respondents were asked the open-ended question "While answering the previous questions, did you have any particular concerns about any of the oysters that had a big influence on your choices?" A keyword search for “oil”, “spill”, “BP”, “Vibrio”, and “bacteria” was conducted to categorize respondents as having cited either the *Deepwater Horizon* oil spill or *Vibrio vulnificus* as an area of concern that may have affected their responses. Table 36 reports the frequency of such citings across market areas. We found that most of the citings concerning the oil spill occurred among Gulf Coast respondents, with the total number of cites amounting to 5.5% of all respondents. A total of 5 respondents cited concerns with *Vibrio*, bacteria, or similar, with 4 of the 5 being among the eastern Gulf Coast market. The total amounted to less than 1% of all respondents.

Table 36. Responses to the open-ended question "While answering the previous questions, did you have any particular concerns about any of the oysters that had a big influence on your choices?" by market region. Keyword search for “oil”, “spill”, “BP”, “Vibrio”, “bacteria” used to to categorize respondent as having cited one of these as concerns.

	Market						
	Eastern Gulf Coast	**Western Gulf Coast**	**Atlantic Coast**	**Pacific Coast**	***Total Citing***	***Total Respondents Possible***	**% Citing**
Cited oil spill	19	4	14	3	*40*	*730*	5.5%
Cited *Vibrio vulnificus*	4	0	1	0	*5*	*730*	0.7%

Choice Experiment Results

Tables 37-48 provide a brief overview of how respondents voted across oyster varieties. Note well that these tables do not take into account other attributes such as price, size, etc., which also played a role in explaining choices. These are merely to provide a first look at general patterns. Because the generic Gulf oyster appeared in all choice sets, its frequency is greater than all other varieties. This should not be taken to imply stronger preferences for or against the generic Gulf oysters. Rather, attention should be paid to the percentages reported for this purpose.

Table 37. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets including generic Gulf oysters, low-information treatment, for eastern Gulf Coast respondents

	Most Likely		**In between**		**Least Likely**		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Gulf (generic)	282	37%	187	24%	295	39%	764
Point aux Pins, AL	42	24%	66	37%	69	39%	177
Champagne Bay, LA	71	34%	97	47%	38	18%	206
Apalachicola Bay, FL	83	47%	56	32%	38	21%	177
Lonesome Reef, TX	41	22%	87	47%	58	31%	186
Bay St. Louis, MS	73	35%	76	36%	62	29%	211
Portersville Bay, AL	48	26%	73	39%	67	36%	188
Chesapeake Bay, VA	74	38%	36	18%	86	44%	196
Hood Canal, WA	50	27%	86	46%	51	27%	187

Table 38. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets including generic Gulf oysters, high-information treatment, for eastern Gulf Coast respondents

	Most Likely		Least Likely		In between		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Gulf (generic)	250	46%	148	27%	145	27%	543
Point aux Pins, AL	29	19%	71	47%	51	34%	151
Champagne Bay, LA	46	33%	27	20%	65	47%	138
Apalachicola Bay, FL	52	44%	28	24%	38	32%	118
Lonesome Reef, TX	33	25%	44	34%	54	41%	131
Bay St. Louis, MS	26	21%	41	33%	56	46%	123
Chesapeake Bay, VA	35	25%	45	32%	59	42%	139
Cape Cod, MA	33	21%	93	60%	30	19%	156
Hood Canal, WA	39	30%	46	35%	45	35%	130

Table 39. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets including generic Gulf oysters, low-information treatment, for western Gulf Coast respondents

	Most Likely		In between		Least Likely		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Gulf (generic)	224	60%	79	21%	70	19%	373
Point aux Pins, AL	8	10%	31	39%	41	51%	80
Champagne Bay, LA	31	29%	23	21%	53	50%	107
Apalachicola Bay, FL	17	19%	44	50%	27	31%	88
Lonesome Reef, TX	28	31%	25	27%	38	42%	91
Bay St. Louis, MS	22	22%	36	35%	44	43%	102
Portersville Bay, AL	13	14%	42	46%	36	40%	91
Chesapeake Bay, VA	20	20%	59	60%	20	20%	99
Hood Canal, WA	10	11%	34	39%	44	50%	88

Table 40. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets including generic Gulf oysters, high-information treatment, for western Gulf Coast respondents

	Most Likely		Least Likely		In between		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Gulf (generic)	151	66%	20	9%	58	25%	229
Point aux Pins, AL	5	8%	37	61%	19	31%	61
Champagne Bay, LA	16	28%	13	23%	28	49%	57
Apalachicola Bay, FL	8	15%	23	44%	21	40%	52
Lonesome Reef, TX	14	25%	22	39%	21	37%	57
Bay St. Louis, MS	7	13%	20	38%	25	48%	52
Chesapeake Bay, VA	9	16%	25	45%	22	39%	56
Cape Cod, MA	4	6%	47	73%	13	20%	64
Hood Canal, WA	15	25%	22	37%	22	37%	59

Table 41. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, low-information treatment, for eastern Gulf Coast respondents

	Most Likely		In between		Least Likely		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	18	39%	9	20%	19	41%	46
Champagne Bay, LA	32	49%	20	31%	13	20%	65
Apalachicola Bay, FL	35	49%	25	35%	11	15%	71
Lonesome Reef, TX	15	37%	10	24%	16	39%	41
Bay St. Louis, MS	20	34%	16	27%	23	39%	59
Portersville Bay, AL	9	25%	14	39%	13	36%	36
Chesapeake Bay, VA	12	32%	21	57%	4	11%	37
Cape Cod, MA	13	31%	15	36%	14	33%	42
Moonstones, RI	7	30%	5	22%	11	48%	23
Willapa Bay, WA	6	24%	3	12%	16	64%	25
Hood Canal, WA	5	10%	33	66%	12	24%	50
Netarts Bay, OR	28	27%	29	28%	48	46%	105

Table 42. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, high-information treatment, for eastern Gulf Coast respondents

	Most Likely		Least Likely		In between		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	8	17%	26	54%	14	29%	48
Champagne Bay, LA	17	33%	12	23%	23	44%	52
Apalachicola Bay, FL	22	49%	12	27%	11	24%	45
Lonesome Reef, TX	21	36%	20	34%	18	31%	59
Bay St. Louis, MS	23	58%	11	28%	6	15%	40
Portersville Bay, AL	12	32%	11	30%	14	38%	37
Chesapeake Bay, VA	13	48%	8	30%	6	22%	27
Cape Cod, MA	12	25%	12	25%	24	50%	48
Moonstones, RI	9	17%	17	33%	26	50%	52
Willapa Bay, WA	18	39%	16	35%	12	26%	46
Hood Canal, WA	7	18%	17	45%	14	37%	38
Netarts Bay, OR	19	37%	19	37%	13	25%	51

Table 43. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, low-information treatment, for western Gulf Coast respondents

	Most Likely		In between		Least Likely		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	8	38%	4	19%	9	43%	21
Champagne Bay, LA	16	57%	4	14%	8	29%	28
Apalachicola Bay, FL	8	30%	9	33%	10	37%	27
Lonesome Reef, TX	14	58%	4	17%	6	25%	24
Bay St. Louis, MS	11	48%	7	30%	5	22%	23
Portersville Bay, AL	4	29%	5	36%	5	36%	14
Chesapeake Bay, VA	1	6%	11	69%	4	25%	16
Cape Cod, MA	5	26%	7	37%	7	37%	19
Moonstones, RI	1	14%	0	0%	6	86%	7
Willapa Bay, WA	3	27%	5	45%	3	27%	11
Hood Canal, WA	5	25%	13	65%	2	10%	20
Netarts Bay, OR	9	20%	16	36%	20	44%	45

Table 44. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, high-information treatment, for western Gulf Coast respondents

	Most Likely		**Least Likely**		**In between**		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	5	50%	1	10%	4	40%	10
Champagne Bay, LA	5	45%	2	18%	4	36%	11
Apalachicola Bay, FL	3	50%	1	17%	2	33%	6
Lonesome Reef, TX	9	82%	1	9%	1	9%	11
Bay St. Louis, MS	7	58%	3	25%	2	17%	12
Portersville Bay, AL	1	7%	3	21%	10	71%	14
Chesapeake Bay, VA	0	0%	8	89%	1	11%	9
Cape Cod, MA	3	23%	10	77%	0	0%	13
Moonstones, RI	0	0%	6	60%	4	40%	10
Willapa Bay, WA	1	10%	4	40%	5	50%	10
Hood Canal, WA	2	29%	1	14%	4	57%	7
Netarts Bay, OR	5	50%	1	10%	4	40%	10

Table 45. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, low-information treatment, for Atlantic Coast respondents

	Most Likely		**In between**		**Least Likely**		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	22	19%	43	38%	48	42%	113
Champagne Bay, LA	49	33%	46	31%	55	37%	150
Apalachicola Bay, FL	45	28%	65	40%	53	33%	163
Lonesome Reef, TX	40	33%	38	32%	42	35%	120
Bay St. Louis, MS	28	22%	44	35%	54	43%	126
Portersville Bay, AL	33	33%	36	36%	32	32%	101
Chesapeake Bay, VA	45	38%	45	38%	27	23%	117
Cape Cod, MA	38	44%	26	30%	23	26%	87
Moonstones, RI	42	71%	7	12%	10	17%	59
Willapa Bay, WA	31	39%	24	30%	25	31%	80
Hood Canal, WA	20	18%	59	53%	33	29%	112
Netarts Bay, OR	101	40%	61	24%	92	36%	254

Table 46. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, high-information treatment, for Atlantic Coast respondents

	Most Likely		**Least Likely**		**In between**		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	43	26%	54	32%	71	42%	168
Champagne Bay, LA	58	35%	49	30%	59	36%	166
Apalachicola Bay, FL	54	32%	49	29%	66	39%	169
Lonesome Reef, TX	60	38%	42	27%	55	35%	157
Bay St. Louis, MS	54	31%	66	38%	54	31%	174
Portersville Bay, AL	46	27%	65	38%	58	34%	169
Chesapeake Bay, VA	82	47%	44	25%	48	28%	174
Cape Cod, MA	63	39%	51	31%	49	30%	163
Moonstones, RI	54	31%	77	45%	41	24%	172
Willapa Bay, WA	54	31%	69	40%	49	28%	172
Hood Canal, WA	42	26%	61	38%	58	36%	161
Netarts Bay, OR	60	36%	43	26%	62	38%	165

Table 47. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, low-information treatment, for Pacific Coast respondents

	Most Likely		**In between**		**Least Likely**		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	3	14%	5	24%	13	62%	21
Champagne Bay, LA	7	22%	12	38%	13	41%	32
Apalachicola Bay, FL	7	23%	15	50%	8	27%	30
Lonesome Reef, TX	4	17%	10	42%	10	42%	24
Bay St. Louis, MS	9	32%	13	46%	6	21%	28
Portersville Bay, AL	3	17%	6	33%	9	50%	18
Chesapeake Bay, VA	4	20%	11	55%	5	25%	20
Cape Cod, MA	5	25%	9	45%	6	30%	20
Moonstones, RI	4	40%	1	10%	5	50%	10
Willapa Bay, WA	7	50%	5	36%	2	14%	14
Hood Canal, WA	8	31%	10	38%	8	31%	26
Netarts Bay, OR	38	70%	2	4%	14	26%	54

Table 48. Frequency of each oyster variety being voted "most likely to buy", "least likely to buy", and "in between", over choice sets not including generic Gulf oysters, high-information treatment, for Pacific Coast respondents

	Most Likely		Least Likely		In between		
Oyster	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Total**
Point aux Pins, AL	14	30%	15	33%	17	37%	46
Champagne Bay, LA	12	26%	16	34%	19	40%	47
Apalachicola Bay, FL	10	27%	16	43%	11	30%	37
Lonesome Reef, TX	18	44%	14	34%	9	22%	41
Bay St. Louis, MS	12	23%	27	51%	14	26%	53
Portersville Bay, AL	20	32%	15	24%	27	44%	62
Chesapeake Bay, VA	23	43%	18	34%	12	23%	53
Cape Cod, MA	16	28%	26	46%	15	26%	57
Moonstones, RI	13	30%	15	34%	16	36%	44
Willapa Bay, WA	21	50%	8	19%	13	31%	42
Hood Canal, WA	19	41%	11	24%	16	35%	46
Netarts Bay, OR	14	29%	11	23%	23	48%	48

Econometric Results

This section reports the results of the econometric regression analyses conducted to identify preferences over oyster varieties and attributes that are statistically significant. Each model was specified as a linear function of the alternative-specific attributes, which for the low-information treatments included oyster variety and price per half-dozen, and for the high-information treatment, included the previous two plus size (small, medium, or large), saltiness level (sweet, mildly salty, or salty), and production method (wild-caught or cultivated). Price was specified as a continuous variable whereas all others were specified as discrete indicator variables. In addition, each model contained interaction variables to capture any effects of respondent concern regarding the *Deepwater Horizon* oil spill on choice. These interaction variables were generated by multiplying each Gulf Coast oyster variable by a binary variable that indicated whether the respondent cited the oil spill as an area of concern. Due to the lack of sufficient observations regarding respondent concern for *Vibrio vulnificus*, it was not feasible to include similar variables for this possible effect.

As noted earlier, markets were segmented into four market areas: eastern Gulf Coast, western Gulf Coast, Atlantic Coast, and Pacific Coast. We tested empirically whether Chicago and St. Louis fit within either the Atlantic or Pacific markets, or neither, and found that preferences for those markets were not statistically different from the Atlantic Coast market. Thus, Chicago and St. Louis were grouped into this market. We then estimated separate models for each market area and used likelihood-ratio tests to determine if it were feasible to pool some combination of markets, i.e., to test whether parameter estimates for each market were statistically different from those of other markets. Test results indicated that these market segments could not be pooled, i.e., that preferences were indeed different for each segment. Thus, these four market segments were modeled separately.

We then used likelihood-ratio tests to determine if parameters common to the low-information and high-information treatments were significantly different. Test results indicate that for the eastern Gulf-Coast market only, parameter estimates differed between the low-information and high-information treatments, for both choice sets including the generic Gulf oyster as well as choice sets not including the generic Gulf oyster. For all other market areas, estimates were not significantly different across information treatments, and thus the subsamples from the two treatments were pooled and modeled jointly.

Finally, models were tested for evidence of violation of the assumption of Independence from Irrelevent Alternatives (IIA). This assumption follows from the assumption that the disturbances are independent and homoscedastic. This assumption was tested using both Hausman and McFadden (1984) test, as well as estimation of nested logit models accompanied with a test of significance of the inclusive value (IV) parameter. Where evidence of a violation of the IIA assumption was detected, a nested logit model was adopted as the preferred model. This was necessary choice sets not including the generic Gulf oyster for the western Gulf-Coast market model and for the Atlantic Coast market model. In all other cases, the model specified is a conditional logit.

Although all models contain oyster varieties from all three coasts (Gulf, Atlantic, and Pacific), the focus of this study is on Gulf Coast oysters, and the varieties from the other coasts really serve as "controls". Thus, although results are reported for all varieties, the discussion focuses primarily on the Gulf Coast varieties. Coefficients that are statistically different from zero at the 95% confidence level are shown in bold.

Choice Sets including Generic Gulf Oyster -- Eastern Gulf Coast Respondents

Table 49 reports the results of the conditional logit model for choice sets with generic Gulf oysters included, for eastern Gulf Coast respondents (i.e., from the Atlanta, Charleston, Miami, Tampa, Jacksonville, and Tallahassee markets). Results are shown for both the low- and high-information treatments. The null hypothesis that coefficients across both models were not statistically different was tested using a likelihood ratio test, and was rejected, indicating that preferences, as reflected by the estimated coefficients, are not the same across the low- and high-information treatments. Thus, they were estimated, and reported, separately.

Low Information Treatment

For the low-information treatment, price was significant and negative as expected. All branded varieties are found to be statistically different and positive relative to the base generic

Gulf oysters, indicating that, all else, equal, branded varieties are preferred to the generic Gulf oysters. None of the oil spill interaction terms are not significant, indicating that no significant relationships between oil spill perceptions and the Gulf oyster varieties were found. Note that the oil interaction term associated with the Lonesome Reef oyster had to be omitted due to insufficient variation in the data. The results in Table 49 make explicit whether there are significant differences between a given oyster variety and the base generic oyster only. Table 50 expands upon these results by then directly comparing each oyster variety to every other variety, and testing for significance using post-estimation pair-wise Wald tests. These results indicate, that for this market, the Apalachicola Bay and Champagne Bay oysters fared statistically better than all other varieties except for Chesapeake Bay. They were not statistically different from each other. Chesapeake Bay performed statistically better than Point aux Pins and Lonesome Reef varieties.

Table 51 converts regression results into willingness-to-pay terms.[4] Willingness to pay a premium for a given oyster variety over and above the price of the generic oyster is calculated as the ratio of each oyster variety coefficient over the price coefficient. Confidence intervals were calculated using the Krinsky-Robb simulation method. Those associated with statistically significant oyster variety coefficients are shown in bold. Results indicate a mean WTP a premium of between $3.31 per half-dozen (for the Point aux Pins) and $9.72 for the Apalachicola Bay oyster.

[4] We thank Dr. Matthew Interis, Mississippi State University, for calculating the confidence intervals on WTP reported in this document.

<u>High Information Treatment</u>

For the high-information treatment, price was significant and negative as expected (refer again to Table 43). Among the oyster variety coefficients, only the one on Apalachicola Bay (positive) was significant, indicating that only this variety tested significantly differently from the generic Gulf oyster. None of the oil spill interaction terms are not significant, indicating that no significant relationships between oil spill perceptions and the Gulf oyster varieties were found. Note that the oil interaction terms associated with the Lonesome Reef and Portersville Bay oysters had to be omitted due to sparse observations. Results indicate that size was a significant choice attribute, with small-sized oysters significantly less preferred to the base large-sized oysters. Additionally, "salty" oysters were significantly more likely to be chosen relative to the base "sweet" flavored oysters. Further, wild-caught oysters were significantly more likely to be chosen relative to cultivated oysters.

Table 52 reports the results of post-estimation pair-wise Wald tests for each oyster variety. These results indicate, that for this market, the Apalachicola Bay oyster fared significantly better than all other varieties except for the Bay St. Louis oyster. Conversely, all Gulf varieties were more likely to be chosen than the Cape Cod oyster.

Table 53 reports willingness to pay a premium for a given oyster variety over and above the price of the generic oyster. Results indicate a mean WTP a premium of $6.19 per half-dozen for the Apalachicola Bay oyster. Note well that the presence of additional oyster attributes – size, saltiness, production method – appear to have lessened the importance of oyster variety – as only two varieties are significant in the high-information treatment, whereas all varieties were significant in the low-information treatment.

Table 49. Nested logit regression estimation results for choice sets including generic Gulf oysters over eastern Gulf Coast respondents

	Low Information model			**High Information model**		
	Coefficient	**Standard Error**	**Marginal Effect**	**Coefficient**	**Standard Error**	**Marginal Effect**
Price	**-0.10444**	0.01505	-0.0195	**-0.08524**	0.02824	-0.0153
Small size				**-0.36932**	0.13130	-0.0663
Medium size				-0.02711	0.12767	-0.0048
Mildly salty				0.05499	0.13276	0.0099
Salty				**0.31055**	0.13688	0.0557
Wild caught				**0.34388**	0.11671	0.0617
Point aux Pins	**0.34608**	0.15309	0.0645	-0.10362	0.22890	-0.0186
Champagne	**0.88695**	0.13558	0.1653	0.07667	0.25420	0.0138
Apalachicola	**1.01550**	0.14719	0.1892	**0. 52814**	0.22747	0.0947
Lonesome	**0.31591**	0.13474	0.0588	0.05034	0.22363	0.0093
Bay Saint Louis	**0.57829**	0.13312	0.1078	0.17868	0.27234	0.0321
Portersville	**0.34814**	0.14226	0.0649			
Cape Cod				-0. 62799	0.32821	-0.1127
Chesapeake	**0.82475**	0.18336	0.1537	-0.06647	0.21077	-0.0119
Hood Canal	**0.33182**	0.12293	0.0618	-0.27864	0.21753	-0.0499
Oil x Point aux Pins	-0.02088	0.58182	-0.0039	-0. 26618	1.30246	-0.0477

Table 49, continued.

Champagne_oil	-0.52747	0.47125	0.0983	-1.25985	0.82196	-0.2260
Apalachicola_oil	-0.51053	0.58801	-0.0951	-1. 60314	1.14455	-0.2876
Lonesome_oil	-0.18716	0.61347	-0.0349			
Bay Saint Louis_oil	-0.19853	0.44506	-0.037	-0.92002	0.93030	-0.1651
Portersville_oil	-0.56368	0.57267	-0.1050			
No. of observations	1545			1114		
Log likelihood:	-1338.70884			-935.89811		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

Table 50. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets with generic Gulf oysters, low-information treatment, among eastern Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Cape Cod	Chesapeake Bay	Hood Canal
Champagne Bay	>							
Apalachicola Bay	>							
Lonesome Reef		<	<					
Bay Saint Louis		<	<					
Cape Cod		<	<					
Chesapeake Bay	>			>		>		
Hood Canal		<	<				<	
Base: Generic Gulf	<	<	<	<	<	<	<	<

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versus, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 51. Willingness to pay estimates for choice sets including generic Gulf oysters, low-information treatment, among eastern Gulf Coast respondents. Amounts are per half-dozen oysters.

	Mean WTP	**95% WTP**	**Confidence interval**
Point aux Pins	**3.31**	0.46	5.79
Champagne Bay	**8.49**	6.04	11.83
Apalachicola Bay	**9.72**	7.09	13.44
Lonesome Reef	**3.02**	0.51	5.52
Bay St Louis	**5.53**	3.30	8.21
Portersville	**3.33**	0.74	5.64
Chesapeake	**7.89**	5.20	10.31
Hood Canal	**3.17**	0.98	5.57
Point aux Pins_oil	-0.19	-11.74	10.91
Champagne_oil	-5.05	-15.08	4.01
Apalachicola_oil	-4.88	-16.80	6.61
Lonesome Reef_oil	-1.79	-14.34	10.53
Bay Saint Louis_oil	-1.90	-11.01	6.49
Portersville_oil	-5.39	-17.39	5.98

Values associated with significant coefficients shown in bold.

Table 52. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets including generic Gulf oysters, high-information treatment, among eastern Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Cape Cod	Chesapeake Bay	Hood Canal
Champagne Bay								
Apalachicola Bay	>	>						
Lonesome Reef			<					
Bay Saint Louis								
Cape Cod	<	<	<	<	<			
Chesapeake Bay			<			>		
Hood Canal			<		<			
Base: Generic Gulf			<			>		

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versus, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 53. Willingness to pay estimates for choice sets including generic Gulf oysters, high-information treatment, among eastern Gulf Coast respondents. Amounts are per half-dozen oysters.

Regressor	Mean WTP	95% WTP	Confidence interval
Small size	**-4.33**	-14.59	-1.02
Medium size	-0.31	-5.19	2.66
Mildly salty	0.64	-2.86	4.96
Salty	**3.46**	0.49	12.98
Wild caught	**4.03**	1.07	14.10
Point aux Pins	-1.21	-14.22	2.96
Champagne Bay	0.89	-8.55	6.32
Apalachicola Bay	**6.19**	1.62	13.27
Lonesome Reef	0.59	-8.40	4.68
Bay St Louis	2.09	-7.87	6.81
Cape cod	-7.36	-34.52	0.19
Chesapeake	-0.77	-11.40	3.20
Hood Canal	-3.26	-16.49	1.31
Point aux Pins_oil	-3.12	-46.33	32.75
Champagne_oil	-14.78	-53.07	4.59
Apalachicola_oil	-18.80	-74.97	6.88
Bay Saint Louis_oil	-10.79	-47.86	12.53

Values associated with significant coefficients shown in bold.

Choice Sets including Generic Gulf Oyster -- Western Gulf Coast Respondents

Table 54 reports the results of the conditional logit model for choice sets with generic Gulf oysters included, for western Gulf Coast respondents (i.e., from the Baton Rouge, Houston, Mobile, and New Orleans markets). As noted above, these results include observations from both the low- and high-information treatments.

Price was significant and negative as expected. Size attributes were not significant. The "salty" level of the taste attribute was significant and negative, indicating that respondents were less likely to choose oyster alternatives that were described as "salty" relative to the base level "sweet". Production method was not significant. Not all oyster varieties were significant: but those that were significant were negative, indicating that these oyster varieties (Point aux Pins, Apalachicola Bay, Portersville Bay, Cape Cod, and Hood Canal) were significantly less likely to be chosen relative to the base generic Gulf oyster.

Table 55 reports the pair-wise comparisons across oyster varieties. Champagne Bay and Lonesome Reef were more likely to be chosen relative to all other branded varieties except for Bay St. Louis. These two varieties were not significantly different from each other. Bay St. Louis fared almost as well, being significantly more likely to be chosen over Apalachicola Bay, Cape Cod, and Hood Canal. Point aux Pins was less likely to be chosen relative to Champagne Bay and Lonesome Reef. None of the oil spill interaction terms were significant, indicating that no significant relationships between oil spill perceptions and the Gulf oyster varieties were found.

Table 56 reports willingness to pay a premium for a given oyster variety over and above the price of the generic oyster. Only those shown in bold are statistically different from zero. Results indicate that a discount of between $2 and $4 relative to the generic Gulf oyster is necessary for Point aux Pins, Apalachicola Bay, and Portersville Bay varieties. Neither a discount nor a premium is detected for Champagne Bay, Lonesome Reef, or Bay St. Louis varieties.

Table 54. Nested logit regression estimation results for choice sets including generic Gulf oysters over western Gulf Coast respondents

Dependent Variable: Vote			
Regressor	**Coefficient**	**Standard error**	**Marginal Effect**
Price	**-0.15437**	0.01989	-0.0124
Small size	-0.26081	0.19059	-0.0209
Medium size	-0.10450	0.18906	-0.0083
Mildly salty	-0.01797	0.18209	-0.0014
Salty	**-0.36439**	0.18350	-0.0292
Wild caught	0.12695	0.15411	0.0102
Point aux Pins	**-0.36591**	0.18638	-0.0294
Champagne	0.24346	0.16642	0.0196
Apalachicola	**-0.56179**	0.17568	-0.0451
Lonesome	0.20879	0.16532	0.0167
Bay Saint Louis	-0.01614	0.16890	- 0.0013
Portersville	**-0.40380**	0.20413	-0.0324
Cape Cod	**-0.84189**	0.34241	-0.0676
Chesapeake	-0.29484	0.20059	-0.0236
Hood Canal	**-0.62857**	0.15650	-0.0504
Point aux Pins_oil	0.75077	0.93064	0.0603
Champagne_oil	1.00593	0.76233	0.0808
Apalachicola_oil	0.39180	0.92673	-
Lonesome_oil	0.11228	0.97823	-
Bay Saint Louis_oil	1.40873	0.85923	-
Portersville_oil	0.43088	0.81472	-
No. of observations	1240		
Log likelihood:	-947.78044		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

Table 55. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets including generic Gulf oysters, among western Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay	Cape Cod	Chesapeake Bay	Hood Canal
Champagne Bay	>								
Apalachicola Bay		<							
Lonesome Reef	>		>						
Bay Saint Louis			>						
Portersville Bay		<		<					
Cape Cod		<		<	<				
Chesapeake Bay		<		<					
Hood Canal		<		<	<				
Base: Generic Gulf	>		>			>	>		>

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versus, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 56. Willingness to pay estimates for choice sets including generic Gulf oysters, among western Gulf Coast respondents. Amounts are per half-dozen oysters.

Regressor	Mean WTP	95% Confidence interval	
Small size	-1.68	-4.59	0.68
Medium size	-0.67	-3.34	1.71
Mildly Salty	-0.11	-2.52	2.33
Salty	**- 2.36**	-4.88	-0.04
Wild	0.82	-1.11	3.04
Point aux Pins	**-2.37**	-5.77	0.02
Champagne Bay	1.57	-0.56	3.50
Apalachicola Bay	**-3.63**	-6.92	-1.29
Lonesome Reef	1.35	-0.90	3.28
Bay St Louis	-0.10	-2.65	1.90
Portersville	**-2.61**	-6.17	-0.04
Cape Cod	**-5.45**	-11.84	-1.06
Chesapeake	-1.90	-5.51	0.55
Hood Canal	**-4.07**	-7.05	-1.95
Point aux Pins_oil	4.86	-6.67	17.80
Champagne_oil	6.51	-3.14	16.88
Apalachicola_oil	-2.53	-14.54	9.55
Lonesome Reef_oil	0.72	-12.28	13.92
Bay Saint Louis_oil	9.12	-2.09	20.97
Portersville_oil	2.79	-7.98	13.27

Values associated with significant coefficients shown in bold.

Choice Sets not including Generic Gulf Oyster -- eastern Gulf Coast Respondents

Table 57 reports the results of the conditional logit model for choice sets not including generic Gulf oysters, for eastern Gulf Coast respondents (i.e., from the Atlanta, Charleston, Miami, Tampa, Jacksonville, and Tallahassee markets). Separate models were estimated for the low- and high-information treatments. In these models, all non-Gulf (i.e., Atlantic and Pacific Coast) oyster varieties served as the base case. Thus, all oyster variety coefficients should be interpreted relative to all non-Gulf oysters.

Low Information Treatment

For the low-information treatment, price was significant and negative as expected. Coefficients on the Point aux Pins, Champagne Bay, and Apalachicola Bay varieties were significant and positive, indicating that, all else, equal, these varieties were significantly more likely to be chosen relative to non-Gulf varieties. No differences were found for the Lonesome Reef, Bay St. Louis, or Portersville Bay varieties.

Table 58 reports the results of the post-estimation pair-wise Wald tests. Results indicate that Portersville Bay was significantly less likely to be chosen relative to all other Gulf Coast varieties. In this model, all three of the oilspill interaction terms specified were significant and negative, indicating that, of those respondents who cited the *Deepwater Horizon* oilspill as a relevant issue while taking the survey, preferences for these Gulf oysters were negatively affected. Further, because the magnitude of these coefficients exceeds those of the oyster varieties themselves, these results can be interpreted to indicate that, for these particular respondents for whom the oilspill was a concern, they were less likely to choose these Gulf varieties relative to the non-Gulf varieties.

Table 59 contains the estimated willingness-to-pay amounts for this model. Results indicate a mean WTP a premium of between $4.41 and $5.94 per half-dozen for the Point aux Pins, Champagne Bay, and Apalachicola Bay varieties, but no significant premium for the other Gulf varieties. However, among those respondents concerned with the oilspill's impact on oysters, these premiums are replaced with discounts in the range of $3-$11 per half-dozen.

High Information Treatment

For the high-information treatment, price was not significant although it had the negative sign as expected (refer back to Table 57). Because price was not significant, we should not infer any meaningful willingness to pay estimates from this model. Additionally, only the coefficient on Point aux Pins (negative) was significant.

Table 60 reports the results of post-estimation pair-wise Wald tests for each oyster variety. These results indicate the Point aux Pins oyster was statistically less likely to be chosen relative to all other varieties except for Lonesome Reef and Portersville Bay, whereas the Bay St. Louis oyster was also statistically more likely to be chosen over Lonesome Reef. No other differences were found. Table 61 reports willingness to pay a premium for a given oyster variety over and above the base non-Gulf oysters. However, as noted above, because the price coefficient was not significant, none of these WTP estimates should be taken as statistically meaningful.

Table 57. Conditional logit regression estimation results for choice sets not including generic Gulf oysters over eastern Gulf Coast respondents.

Dependent variable: Vote						
Model Type:	**Low Information model**			**High Information model**		
Regressor	**Coefficient**	**Standard Error**	**Marginal Effect**	**Coefficient**	**Standard Error**	**Marginal Effect**
Price	**-0.14553**	0.02254	-0.0248	-0.03019	0.02495	-0.0056
Small size	_			-0.08817	0.18984	-0.0163
Medium size	_			-0.06450	0.16814	-0.0119
Mildly salty	_			-0.09788	0.23728	-0.0181
Salty	_			-0.14265	0.19511	-0.0264
Wild				0.28150	0.15831	0.0522
Point aux Pins	**0.85527**	0.28030	0.1459	**-0. 60441**	0.28036	-0.1122
Champagne	**0.86586**	0.24209	0.1477	0.20316	0.26520	0.0377
Apalachicola	**0.64318**	0.22312	0.1097	0.25478	0.28360	0.0473
Lonesome	0.51760	0.32619	0.0883	-0.16905	0.27633	-0.0314
Bay Saint Louis	0.24135	0.22471	0.0411	0.57969	0.31752	0.1076
Portersville	-0.40890	0.29565	-0.0697	0.00866	0.29484	0.0016
Point aux Pins_oil	**-1.95207**	0.69697	-0.3330	-0.27885	1.25098	-0.0517
Champagne_oil	**-2.43454**	0.74196	-0.4153	0. 50033	0.89652	0.0928
Lonesome_oil	**-1.27981**	0.62650	-0.2183	0.34786	0.84343	0.0646
No. of observations	424			373		
Log likelihood:	-342.0627			-322. 68190		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

Table 58. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets not including generic Gulf oysters, low-information treatment, among eastern Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay
Champagne Bay						
Apalachicola Bay						
Lonesome Reef						
Bay Saint Louis						
Portersville Bay	<	<	<	<	<	
Base: All East and West Coast Oysters	<	<	<			

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versa, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 59. Willingness to pay estimates for choice sets not including generic Gulf oysters, low-information treatment, among eastern Gulf Coast respondents. Amounts are per half-dozen oysters.

Regressor	**Mean WTP**	**95% WTP**	**Confidence interval**
Point aux Pins	**5.87**	2.10	11.08
Champagne Bay	**5.94**	2.67	10.22
Apalachicola Bay	**4.41**	1.47	8.25
Lonesome Reef	3.55	-0.68	9.04
Bay St Louis	1.65	-1.32	5.07
Portersville	-2.80	-6.79	1.31
Point aux Pins_oil	**-13.41**	-25.19	-4.16
Champagne_oil	**-16.72**	-29.39	-6.59
Lonesome Reef_oil	**-8.79**	-19.00	-0.42

Values associated with significant coefficients shown in bold.

Table 60. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets without generic Gulf oysters, high-information treatment, among eastern Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay
Champagne Bay	>					
Apalachicola Bay	>					
Lonesome Reef						
Bay Saint Louis	>			>		
Portersville Bay						
Base: All East and West Coast Oysters	>					

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versa, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 61. Willingness to pay estimates for choice sets without generic Gulf oysters, high-information treatment, among eastern Gulf Coast respondents. Amounts are per half-dozen oysters.

Regressor	**Mean WTP**	**95% WTP**	**Confidence interval**
Small size	-2.92	-49. 56	44.41
Medium size	-2.13	-44.78	41.62
Mildly Salty	-3.24	-69.26	56.90
Salty	-4.72	-62.28	45.86
Wild	9.32	-83.39	99.54
Point aux Pins	-20.01	-185.48	127.13
Champagne Bay	6.72	-95.17	111.80
Apalachicola Bay	8.43	-105.93	131.76
Lonesome Reef	-5. 59	-71.11	51.39
Bay St Louis	19.20	-178.55	220.15
Portersville	0.28	-75.81	65.24
Point aux Pins_oil	-9.23	-292.53	286.45
Champagne_oil	16.57	199.79	293.01
Lonesome Reef_oil	11.52	192.51	247.20

Values associated with significant coefficients shown in bold.

Choice Sets not including Generic Gulf Oyster -- Western Gulf Coast Respondents

Table 62 reports the results of the nested logit model for choice sets not including the generic Gulf oyster, for western Gulf Coast respondents (i.e., from the Baton Rouge, Houston, Mobile, and New Orleans markets). As noted above, these results include observations from both the low- and high-information treatments.

Price was significant and negative as expected. Results indicate that size mattered, as the coefficient on "medium" size was significant and positive, indicating that "medium" sized oysters were more likely to be chosen relative to the base "large" size oyster. Production method was not significant. Champagne Bay and Lonesome Reef were statistically more likely to be chosen over the base non-Gulf varieties.

Table 63 reports the pair-wise comparisons across oyster varieties. Champagne Bay and Lonesome Reef were both significantly more likely to be chosen over Apalachicola Bay and Portersville Bay. Lonesome Reef was also statistically more likely to be chosen over Bay St. Louis. None of the oil spill interaction terms were significant, indicating that no significant relationships between oil spill perceptions and the Gulf oyster varieties were found.

Table 64 reports willingness to pay a premium for a given oyster variety over and above the base non-Gulf oyster varieties. Only those shown in bold are statistically different from zero. Results indicate that Champagne Bay and Lonesome Reef command premia of $10.00 and $11.46 per half-dozen, respectively. Note well that these are the mean WTP a premium; 95% confidence intervals on these range from a low of $4.60 (for Lonesome Reef) to a high of $26.00 (for Lonesome Reef).

Table 62. Nested logit regression estimation results for choice sets not including generic Gulf oysters over western Gulf Coast respondents

Dependent Variable: Vote			
Regressor	**Coefficient**	**Standard Error**	**Marginal Effect**
Price	**-0.10788**	0.02864	-0.0099
Small size	0.45757	0.31417	0.0420
Medium size	**0.76434**	0.30289	0.0701
Mildly salty	-0.71631	0.38539	-0.0657
Salty	-0.09790	0.28303	-0.009
Wild caught	-0.22483	0.21992	-0.0265
Point aux Pins	0. 68897	0.35289	0.0632
Champagne	**1.07926**	0.28167	0.0991
Apalachicola	0.29294	0.32001	0.0268
Lonesome	**1.23649**	0.35912	0.1135
Bay Saint Louis	0.42191	0.29257	0.0387
Portersville	-0.9600	0.35043	-0.0088
Point aux Pins_oil	-0.94386	2.22979	-0.0866
Apalachicola_oil	-0.84937	1.30520	-0.0779
IV Parameters			
Low	**0. 58806**	0.17061	
High	1.0		
No. of observations	262		
Log likelihood:	191.42642		
Chi sq(df):	556.02912		
Significance level	0.00000		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

Table 63. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets without generic Gulf oysters, among western Gulf Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay
Champagne Bay						
Apalachicola Bay		<				
Lonesome Reef			>			
Bay Saint Louis				<		
Portersville Bay		<		<		
Base: All East and West Coast Oysters		<				

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versa, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 64. Willingness to pay estimates for choice sets without generic Gulf oysters, among western Gulf Coast respondents. Amounts are per half-dozen oysters.

Regressor	**Mean WTP**	**95% WTP Confidence interval**	
Small size	4.24	-1.58	11.43
Medium size	**7.08**	1.92	14.71
Mildly Salty	-6.63	-15.62	0.25
Salty	-0.90	-6.77	5.14
Wild	-2.08	-7.23	2.05
Point aux Pins	6.38	0.11	17.75
Champagne Bay	**10.00**	4.78	20.78
Apalachicola Bay	2.71	-3.27	11.19
Lonesome Reef	**11.46**	4.60	26.00
Bay St Louis	3.91	-1.46	12.45
Portersville	-0.88	-7.25	7.73
Point aux Pins_oil	-8.74	-59.83	34.85
Apalachicola_oil	-7.87	-38.95	18.42

Values associated with significant coefficients shown in bold.

Choice Sets not including Generic Gulf Oyster – Atlantic Coast Respondents

Table 65 reports the results of the nested logit model for choice sets not including the generic Gulf oyster, for Atlantic Coast respondents (i.e., from the Baltimore, Boston, Chicago, New York, St Louis, Portland (ME), and Washington D.C. markets). As noted above, these results include observations from both the low- and high-information treatments. For this model the Atlantic Coast oyster varieties served as the based (i.e., the Chesapeake Bay, Cape Cod, and Moonstones).

Price was significant and negative as expected. All non-price coefficients were significantly different from zero except for the "mildly salty" taste attribute coefficient and all six oilspill interaction variables. Medium and large-size oysters were more likely to be chosen over the base small-size ones, "salty" oysters were less likely to be chosen relative to the base "sweet" ones, and wild-caught oysters were more likely to be chosen relative to the base cultivated ones. As expected, all non-Atlantic oyster varieties were less likely to be chosen relative to the base Atlantic Coast varieties. In other words, Atlantic Coast respondents have a preference for Atlantic Coast oysters.

Table 66 reports the pair-wise comparisons across oyster varieties, which allows for some more detailed understanding of Atlantic Coast respondent preferences *among Gulf Coast oyster varieties*. Point aux Pins oysters were significantly less likely to be chosen relative to the Champagne Bay and Willapa Bay oysters. Champagne Bay oysters were more likely to be chosen over all other Gulf Coast varieties. No other significant differences among Gulf Coast varieties were detected.

Table 67 reports willingness to pay a premium – or in this case, a discount -- for a given oyster variety relative to the base Atlantic Coast oysters. Only those shown in bold are statistically different from zero. Results indicate that all Gulf Coast varieties would require a price discount ranging between $4.21 and $7.76 per half-dozen relative to the base Atlantic Coast varieties. Note well, however, that these discounts are not statistically different from those of two of the three Pacific Coast varieties; i.e., the Gulf Coast varieties fared about the same as the Pacific Coast oysters among Atlantic Coast respondents.

Table 65. Nested logit regression estimation results for choice sets not including generic Gulf oysters over Atlantic Coast respondents

	Coefficient	Standard	Marginal
Price	**-0.15395**	0.01669	- 0.0103
Medium size	**0.73656**	0.20462	0.0493
Large size	**0.57385**	0.18577	0.0384
Mildly salty	0.08356	0.19067	0.0056
Salty	**-0.81605**	0.20356	- 0.0546
Wild caught	**0.34293**	0.16766	0.0229
Point aux Pins	**-1.19600**	0.18454	- 0.0800
Champagne	**-0.64856**	0.15386	- 0.0434
Apalachicola	**-0.98252**	0.16283	- 0.0657
Lonesome	**-1.02458**	0.18198	- 0.0686
Bay Saint Louis	**-1.06156**	0.17188	- 0.0710
Portersville	**-1.17605**	0.19399	- 0.0787
Netarts	**-0.92693**	0.16335	- 0.0620
Hood Canal	**-0.83450**	0.16101	- 0.0558
Willapa	**-0.43943**	0.16553	- 0.0294
Point aux Pins_oil	0.01450	0.49862	0.0009
Champagne_oil	-0.24860	0.47605	- 0.0166
Apalachicola_oil	-0.84245	0.49350	- 0.0564
Lonesome_oil	0.03051	0.47399	0.0020
Bay Saint Louis_oil	-0.66946	0.46323	- 0.0448
Portersville_oil	-0.75010	0.55547	- 0.0502
IV Parameters			
Low	1.0		
High	**0.55230**	0.10359	
No. of observations	2360		
Log likelihood:	-1993.7462		
Chi sq(22d.f.):	4469.61		
Significance level	0.00000		

Coefficients significantly different from zero at the 95% confidence level shown in bold.

Table 66. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets not including generic Gulf oysters, among Atlantic Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay	Netarts Bay	Hood Canal	Willapa Bay
Champagne Bay	>								
Apalachicola Bay		<							
Lonesome Reef		<							
Bay Saint Louis		<							
Portersville Bay		<							
Netarts Bay									
Hood Canal									
Willapa Bay	>		>	>	>	>	>	>	
Base: All East Coast Oysters	>	>	>	>	>	>	>	>	>

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versus, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 67. Willingness to pay estimates for choice sets not including generic Gulf oysters, among Atlantic Coast respondents. Amounts are per half-dozen oysters.

Regressor	**Mean WTP**	**95% WTP**	**Confidence interval**
Medium size	**4.78**	2.21	7.36
Large size	**3.72**	1.43	6.04
Mildly Salty	0.54	-1.92	3.03
Salty	**-5.30**	-7.89	-2.85
Wild	**2.22**	0.07	4.49
Point aux Pins	**-7.76**	-9.83	-5.79
Champagne Bay	**-4.21**	-6.02	-2.36
Apalachicola Bay	**-6.38**	-8.32	-4.59
Lonesome Reef	**-6.65**	-8.69	-4.63
Bay St Louis	**-6.89**	-9.07	-4.92
Portersville	**-7.63**	-9.85	-5.53
Netarts	**-6.02**	-7.46	-4.47
Hood Canal	**-5.42**	-7.91	-3.30
Willapa	**-2.85**	-4.99	-0.82
Point aux Pins_oil	0.09	-6.43	6.38
Champagne_oil	-1. 61	-7.73	4.54
Apalachicola_oil	-5.47	-12.13	0.94
Lonesome Reef_oil	0.19	-5.90	6.23
Bay Saint Louis_oil	-4.34	-10.71	1.63
Portersville_oil	-4.87	-12.19	2.40

Values associated with significant coefficients shown in bold.

Choice Sets not including Generic Gulf Oyster – Pacific Coast Respondents

Table 68 reports the results of the conditional logit model for choice sets not including the generic Gulf oyster, for Pacific Coast respondents (i.e., from the Las Vegas, San Francisco, and Seattle markets). As noted above, these results include observations from both the low- and high-information treatments. For this model the Pacific Coast oyster varieties served as the based (i.e., the Netarts Bay, Hood Canal, and Willapa Bay varieties).

Price was significant and negative as expected. All non-price coefficients were significantly different from zero except for the "mildly salty" taste attribute coefficient, the Moonstones variety coefficient, and all six of the oilspill interaction variables. Medium and large-size oysters were more likely to be chosen over the base small-size ones, "salty" oysters were less likely to be chosen relative to the base "sweet" ones, and wild-caught oysters were more likely to be chosen relative to the base cultivated ones. As expected, all non-Pacific oyster varieties were less likely to be chosen relative to the base Pacific Coast varieties, with the exception of that of Moonstones. In other words, Pacific Coast respondents have a preference for Atlantic Coast oysters – with Moonstones being an exception.

Table 69 reports the pair-wise comparisons across oyster varieties, which allows for some more detailed understanding of Pacific Coast respondent preferences *over Gulf Coast oyster varieties*. There were no other significant differences found between Gulf Coast varieties. Furthermore, these results can be interpreted to indicate that – with the exception of Moonstones – the Gulf Coast varieties fared equally well as the Atlantic Coast varieties (Chesapeake Bay and Cape Cod).

Table 70 reports willingness to pay a premium – or in this case, a discount -- for a given oyster variety relative to the base Pacific Coast oysters. Only those shown in bold are statistically different from zero. Results indicate that all Gulf Coast varieties would require a price discount ranging between $7.02 and $12.67 per half-dozen relative to the base Pacific Coast varieties. Note well, however, that these discounts are not statistically different from those of the Chesapeake Bay and Cape Cod varieties.

Table 68. Conditional logit regression estimation results for choice sets not including generic Gulf oysters over Pacific Coast respondents

Dependent Variable: Vote			
Regressor	**Coefficient**	**Standard**	**Marginal**
Price	**-0.08633**	0.02141	-0.0073
Medium size	**0.44562**	0.19248	0.0381
Large size	**0.38984**	0.17540	0.0333
Mildly salty	-0.13899	0.21211	-0.0118
Salty	**-0.83779**	0.18372	-0.0716
Wild caught	**0.52569**	0.16911	0.0449
Point aux Pins	**-0.60648**	0.24919	-0.0518
Champagne	**-0.78361**	0.22281	-0.0670
Apalachicola	**-1.09448**	0.24261	-0.0936
Lonesome	**-0.97513**	0.26205	-0.0834
Bay Saint Louis	**-1.06067**	0.24260	-0.0907
Portersville	**-0.80218**	0.22375	-0.0686
Chesapeake	**-0.59443**	0.24734	-0.0508
Cape Cod	**-0.84904**	0.23643	-0.0726
Moon	0.36019	0.29146	0.0308
Point aux Pins_oil	-0.58491	0.86201	-0.0500
Champagne_oil	-0.07999	0.80503	-0.0068
Apalachicola_oil	-0.13379	1.38244	-0.0114
Lonesome_oil	-0.01109	0.74749	-0.0009
Bay Saint Louis_oil	-0.52259	1.16248	-0.0446
Portersville_oil	0.57626	1.04587	0.0493
No. of observations	577		
Log likelihood:	-464.81227		

Table 69. Wald tests of pairwise statistical equivalence of oyster variety coefficients for choice sets not including generic Gulf oysters, among Pacific Coast respondents.

	Point aux Pins	Champagne Bay	Apalachicola Bay	Lonesome Reef	Bay Saint Louis	Portersville Bay	Cape Cod	Chesapeake Bay	Moonstones
Champagne Bay									
Apalachicola Bay									
Lonesome Reef									
Bay Saint Louis									
Portersville Bay									
Cape Cod									
Chesapeake Bay									
Moonstones	>	>	>	>	>	>	>	>	
Base: All West Coast Oysters	>	>	>	>	>	>	>	>	

For each intersection in the matrix, a ">" sign indicates the coefficient for the oyster variety listed in the row is statistically greater than the coefficient for the oyster variety listed in the column, and vice-versus, at the 95% confidence level. A blank cell indicates no statistical differences between the listed oyster variety coefficients.

Table 70. Willingness to pay estimates for choice sets not including generic Gulf oysters, among Pacific Coast respondents. Amounts are per half-dozen oysters.

Regressor	**Mean WTP**	**95% WTP**	**Confidence interval**
Medium size	**5.16**	0.76	11.94
Large size	**4.51**	0.67	10. 72
Mildly Salty	-1.60	-7.80	3.22
Salty	**-9.70**	-19.69	-5.20
Wild	**6.08**	1.95	14.29
Point aux Pins	**-7.02**	-15.79	-1.34
Champagne Bay	**-9.07**	-19.13	-3.83
Apalachicola Bay	**-12.67**	-25.62	-6.71
Lonesome Reef	**-11.29**	-22.72	-5.28
Bay St Louis	**-12.28**	-25.22	-6.19
Portersville	**-9.29**	-18.93	-4.17
Chesapeake	**-6.88**	-19.40	-1.08
Cape Cod	**-9.83**	-22.87	-3.90
Moon	0.41	-7.62	7.35
Point aux Pins_oil	-6.77	-31.43	14.11
Champagne_oil	-0.92	-22.36	19.60
Apalachicola_oil	-1.54	-37.16	33.26
Lonesome Reef_oil	-0.12	-19.23	19.24
Bay Saint Louis_oil	-6.05	-39.76	22.33
Portersville_oil	6.67	-17.39	37.17

Values associated with significant coefficients shown in bold.

SUMMARY AND CONCLUSIONS

Taste Panels

Panelists in the two Gulf Coast taste panels had strong preferences for local oyster varieties *when they were aware of oyster variety names and harvest locations* (i.e., during labeled rounds). In the absence this information (i.e., during blind rounds), panelists had no such preferences, and in the case of the Houston taste panel, actually had a significant distaste for the local Galveston Bay variety. Panelists in the Chicago taste panel had strong preferences for the Island Creek oyster, in both the blinded and labeled rounds, although during the labeled rounds, the Point aux Pins oysters fared equally well (statistically) to the Island Creeks. Additionally, during the labeled rounds, the Apalachicola Bay and Point aux Pins oysters were statistically more likely to be chosen over the San Antonio Bay oysters.

Online Survey

The main findings of the online survey are as follows. Respondents tended to have higher perceptions of quality and seafood safety regarding their own regionally-produced oysters relative to oysters from other regions. There was limited variation in perceptions from one Gulf Coast variety to another, with the exception of the Apalachicola Bay variety being rated higher in several cases, and the more general "Gulf of Mexico" category being rated lower.

Among eastern Gulf Coast respondents, the presence of additional information – size, saltiness, and production method – appears to have mitigated the importance of oyster brand/variety/origin when choosing among oyster alternatives. Wild-caught oysters appear to be preferred over cultivated – this result was robust across all market areas except the western Gulf Coast markets, where it did not appear to matter. Additionally, respondents were more likely to choose oysters described as “medium or large sized” relative to “small sized” oysters. This result was robust to all markets except the western gulf Coast markets, where size either did not appear to matter. Respondents in the western Gulf, Atlantic, and Pacific markets were more likely to choose oysters described as “sweet” relative to those described as “salty”. Respondents in the eastern Gulf markets preferred salty to sweet or had no significant preferences over this attribute.

When presented alongside a generic Gulf Coast oyster, and in the absence of any additional information on size, taste, or production method, respondents in the eastern Gulf Coast markets preferred all branded Gulf and non-Gulf varieties, with an estimated mean willingness to pay a premium ranging from $3 to $10 per half-dozen over generic Gulf oysters. Concerns about the oil spill did not appear to affect choices. However, when additional information on size, taste, or production method was provided in a separate treatment, then importance of oyster brand waned, with only the Apalachicola Bay oyster fetching a significant price premium. In this treatment, the size, taste, and production attributes were significant in explaining choice. Concerns about the oil spill did not appear to affect choices. When presented alongside a generic Gulf Coast oyster, respondents in the western Gulf Coast markets appeared to have a distaste for the Alabama and Florida varieties, but were indifferent between the generic Gulf oysters and the Louisiana, Mississippi, and Texas varieties. Concerns about the oil spill did not appear to affect choices.

When only branded oysters were presented, and in the absence of any additional information on size, taste, or production method, respondents in the eastern Gulf Coast markets had a preference for Point aux Pins, Champagne Bay, and Apalachicola Bay oysters. However, these preferences were reversed for Point aux Pins and Champagne Bay among respondents concerned about effects from the oil spill. When only branded oysters were presented, respondents in the western Gulf Coast markets had a preference for Champagne Bay and Lonesome Reef oysters. These preferences do not appear to have been sensitive to concerns about the oil spill.

Respondents in the Atlantic Coast markets had a preference for Atlantic coast oysters, requiring a price discount between $4 and $8 per half-dozen for non-Atlantic Coast oysters. However, among Gulf Coast varieties, they preferred Champagne Bay (Louisiana) oysters relative to all other Gulf Coast varieties. Additionally, with the exception of Willapa Bay (Washington) oysters, were largely indifferent between Gulf Coast and Pacific Coast varieties. These preferences do not appear to have been sensitive to concerns about the oil spill.

Respondents in the Pacific Coast markets had a preference for Pacific Coast oysters, but also preferred one Atlantic Coast variety: Moonstones (Rhode Island). They required an estimated price discount between $7 and $13 per half-dozen to purchase non-Pacific Coast oysters. However, with the exception of Moonstones, they appeared to be largely indifferent between Gulf Coast and Atlantic Coast varieties. These preferences do not appear to have been sensitive to concerns about the oil spill.

Although some effect of concern regarding the *Deepwater Horizon* oil spill was found, significant effects were limited to a single market and model: eastern Gulf Coast market, choice sets not including the generic Gulf Coast oyster, and low-information treatment. Furthermore, there was relatively little mention of the oil spill as a concern during administration of the survey overall. There was even less indication of concern for *Vibrio vulnificus* during administration of the survey, and these concerns were sufficiently sparse as to preclude any analysis of its effect on oyster choice.

Conclusions

Based on the findings reported here, there is evidence that branded Gulf Coast oysters could succeed in some markets, under the right conditions. The taste panels, for example, indicate, in Gulf Coast markets, local branded varieties may be able to fetch a price premium over “generic” Gulf oysters. The results indicate that these preferences are not driven by taste but by the labels themselves, as the local varieties were not preferred during blind testing, and in one case even did worse. The Chicago panel gave some insights into the potential for branded Gulf oysters to succeed outside of the Gulf Coast. During blind testing, Point aux Pins oysters fared better than two of the three Atlantic/Pacific varieties, and during labeled rounds, fared equally well. Because price effects were not significant, however, the taste panel results do not give any indication of the magnitude of price premium or discount necessary to sell Gulf varieties in those markets.

Oyster quality and seafood safety perceptions of Gulf Coast production locations do not appear to vary much among respondents, even among Gulf Coast consumers. Results do indicate, however, that perceptions are generally lower when respondents are asked about the “Gulf of Mexico” in general, rather than a specific Gulf Coast location. Although results indicate that local varieties tend to be preferred, results also indicate that Gulf Coast varieties fared no worse than other non-local varieties. Specifically, Gulf Coast varieties fared no worse than Pacific Coast varieties among Atlantic Coast consumers, and fared no worse than Atlantic Coast varieties among Pacific Coast consumers. These would indicate that there is some room for opportunity along these other two coasts in places where other non-local oysters are marketed successfully. The major challenge appears to be whether the price discount necessary to entice consumers in these other markets to buy Gulf Coast oysters relative to local varieties is yet sufficiently high as to remain a profitable enterprise for Gulf Coast producers. The price discounts estimated here in the range of $5-$10 per half-dozen sounds like a steep discount, but given the large differential in retail prices in Atlantic and Pacific markets - where oysters retail anywhere from $15 to $25 per half-dozen-- compared to Gulf Coast markets – where they retail in the neighborhood of $7 to $10 -- it is possible that even with the discounts, the prices received in these alternative markets may remain profitable.

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APPENDIX A: EXPERIMENTAL DESIGN SYNTAX AND OUTPUT AND ECONOMETRIC MODEL SYNTAX

Experimental Design for Point Clear, AL and Houston, TX Taste Panels

NGene Syntax

```
Design
;alts = Brand1, Brand2, Gen, None
;rows = 12
; block = 3
;eff = (mnl,s)
;cond:
if(Brand1.Price = 6, Gen.Genprice = 5),
if(Brand1.Price = 8, Gen.Genprice = [5,7]),
if(Brand2.Price = 6, Gen.Genprice = 5),
if(Brand2.Price = 8, Gen.Genprice = [5,7]),
if(Gen.Genprice = 5, Brand1.Price > 5),
if(Gen.Genprice = 5, Brand2.Price > 5),
if(Gen.Genprice = 7, Brand1.Price > 7),
if(Gen.Genprice = 7, Brand2.Price > 7),
if(Gen.Genprice = 9, Brand1.Price > 9),
if(Gen.Genprice = 9, Brand2.Price > 9),
if(Brand1.Brand = 1, Brand2.Brand <> 1),
if(Brand1.Brand = 2, Brand2.Brand <> 2),
if(Brand1.Brand = 3, Brand2.Brand <> 3),
if(Brand1.Brand = 4, Brand2.Brand <> 4),
if(Brand1.Brand = 5, Brand2.Brand <> 5),
if(Brand1.Brand = 6, Brand2.Brand <> 6),
if(Brand2.Brand = 1, Brand1.Brand <> 1),
if(Brand2.Brand = 2, Brand1.Brand <> 2),
if(Brand2.Brand = 3, Brand1.Brand <> 3),
if(Brand2.Brand = 4, Brand1.Brand <> 4),
if(Brand2.Brand = 5, Brand1.Brand <> 5),
if(Brand2.Brand = 6, Brand1.Brand <> 6)
;model:
U(Brand1) = c1[4.0] + Brand.dummy[0.5|0.5|0.5|0.5|0.5] * Brand[1,2,3,4,5,6]
          + Price[-0.4] * Price[6,8,10,12,14,16]
/
U(Brand2) = c2[4.0] + Brand * Brand
          + Price * Price
/
U(Gen) = c3[2.0] + Genprice[-0.2] * Genprice[5,7,9]
$
```

NGene Design

MNL efficiency measures							
D error	0.953233						
A error	2.04135						
B estimate	50.85016						
S estimate	45.06493						
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	price	genprice
Fixed prior value	0.5	0.5	0.5	0.5	0.5	-0.4	-0.2
Sp estimates	43.64721	45.06493	44.91482	39.83649	41.55483	1.729044	21.57872
Sp t-ratios	0.296673	0.291969	0.292456	0.310539	0.30405	1.490572	0.421933
Design							
Choice situation	brand1.br	brand1.pr	brand2.br	brand2.pr	gen.genpr	Block	
1	2	16	1	6	5	1	
2	1	14	2	16	7	2	
3	5	8	2	10	7	3	
4	6	6	4	6	5	1	
5	4	12	5	10	7	2	
6	3	10	4	12	9	1	
7	5	10	4	12	7	1	
8	4	16	6	14	9	2	
9	2	12	6	10	9	3	
10	6	6	3	8	5	3	
11	3	16	2	8	5	3	
12	1	8	6	8	5	2	

Experimental Design for Chicago, IL Taste Panel

NGene Syntax

```
Design
;alts = Brand1, Brand2, Brand3
;rows = 6
;block = 3
;eff = (mnl,s)
;model:
U(Brand1) = Brand.dummy[-0.5|-0.5|-0.5|-0.5|-0.5] * Brand[1,2,3,4,5,6]
            + Price[-0.127] * Price[10,12,14,16,18,20]
/
U(Brand2) = Brand * Brand
            + Price * Price
/
U(Brand3) = Brand * Brand
            + Price * Price
$
```

NGene Design

MNL efficiency measures							
D error	1.036094						
A error	2.066118						
B estimate	85.54983						
S estimate	38.29812						
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	price	
Fixed prior value	-0.5	-0.5	-0.5	-0.5	-0.5	-0.127	
Sp estimates	38.01473	38.29812	38.28316	37.59331	37.53184	11.95957	
Sp t-ratios	0.317892	0.316714	0.316776	0.319669	0.319931	0.566759	
Design							
Choice situation	brand1.br	brand1.pr	brand2.br	brand2.pr	brand3.br	brand3.pr	Block
1	3	20	2	20	6	20	3
2	2	14	4	10	3	14	1
3	4	18	6	14	5	12	2
4	5	12	3	12	1	16	3
5	1	10	5	18	2	10	2
6	6	16	1	16	4	18	1

Non-Generic, High-Information Design

Syntax

```
Design
;alts = Brand1, Brand2, Brand3, None
;rows = 24
;block = 4
;eff = (mnl,s)
;cond:
if(Brand1.Brand = 1 or Brand2.Brand = 1, Brand3.Brand <> 1),
if(Brand1.Brand = 2 or Brand2.Brand = 2, Brand3.Brand <> 2),
if(Brand1.Brand = 3 or Brand2.Brand = 3, Brand3.Brand <> 3),
if(Brand1.Brand = 4 or Brand2.Brand = 4, Brand3.Brand <> 4),
if(Brand1.Brand = 5 or Brand2.Brand = 5, Brand3.Brand <> 5),
if(Brand1.Brand = 6 or Brand2.Brand = 6, Brand3.Brand <> 6),
if(Brand1.Brand = 7 or Brand2.Brand = 7, Brand3.Brand <> 7),
if(Brand1.Brand = 8 or Brand2.Brand = 8, Brand3.Brand <> 8),
if(Brand1.Brand = 9 or Brand2.Brand = 9, Brand3.Brand <> 9),
if(Brand1.Brand = 10 or Brand2.Brand = 10, Brand3.Brand <> 10),
if(Brand1.Brand = 11 or Brand2.Brand = 11, Brand3.Brand <> 11),
if(Brand1.Brand = 12 or Brand2.Brand = 12, Brand3.Brand <> 12),
```

```
if(Brand1.Brand = 1 or Brand3.Brand = 1, Brand2.Brand <> 1),
if(Brand1.Brand = 2 or Brand3.Brand = 2, Brand2.Brand <> 2),
if(Brand1.Brand = 3 or Brand3.Brand = 3, Brand2.Brand <> 3),
if(Brand1.Brand = 4 or Brand3.Brand = 4, Brand2.Brand <> 4),
if(Brand1.Brand = 5 or Brand3.Brand = 5, Brand2.Brand <> 5),
if(Brand1.Brand = 6 or Brand3.Brand = 6, Brand2.Brand <> 6),
if(Brand1.Brand = 7 or Brand3.Brand = 7, Brand2.Brand <> 7),
if(Brand1.Brand = 8 or Brand3.Brand = 8, Brand2.Brand <> 8),
if(Brand1.Brand = 9 or Brand3.Brand = 9, Brand2.Brand <> 9),
if(Brand1.Brand = 10 or Brand3.Brand = 10, Brand2.Brand <> 10),
if(Brand1.Brand = 11 or Brand3.Brand = 11, Brand2.Brand <> 11),
if(Brand1.Brand = 12 or Brand3.Brand = 12, Brand2.Brand <> 12),
if(Brand2.Brand = 1 or Brand3.Brand = 1, Brand1.Brand <> 1),
if(Brand2.Brand = 2 or Brand3.Brand = 2, Brand1.Brand <> 2),
if(Brand2.Brand = 3 or Brand3.Brand = 3, Brand1.Brand <> 3),
if(Brand2.Brand = 4 or Brand3.Brand = 4, Brand1.Brand <> 4),
if(Brand2.Brand = 5 or Brand3.Brand = 5, Brand1.Brand <> 5),
if(Brand2.Brand = 6 or Brand3.Brand = 6, Brand1.Brand <> 6),
if(Brand2.Brand = 7 or Brand3.Brand = 7, Brand1.Brand <> 7),
if(Brand2.Brand = 8 or Brand3.Brand = 8, Brand1.Brand <> 8),
if(Brand2.Brand = 9 or Brand3.Brand = 9, Brand1.Brand <> 9),
if(Brand2.Brand = 10 or Brand3.Brand = 10, Brand1.Brand <> 10),
if(Brand2.Brand = 11 or Brand3.Brand = 11, Brand1.Brand <> 11),
if(Brand2.Brand = 12 or Brand3.Brand = 12, Brand1.Brand <> 12)
if(Brand1.Brand = 1, Brand1.Wild = 0),
if(Brand1.Brand = 11, Brand1.Salt = [2,3]),
if(Brand2.Brand = 1, Brand2.Wild = 0),
if(Brand2.Brand = 11, Brand2.Salt = [2,3])
;model:
U(Brand1) = cons[4.0] +
      Brand.dummy[0.6|0.6|0.6|0.6|0.6|0.6|0.9|0.9|0.9|0.9|0.9] *
            Brand[1,2,3,4,5,6,7,8,9,10,11,12]
            + Size.dummy[0.4|0.4] * Size[1,2,3]
            + Salt.dummy[0.4|0.4] * Salt[1,2,3]
            + Wild.dummy[0.4] * Wild[0,1]
            + Price[-0.4] * Price[8,10,12,14,16,18]
/
U(Brand2) = cons + Brand * Brand
          + Size * Size + Salt * Salt
          + Wild * Wild
          + Price * Price
/
U(Brand3) = cons + Brand * Brand
          + Size * Size + Salt * Salt
          + Wild * Wild
          + Price * Price
$
```

Design

MNL efficiency measures																	
D error	0.791264																
A error	1.644224																
B estimate	32.20522																
S estimate	16.59581																
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	brand(d5)	brand(d6)	brand(d7)	brand(d8)	brand(d9)	brand(d10	size(d0)	size(d1)	salt(d0)	salt(d1)	wild(d0)	price
Fixed prio	0.6	0.6	0.6	0.6	0.6	0.6	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4	-0.4
Sp estima	16.59091	16.59581	16.4657	16.58797	16.54595	16.52668	14.14248	13.70314	16.12584	15.46059	14.63649	14.72079	15.5018	16.5179	14.48161	10.7975	0.67697
Sp t-ratios	0.481195	0.481124	0.483021	0.481238	0.481848	0.482129	0.521187	0.529476	0.488084	0.498475	0.512316	0.510847	0.497812	0.482257	0.515048	0.596478	2.382163
Design																	
Choice sit	brand1.br	brand1.siz	brand1.sa	brand1.wi	brand1.pr	brand2.br	brand2.siz	brand2.sa	brand2.wi	brand2.pr	brand3.br	brand3.siz	brand3.sa	brand3.wi	brand3.pr	Block	
1	5	3	1	1	10	9	2	3	0	16	11	1	3	0	12	1	
2	6	1	3	0	10	8	3	2	0	16	1	2	1	0	12	1	
3	5	2	1	0	12	2	1	3	1	8	6	3	3	1	8	4	
4	12	1	3	1	8	6	3	2	0	10	7	3	2	1	18	4	
5	8	1	2	0	12	10	1	3	0	16	7	3	1	0	16	2	
6	7	3	2	1	10	6	3	1	1	10	5	2	3	0	10	3	
7	2	3	1	1	16	5	3	1	0	18	4	2	2	1	14	2	
8	3	1	1	0	14	7	1	1	0	16	10	2	3	1	18	3	
9	11	2	3	0	16	1	2	3	0	8	3	2	1	0	10	1	
10	4	2	2	1	14	12	1	2	1	12	10	3	3	1	18	1	
11	9	2	3	0	18	3	2	3	1	14	2	2	1	1	14	3	
12	1	2	3	0	14	10	2	2	1	14	9	1	3	0	12	4	
13	4	1	1	1	12	1	1	3	0	14	9	2	3	0	16	3	
14	2	1	2	0	10	8	3	2	1	18	12	3	3	0	8	2	
15	9	1	3	0	18	5	3	3	1	8	12	1	2	0	10	1	
16	10	2	2	1	18	4	3	2	0	12	6	2	2	1	12	2	
17	11	3	2	0	16	3	2	3	0	10	8	2	2	0	16	4	
18	1	1	1	0	14	4	2	1	1	12	2	3	3	0	14	1	
19	10	3	3	0	8	11	2	2	1	10	8	3	3	0	18	2	
20	8	2	3	0	8	7	3	1	0	14	11	3	2	0	14	4	
21	6	3	2	1	12	2	2	1	0	12	5	1	3	1	8	2	
22	3	2	1	1	16	11	2	3	1	18	4	1	1	0	16	4	
23	7	1	2	0	18	12	3	3	0	8	1	3	2	0	10	3	
24	12	1	2	1	8	9	1	3	0	18	3	1	1	1	8	3	

Non-Generic, Low-Information Design

```
Design
;alts = Brand1, Brand2, Brand3, None
;rows = 24
; block = 4
;eff = (mnl,s)
;cond:
if(Brand1.Brand = 1 or Brand2.Brand = 1, Brand3.Brand <> 1),
if(Brand1.Brand = 2 or Brand2.Brand = 2, Brand3.Brand <> 2),
if(Brand1.Brand = 3 or Brand2.Brand = 3, Brand3.Brand <> 3),
if(Brand1.Brand = 4 or Brand2.Brand = 4, Brand3.Brand <> 4),
if(Brand1.Brand = 5 or Brand2.Brand = 5, Brand3.Brand <> 5),
if(Brand1.Brand = 6 or Brand2.Brand = 6, Brand3.Brand <> 6),
if(Brand1.Brand = 7 or Brand2.Brand = 7, Brand3.Brand <> 7),
if(Brand1.Brand = 8 or Brand2.Brand = 8, Brand3.Brand <> 8),
if(Brand1.Brand = 9 or Brand2.Brand = 9, Brand3.Brand <> 9),
if(Brand1.Brand = 10 or Brand2.Brand = 10, Brand3.Brand <> 10),
if(Brand1.Brand = 11 or Brand2.Brand = 11, Brand3.Brand <> 11),
if(Brand1.Brand = 12 or Brand2.Brand = 12, Brand3.Brand <> 12),
if(Brand1.Brand = 1 or Brand3.Brand = 1, Brand2.Brand <> 1),
if(Brand1.Brand = 2 or Brand3.Brand = 2, Brand2.Brand <> 2),
if(Brand1.Brand = 3 or Brand3.Brand = 3, Brand2.Brand <> 3),
if(Brand1.Brand = 4 or Brand3.Brand = 4, Brand2.Brand <> 4),
if(Brand1.Brand = 5 or Brand3.Brand = 5, Brand2.Brand <> 5),
if(Brand1.Brand = 6 or Brand3.Brand = 6, Brand2.Brand <> 6),
```

```
if(Brand1.Brand = 7 or Brand3.Brand = 7, Brand2.Brand <> 7),
if(Brand1.Brand = 8 or Brand3.Brand = 8, Brand2.Brand <> 8),
if(Brand1.Brand = 9 or Brand3.Brand = 9, Brand2.Brand <> 9),
if(Brand1.Brand = 10 or Brand3.Brand = 10, Brand2.Brand <> 10),
if(Brand1.Brand = 11 or Brand3.Brand = 11, Brand2.Brand <> 11),
if(Brand1.Brand = 12 or Brand3.Brand = 12, Brand2.Brand <> 12),
if(Brand2.Brand = 1 or Brand3.Brand = 1, Brand1.Brand <> 1),
if(Brand2.Brand = 2 or Brand3.Brand = 2, Brand1.Brand <> 2),
if(Brand2.Brand = 3 or Brand3.Brand = 3, Brand1.Brand <> 3),
if(Brand2.Brand = 4 or Brand3.Brand = 4, Brand1.Brand <> 4),
if(Brand2.Brand = 5 or Brand3.Brand = 5, Brand1.Brand <> 5),
if(Brand2.Brand = 6 or Brand3.Brand = 6, Brand1.Brand <> 6),
if(Brand2.Brand = 7 or Brand3.Brand = 7, Brand1.Brand <> 7),
if(Brand2.Brand = 8 or Brand3.Brand = 8, Brand1.Brand <> 8),
if(Brand2.Brand = 9 or Brand3.Brand = 9, Brand1.Brand <> 9),
if(Brand2.Brand = 10 or Brand3.Brand = 10, Brand1.Brand <> 10),
if(Brand2.Brand = 11 or Brand3.Brand = 11, Brand1.Brand <> 11),
if(Brand2.Brand = 12 or Brand3.Brand = 12, Brand1.Brand <> 12)
;model:
U(Brand1) = cons[4.0] +
            Brand.dummy[0.6|0.6|0.6|0.6|0.6|0.6|0.9|0.9|0.9|0.9|0.9] *
            Brand[1,2,3,4,5,6,7,8,9,10,11,12]
          + Price[-0.4] * Price[8,10,12,14,16,18]
/
U(Brand2) = cons + Brand * Brand
          + Price * Price
/
U(Brand3) = cons + Brand * Brand
          + Price * Price
$
```

Design

MNL efficiency measures												
D error	1.145067											
A error	1.918353											
B estimate	29.13928											
S estimate	14.62821											
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	brand(d5)	brand(d6)	brand(d7)	brand(d8)	brand(d9)	brand(d10	price
Fixed prio	0.6	0.6	0.6	0.6	0.6	0.6	0.9	0.9	0.9	0.9	0.9	-0.4
Sp estima	14.54213	14.36824	14.3534	14.62069	14.62821	14.62204	14.0544	14.10417	13.78763	14.33326	14.06673	0.535264
Sp t-ratios	0.513975	0.517076	0.517343	0.512592	0.512461	0.512569	0.522817	0.521894	0.527851	0.517707	0.522588	2.678997
Design												
Choice sit	brand1.br	brand1.pr	brand2.br	brand2.pr	brand3.br	brand3.pr	Block					
1	2	18	12	10	3	10	2					
2	9	16	6	14	12	12	1					
3	1	12	12	10	3	18	4					
4	10	16	5	10	7	16	3					
5	3	10	4	16	2	14	3					
6	8	18	2	14	12	14	3					
7	2	8	8	18	12	8	4					
8	10	16	2	12	11	18	3					
9	3	14	9	16	1	14	1					
10	5	12	6	10	3	12	3					
11	4	16	2	18	12	10	2					
12	5	12	11	16	9	12	2					
13	8	10	7	18	12	10	2					
14	4	12	1	12	7	16	4					
15	11	18	12	8	5	8	4					
16	12	8	5	14	4	8	1					
17	1	14	4	14	3	18	1					
18	7	18	11	12	12	10	2					
19	7	8	2	8	6	8	2					
20	1	14	12	12	8	18	1					
21	6	10	11	16	5	14	4					
22	4	8	6	8	10	16	1					
23	3	10	10	8	7	16	3					
24	1	14	3	18	12	12	4					

Generic, High-Information Design

```
Design
;alts = Brand1, Brand2, Gen, None
;rows = 24
; block = 4
;eff = (mnl,s)
;cond:
if(Brand1.Price = 8, Gen.Genprice < 8),
if(Brand1.Price = 10, Gen.Genprice < 10),
if(Brand2.Price = 8, Gen.Genprice < 8),
if(Brand2.Price = 10, Gen.Genprice < 10),
if(Gen.Genprice = 7, Brand1.Price > 7),
if(Gen.Genprice = 7, Brand2.Price > 7),
if(Gen.Genprice = 9, Brand1.Price > 9),
if(Gen.Genprice = 9, Brand2.Price > 9),
```

```
if(Gen.Genprice = 11, Brand1.Price > 11),
if(Gen.Genprice = 11, Brand2.Price > 11),
if(Brand1.Brand = 1, Brand1.Wild = 0),
if(Brand1.Brand = 11, Brand1.Salt = [2,3]),
if(Brand2.Brand = 1, Brand2.Wild = 0),
if(Brand2.Brand = 11, Brand2.Salt = [2,3])
;model:
U(Brand1) = c1[4.0] + Brand.dummy[0.6|0.6|0.6|0.6|0.6|0.6|0.9] *
Brand[1,2,3,4,5,7,8,11]
+ Size.dummy[0.4|0.4] * Size[1,2,3] + Salt.dummy[0.4|0.4] * Salt[1,2,3]
+ Wild.dummy[0.4] * Wild[0,1]
+ Price[-0.4] * Price[8,10,12,14,16,18]
/
U(Brand2) = c1 + Brand * Brand
+ Size * Size + Salt * Salt
+ Wild * Wild
+ Price * Price
/
U(Gen) = c2[2.0] + Price * Genprice[7,9,11]
$
```

Design

MNL efficiency measures													
D error	0.682987												
A error	1.270432												
B estimate	32.42202												
S estimate	17.34744												
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	brand(d5)	brand(d6)	size(d0)	size(d1)	salt(d0)	salt(d1)	wild(d0)	price
Fixed prio	0.6	0.6	0.6	0.6	0.6	0.6	0.9	0.4	0.4	0.4	0.4	0.4	-0.4
Sp estima	17.27464	17.3407	16.85616	17.34744	17.32354	16.83191	16.12927	16.85299	16.83446	17.23334	16.15715	15.31306	0.802094
Sp t-ratios	0.471576	0.470677	0.477394	0.470585	0.47091	0.477738	0.488032	0.477439	0.477701	0.472141	0.487611	0.50087	2.188484
Design													
Choice sit	brand1.br	brand1.siz	brand1.sa	brand1.wi	brand1.pr	brand2.br	brand2.siz	brand2.sa	brand2.wi	brand2.pr	gen.genpr	Block	
1	1	3	1	0	14	7	2	2	0	18	11	3	
2	1	3	3	0	12	3	1	1	0	12	7	1	
3	11	2	3	1	12	3	3	3	0	14	9	1	
4	8	2	3	0	16	7	3	1	1	10	9	1	
5	4	1	1	1	18	11	2	2	1	12	7	4	
6	11	1	3	0	12	8	1	3	1	16	11	3	
7	5	2	2	0	18	4	2	3	1	12	9	3	
8	2	1	3	0	16	7	2	1	0	18	11	3	
9	7	3	1	0	16	8	2	2	1	18	9	1	
10	3	3	2	1	8	5	1	1	0	12	7	4	
11	4	1	2	0	10	1	2	1	0	14	7	2	
12	3	2	1	1	8	4	3	3	0	10	7	1	
13	2	2	3	1	8	8	2	2	0	16	7	2	
14	5	1	3	1	12	1	1	2	0	14	7	2	
15	7	1	2	0	10	11	1	2	0	10	9	3	
16	8	3	3	1	18	3	3	1	1	16	11	4	
17	3	2	3	0	14	2	3	1	1	12	7	2	
18	7	3	3	0	10	4	3	1	1	10	7	4	
19	1	1	2	0	16	2	3	3	1	8	7	3	
20	5	2	2	1	10	11	1	3	1	8	7	1	
21	11	3	2	0	8	1	1	3	0	8	7	4	
22	8	3	1	1	16	2	2	2	0	14	9	2	
23	4	2	1	0	14	5	1	2	1	16	9	2	
24	2	1	2	1	14	5	3	2	0	14	7	4	

Generic, Low-Information Design

Syntax

```
Design
;alts = Brand1, Brand2, Gen, None
;rows = 24
; block = 4
;eff = (mnl,s)
;cond:
if(Brand1.Price = 8, Gen.Genprice < 8),
if(Brand1.Price = 10, Gen.Genprice < 10),
if(Brand2.Price = 8, Gen.Genprice < 8),
if(Brand2.Price = 10, Gen.Genprice < 10),
if(Gen.Genprice = 7, Brand1.Price > 7),
if(Gen.Genprice = 7, Brand2.Price > 7),
if(Gen.Genprice = 9, Brand1.Price > 9),
if(Gen.Genprice = 9, Brand2.Price > 9),
```

```
if(Gen.Genprice = 11, Brand1.Price > 11),
if(Gen.Genprice = 11, Brand2.Price > 11)
;model:
U(Brand1) = c1[4.0] + Brand.dummy[0.6|0.6|0.6|0.6|0.6|0.6|0.9] *
Brand[1,2,3,4,5,6,7,11]
+ Price[-0.4] * Price[8,10,12,14,16,18]
/
U(Brand2) = c1 + Brand * Brand
+ Price * Price
/
U(Gen) = c2[2.0] + Price * Genprice[7,9,11]
$
```

Design

MNL efficiency measures								
D error	0.865557							
A error	1.711921							
B estimate	29.14844							
S estimate	19.03509							
Prior	brand(d0)	brand(d1)	brand(d2)	brand(d3)	brand(d4)	brand(d5)	brand(d6)	price
Fixed prio	0.6	0.6	0.6	0.6	0.6	0.6	0.9	-0.4
Sp estima	19.03509	18.91454	18.94876	19.03102	18.98253	18.99705	14.20849	0.600141
Sp t-ratios	0.44924	0.450669	0.450262	0.449288	0.449862	0.44969	0.519975	2.530053
Design								
Choice sit	brand1.br	brand1.pr	brand2.br	brand2.pr	gen.genpr	Block		
1	5	8	2	18	7	1		
2	3	14	2	12	9	1		
3	3	16	11	12	11	4		
4	4	10	6	14	9	1		
5	1	18	7	18	7	4		
6	2	14	5	16	7	3		
7	7	18	3	10	7	2		
8	11	8	7	10	7	1		
9	6	12	1	12	9	3		
10	2	12	7	18	11	1		
11	5	16	4	12	9	4		
12	1	18	5	12	11	2		
13	7	14	6	8	7	2		
14	1	16	4	14	9	2		
15	6	12	11	10	9	2		
16	4	12	5	16	11	3		
17	11	10	3	16	7	4		
18	11	8	1	8	7	4		
19	4	14	6	14	9	3		
20	5	10	11	8	7	3		
21	3	10	1	10	9	4		
22	6	16	2	12	7	2		
23	2	8	4	16	7	3		
24	7	18	3	8	7	1		

Econometric Model Syntax

Stata Syntax

Point Clear, AL Panel

Blind Rounds

asclogit vote price sewans champ galveston apalach point if panel == 1 & label == 0, case(id2) alt(alts) or nocons

Labeled Rounds

asclogit vote price sewans james champ galveston apalach point if panel == 1 & label == 1, case(id2) alt(alts) or nocons

Houston, TX Panel

Blind Rounds

. asclogit vote price onset conway champ galveston apalach point if panel == 2 & label == 0, case(id2) alt(alts) or nocons

Labeled Rounds

. asclogit vote price onset champ galveston apalach point if panel == 2 & label == 1, case(id2) alt(alts) or nocons

Chicago, IL Panel

Blind Rounds

. asclogit vote price shigoku wiley grassy apalach point if panel == 3 & label == 0, case(id2) alt(alts) or nocons

Labeled Rounds

asclogit vote price shigoku wiley grassy apalach point if panel == 3 & label == 1, case(id2) alt(alts) or nocons

Online Survey Econometric Models

NLOGIT Syntax

```
Group A: Atlanta Charleston
SAMPLE; All $
create ; If (Market_A = 16700)GroupA = 1 $
create ; If (Market_A = 12060)GroupA = 1 $

?Group B: Houston, Baton Rouge, Mobile, New Orleans
SAMPLE; All $
create ; If (Market_A = 26420)GroupB = 1 $
create ; If (Market_A = 12940)GroupB = 1 $
create ; If (Market_A = 33660)GroupB = 1 $
create ; If (Market_A = 35380)GroupB = 1 $

?Group C: Miami, Tampa, Jacksonville, Tallahasse
SAMPLE; All $
create ; If (Market_A = 45300)GroupC = 1 $
create ; If (Market_A = 33100)GroupC = 1 $
create ; If (Market_A = 45220)GroupC = 1 $
create ; If (Market_A = 27260)GroupC = 1 $

?Group AC: Atlanta, Charleston, Miami, Tampa, Jacksonville, Tallahasse
SAMPLE; All $
create ; If (Market_A = 16700)GrpAC = 1 $
create ; If (Market_A = 12060)GrpAC = 1 $
create ; If (Market_A = 45300)GrpAC = 1 $
create ; If (Market_A = 33100)GrpAC = 1 $
create ; If (Market_A = 45220)GrpAC = 1 $
create ; If (Market_A = 27260)GrpAC = 1 $

create ; If (ALTS_ORI = 3) Gen = 1 $
create ; If (ALTS_ORI = 6) Gen = 1 $

create; Pt_Oil = Point * oil_text $
create; Cham_Oil = Champagn * oil_text $
create; Apal_Oil = Apalach * oil_text $
create; Lone_Oil = Lonesome * oil_text $
create; St_L_Oil = baystl * oil_text $
create; Port_Oil = Porter * oil_text $
create; Gen_oil = Gen * oil_text$

create; Pt_Vib = Point * vibrio_t $
create; Cham_Vib = Champagn * vibrio_t $
create; Apal_Vib = Apalach * vibrio_t $
create; Lone_Vib = Lonesome * vibrio_t $
create; St_L_Vib = baystl * vibrio_t $
create; Port_Vib = Porter * vibrio_t $
create; Gen_Vib = Gen * vibrio_t $

?Generic /// Gulf

?Group AC: Atlanta, Charleston, Miami, Tampa, Jacksonville, Tallahasse

?MODEL   1  :  high_INFO
SAMPLE; All $
REJECT; generic_ = 0 $
```

```
REJECT; Market = 2 $
reject; high_inf = 0 $
REJECT; Grp AC = 0 $
nlogit; lhs = vote, nij, alts
     ; choices = d,e,f
     ; rhs = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl, Cape,
Chesapea, Hood, Pt_Oil, Cham_Oil, Apal_Oil, St_L_Oil
     ; ru2
     ; Effects: price[*] /small[*] /medium [*]/ mild [*] /salty [*]
     ; Effects: wild [*] / point[*]/ champagn[*] /apalach[*] /lonesome[*]
     ; Effects: baystl[*] /Cape[*] /Chesapea[*] /Hood[*] /Pt_Oil[*]
     ; Effects: Cham_Oil[*]/ Apal_Oil[*] /St_L_Oil[*]
   $

CALC   ;list
      ;WTPsmall  = -b(2)/b(1)
      ;WTPmed    = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
      ;WTPapal   = -b(9)/b(1)
      ;WTPlone   = -b(10)/b(1)
      ;WTPbay    = -b(11)/b(1)
      ;WTPcape   = -b(12)/b(1)
      ;WTPches   = -b(13)/b(1)
      ;WTPhood   = -b(14)/b(1)
      ;WTPpt_o   = -b(15)/b(1)
      ;WTPch_o   = -b(16)/b(1)
      ;WTPap_o   = -b(17)/b(1)
      ;WTPbay_o  = -b(18)/b(1)
   $

DSTAT; RHS = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
Cape, Chesapea, Hood, Pt_Oil, Cham_Oil, Apal_Oil, St_L_Oil$

? MODEL   2  LOW_INFO

SAMPLE; All $
REJECT; generic_ = 0 $
REJECT; Market = 2 $
reject; high_inf = 1 $
REJECT; Grp AC = 0 $
nlogit; lhs = vote, nij, alts
     ; choices = a,b,c
     ; rhs = price, point, champagn, apalach, lonesome, baystl, porter, Chesapea, Hood, Pt_Oil, Cham_Oil,
Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil
     ; ru2
     ; Effects: price[*]/ point[*]/ champagn[*]/ apalach[*]
     ; Effects: lonesome[*]/ baystl[*]/ porter[*]/ Chesapea[*]
     ; Effects: Hood[*]/ Pt_Oil[*]/ Cham_Oil[*]
     ; Effects: Apal_Oil[*]/ Lone_Oil[*]/ St_L_Oil[*]/ Port_Oil[*]
     $
CALC   ;list
      ;WTPpnt    = -b(2)/b(1)
```

```
      ;WTPcham   = -b(3)/b(1)
      ;WTPapal   = -b(4)/b(1)
      ;WTPlone   = -b(5)/b(1)
      ;WTPbay    = -b(6)/b(1)
      ;WTPport   = -b(7)/b(1)
      ;WTPches   = -b(8)/b(1)
      ;WTPhood   = -b(9)/b(1)
      ;WTPpt_o   = -b(10)/b(1)
      ;WTPch_o   = -b(11)/b(1)
      ;WTPap_o   = -b(12)/b(1)
      ;WTPlon_o  = -b(13)/B(1)
      ;WTPbay_o  = -b(14)/b(1)
      ;WTPpor_o  = -b(15)/b(1)
   $
DSTAT; RHS = price, point, champagn, apalach, lonesome, baystl, porter, Chesapea, Hood, Pt_Oil,
Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil$

?Group B: Houston, Baton Rouge, Mobile, New Orleans

?MODEL  3

SAMPLE; All $
REJECT; generic_ = 0 $
REJECT; Market = 2 $
REJECT; GroupB = 0 $
nlogit; lhs = vote, nij, nestalts
   ; choices = a,b,c,d,e,f
   ?; tree = low (a,b,c), high (d,e,f)
   ?; Ivset: (low)=[1.0]
   ; rhs = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl, porter,
Cape, Chesapea, Hood, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil
   ; ru2
   ; Effects: price[*] /small[*] /medium[*] /mild[*]
   ; Effects: salty[*] /wild[*] /point[*] /champagn[*]
   ; Effects: apalach[*]/ lonesome[*] /baystl[*] /porter[*]
   ; Effects: Cape[*]/ Chesapea[*]/ Hood[*] /Pt_Oil[*] /Cham_Oil[*]
   ; Effects: Apal_Oil[*]/ Lone_Oil[*]/ St_L_Oil[*]/ Port_Oil[*]
   $

CALC   ;list
      ;WTPsmall  = -b(2)/b(1)
      ;WTPmed    = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
      ;WTPapal   = -b(9)/b(1)
      ;WTPlone   = -b(10)/b(1)
      ;WTPbay    = -b(11)/b(1)
      ;WTPport   = -b(12)/b(1)
      ;WTPcape   = -b(13)/b(1)
      ;WTPches   = -b(14)/b(1)
      ;WTPhood   = -b(15)/b(1)
      ;WTPpt_o   = -b(16)/b(1)
      ;WTPch_o   = -b(17)/b(1)
```

```
      ;WTPap_o   = -b(18)/b(1)
      ;WTPLo_o   = -b(19)/b(1)
      ;WTPbay_o  = -b(20)/b(1)
      ;WTPpor_o  = -b(21)/b(1)
   $

DSTAT; RHS = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
porter, Cape, Chesapea, Hood, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil$

?Non-generic //gulf

?Group AC: Atlanta, Charleston, Miami, Tampa, Jacksonville, Tallahasse

?MODEL 4   :high info

SAMPLE; All $
REJECT; generic_ = 1 $
REJECT; Market = 2 $
reject; high_inf = 0 $
REJECT; GrpAC = 0 $
nlogit; lhs = vote, nij, alts
   ; choices = d,e,f
   ?; tree = low(a,b,c),high(d,e,f)
   ?; Ivset: (low)=[1.0]
    ; rhs = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl, porter,
Pt_Oil, Cham_Oil, Lone_Oil
    ; ru2
    ; Effects: price[*] /small[*] /medium[*] /mild[*]
    ; Effects: salty[*] /wild[*] /point[*] /champagn[*]
    ; Effects: apalach[*]/ lonesome[*] /baystl[*] /porter[*]
    ; Effects: Pt_Oil[*] /Cham_Oil[*] /Lone_Oil[*]
   $

CALC   ;list
      ;WTPsmall  = -b(2)/b(1)
      ;WTPmed    = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
      ;WTPapal   = -b(9)/b(1)
      ;WTPlone   = -b(10)/b(1)
      ;WTPbay    = -b(11)/b(1)
      ;WTPport   = -b(12)/b(1)
      ;WTPpt_o   = -b(13)/b(1)
      ;WTPch_o   = -b(14)/b(1)
      ;WTPLo_o   = -b(15)/b(1)
   $

DSTAT; RHS = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
porter, Pt_Oil, Cham_Oil, Lone_Oil$


?MODEL 5  : low  INFO
```

```
SAMPLE; All $
REJECT; generic_ = 1 $
REJECT; Market = 2 $
reject; high_inf = 1 $
REJECT; GrpAC = 0 $
nlogit; lhs = vote, nij, alts
   ; choices = a,b,c
   ?; tree = low(a,b,c),high(d,e,f)
   ?; Ivset: (low)=[1.0]
    ; rhs = price, point, champagn, apalach, lonesome, baystl, porter, Pt_Oil, Cham_Oil, Lone_Oil
    ; ru2
    ;Effects: price[*]/ point[*]/ champagn[*]/ apalach[*]/ lonesome[*]/ baystl[*] /porter[*]/ Pt_Oil[*]/
Cham_Oil[*] /Lone_Oil [*]
   $

CALC   ;list
      ;WTPpnt    = -b(2)/b(1)
      ;WTPcham   = -b(3)/b(1)
      ;WTPapal   = -b(4)/b(1)
      ;WTPlone   = -b(5)/b(1)
      ;WTPbay    = -b(6)/b(1)
      ;WTPport   = -b(7)/b(1)
      ;WTPpt_o   = -b(8)/b(1)
      ;WTPch_o   = -b(9)/b(1)
      ;WTPLo_o   = -b(10)/b(1)
   $

DSTAT; RHS = price, point, champagn, apalach, lonesome, baystl, porter, Pt_Oil, Cham_Oil, Lone_Oil$

?Group B: Houston, Baton Rouge, Mobile, New Orleans

?model  6

SAMPLE; All $
REJECT; generic_ = 1 $
REJECT; Market = 2 $
REJECT; GroupB = 0 $
nlogit; lhs = vote, nij, nestalts
   ; choices = a,b,c,d,e,f
   ; tree = low(a,b,c),high(d,e,f)
   ; Ivset: (low)=[1.0]
   ; rhs = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl, porter,
Pt_Oil, Apal_Oil
   ; ru2
   ;Effects: price[*]/ small[*]/ medium[*]/  mild[*]/ salty[*]/ wild[*]
   ;Effects: point[*]/ champagn[*]/ apalach[*]/ lonesome[*]/ baystl[*] /porter[*]/ Pt_Oil[*]/ Apal_Oil[*]
   $

CALC   ;list
      ;WTPsmall  = -b(2)/b(1)
      ;WTPmed    = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
```

```
    ;WTPapal   = -b(9)/b(1)
    ;WTPlone   = -b(10)/b(1)
    ;WTPbay    = -b(11)/b(1)
    ;WTPport   = -b(11)/b(1)
    ;WTPpt_o   = -b(15)/b(1)
    ;WTPap_o   = -b(16)/b(1)
  $

DSTAT; RHS = price, small, medium, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
porter, Pt_Oil, Apal_Oil$

?NON-Generic  ///  Non-Gulf

?Group E:Baltimore, Boston, New York, Portland and Washington

SAMPLE; All $
create ; If (Market_A = 12580)GroupE = 1 $
create ; If (Market_A = 14460)GroupE = 1 $
create ; If (Market_A = 35620)GroupE = 1 $
create ; If (Market_A = 47900)GroupE = 1 $
create ; If (Market_A = 38860)GroupE = 1 $

?Group F: San Francisco, Seattle Las, Vegas

SAMPLE; All $
create ; If (Market_A = 41860)GroupF = 1 $
create ; If (Market_A = 42660)GroupF = 1 $
create ; If (Market_A = 29820)GroupF = 1 $

?Group G: Chicago, St Louis

SAMPLE; All $
create ; If (Market_A = 16980)GroupG = 1 $
create ; If (Market_A = 41180)GroupG = 1 $

?Group EG: Baltimore, Boston, New York, Washington,Chicago, St Louis, Portland

SAMPLE; All $
create ; If (Market_A = 12580)GroupEG = 1 $
create ; If (Market_A = 14460)GroupEG = 1 $
create ; If (Market_A = 35620)GroupEG = 1 $
create ; If (Market_A = 47900)GroupEG = 1 $
create ; If (Market_A = 16980)GroupEG = 1 $
create ; If (Market_A = 41180)GroupEG = 1 $
create ; If (Market_A = 38860)GroupEG = 1 $

?Group EG: Baltimore, Boston, New York, Washington,Chicago, St Louis, Portland

?MODEL 7

SAMPLE; All $
REJECT; generic_ = 1 $
REJECT; Market = 1 $
REJECT; GroupEG = 0 $
nlogit; lhs = vote, nij, nestalts
   ; choices = a,b,c,d,e,f
```

```
   ; tree = low(a,b,c),high(d,e,f)
   ; Ivset: (low)=[1.0]
   ; rhs =  price, medium, large, mild, salty, wild, point, champagn, apalach, lonesome, baystl, porter,
Netarts, Hood, Willapa, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil
   ; ru2
   ; Effects:price [*]/ medium[*] /large[*] /mild [*] /salty[*] /wild[*] /point[*] /champagn[*] /apalach[*]
   ; Effects:lonesome[*]/ baystl[*]/ porter[*]/ Netarts[*]/ Hood [*]/ Willapa[*] /Pt_Oil[*] /Cham_Oil[*]/
Apal_Oil[*] /Lone_Oil[*]/ St_L_Oil[*]/ Port_Oil[*]
   $

CALC   ;list
      ;WTPmed    = -b(2)/b(1)
      ;WTPlarge  = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
      ;WTPapal   = -b(9)/b(1)
      ;WTPlone   = -b(10)/b(1)
      ;WTPbay    = -b(11)/b(1)
      ;WTPport   = -b(12)/b(1)
      ;WTPNet    = -b(13)/b(1)
      ;WTPhood   = -b(14)/b(1)
      ;WTPWill   = -b(15)/b(1)
      ;WTPpt_o   = -b(16)/b(1)
      ;WTPch_o   = -b(17)/b(1)
      ;WTPap_o   = -b(18)/b(1)
      ;WTPLo_o   = -b(19)/b(1)
      ;WTPbay_o  = -b(20)/b(1)
      ;WTPpor_o  = -b(21)/b(1)
   $

DSTAT; RHS = price, medium, large, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
porter, Netarts, Hood, Willapa, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil$

?Group F: San Francisco, Seattle Las, Vegas

?MODEL 8

SAMPLE; All $
REJECT; generic_ = 1 $
REJECT; Market = 1 $
REJECT; GroupF = 0 $
nlogit; lhs = vote, nij, nestalts
   ; choices = a,b,c,d,e,f
   ?; tree = low(a,b,c),high(d,e,f)
   ?; Ivset: (low)=[1.0]
   ; rhs =  price, medium, large, mild, salty, wild, point, champagn, apalach, lonesome, baystl, porter,
Chesapea, cape, Moon, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil
   ; ru2
   ;Effects: price[*]/ medium[*]/ large[*]/ mild[*]/ salty[*]/ wild[*]
   :Effects: point[*]/ champagn[*]/ apalach[*] lonesome[*]/ baystl[*] /porter[*]
   ;Effects: Chesapea[*]/ cape[*] /Moon[*] /Pt_Oil[*]/ Cham_Oil[*]
   ;Effects: Apal_Oil[*]/ Lone_Oil[*]/ St_L_Oil[*]/ Port_Oil[*]
   $
```

```
CALC   ;list
      ;WTPmed    = -b(2)/b(1)
      ;WTPlarge  = -b(3)/b(1)
      ;WTPmild   = -b(4)/b(1)
      ;WTPsalty  = -b(5)/b(1)
      ;WTPwild   = -b(6)/b(1)
      ;WTPpnt    = -b(7)/b(1)
      ;WTPcham   = -b(8)/b(1)
      ;WTPapal   = -b(9)/b(1)
      ;WTPlone   = -b(10)/b(1)
      ;WTPbay    = -b(11)/b(1)
      ;WTPport   = -b(12)/b(1)
      ;WTPChes   = -b(13)/b(1)
      ;WTPcape   = -b(14)/b(1)
      ;WTPmoon   = -b(15)/b(1)
      ;WTPpt_o   = -b(16)/b(1)
      ;WTPch_o   = -b(17)/b(1)
      ;WTPap_o   = -b(18)/b(1)
      ;WTPLo_o   = -b(19)/b(1)
      ;WTPbay_o  = -b(20)/b(1)
      ;WTPpor_o  = -b(21)/b(1)
   $

DSTAT; RHS = price, medium, large, mild, salty, wild, point, champagn, apalach, lonesome, baystl,
porter, Chesapea, cape, Moon, Pt_Oil, Cham_Oil, Apal_Oil, Lone_Oil, St_L_Oil, Port_Oil$
```

APPENDIX B: CONSUMER TASTE PANEL AND ONLINE HOUSEHOLD SURVEY INSTRUMENTS

Text of Consumer Taste Panel Questionnaire

1. How often do you eat **raw** oysters on the half shell?

    Weekly
    Monthly
    Seasonally (cold-weather months only)
    Rarely / Special Occasions only

2. Where do you usually purchase your oysters? *Circle all that apply.*

Restaurant	**Seafood Market**	**Grocery Store**
Distributor	**Self-Harvest**	**Other: ___________**

3. How many oysters do you usually eat in **one meal** when you eat **raw** oysters?

    Less than ½ a dozen
    ½ a dozen
    1 dozen
    2 dozen
    More than 2 dozen

4. Are you Male or Female?

    Male   Female

5. What is your age? _________

Please indicate how strongly you AGREE or DISAGREE with the following statements.

6. Knowing where the oysters were harvested from or if they are a particular brand is very important to me when buying oysters.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. Knowing whether the oysters were wild-caught or cultivated (farm-raised) is very important to me when buying oysters.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. Knowing whether the oysters were produced and harvested in a sustainable manner is very important to me when buying oysters.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. Knowing whether the oysters were post-harvest treated or not (to kill bacteria) is very important to me when buying oysters.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. Price is the most important factor for me when buying oysters.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Text of Online Survey Questionnaire

Main – Oyster Wave 2
November, 2013
- Questionnaire –

[SP; PROMPT, TERMINATE IF REFUSED]
S1. Do you eat raw oysters on the half-shell at least once per year?

Yes 1
No..2

[DISPLAY]
This study is being conducted for research at Mississippi State University.

It is funded by the Mississippi-Alabama Sea Grant Consortium.

Your participation is absolutely voluntary and you may quit at any time.

The survey will take approximately **[IF S1 = 1:**15**/IF S1 = 2:**5-10**]** minutes of your time to complete.

Your responses to this survey, or any individual question on the survey, are completely voluntary. You will not be individually identified and your responses will be used for statistical purposes only.

If you have questions about your rights as a participant in this survey, or are dissatisfied at any time with any aspect of the survey, you may contact GfK Custom Research at 800-782-6899.

[IF S1 = 2]
[MP]
QA1. What is the reason why you do not eat raw oysters on the half-shell?

1. I do not like the taste, texture, appearance, and/or smell of raw oysters.
2. I am concerned about food safety.

3. I have personal health issues that put me at high risk for eating raw oysters.
4. I do not eat raw oysters for religious reasons.
5. **[TEXT BOX]**Other, please specify:

[IF S1 = 2]
[SP]
QA2. Do you eat cooked oysters at least once per year?

Yes.. 1
No 2

[IF S1 = 2]
[SP]
QA3. Do you eat any other seafood at least once per year?

Yes.. 1
No 2

[PROGRAM NOTE: IF S1 = 2, SKIP TO Q7]

[DISPLAY]
This survey is about your preferences for raw oysters on the half-shell.

[SP]
Q1. How often do you eat raw oysters on the half-shell?

Weekly, year round 1
Monthly, year round 2
Weekly, during cold-weather months only..3
Monthly, during cold-weather months only.. 4
3-4 times per year………………………..5
1-2 times per year………………………..6

[SP]
Q2. How many oysters do you usually eat in **one meal** when you eat raw oysters on the half-shell?

Less than ½ a dozen.............................1
½ a dozen..2
1 dozen 3
2 dozen...4
More than 2 dozen................................5

[MP]
Q3. Where do you usually buy raw oysters (either unopened or on the half-shell)?

1. Restaurant
2. Seafood Market
3. Grocery Store
4. Distributor
5. Self-Harvest
6. **[TEXT BOX]**Other:

[IF INFO_GROUP = 1]
[DISPLAY]
In a few moments, we will ask you to consider different choices of raw oysters on the half-shell that you might see on a menu at a restaurant.

Oysters can be described in many ways and there is no perfect way to do it. This can include taste, looks, smells, where it was harvested, how it was harvested, who harvested it, or how it was produced.

In this survey, you obviously cannot taste the oyster or see it in person. So we ask you to treat it like a trip to a restaurant where all you may know about the oysters is what you see written on the menu.

[Display]

In this survey, we will give you FIVE pieces of information about each oyster to help you make your choices:

- **Name / Harvest location**
  - For example, *Moonstone* oysters from Point Judith Pond, Rhode Island. But not all oysters have a brand name. Some oysters are just sold by their harvest location, like Wellfleet, Massachusetts.
- **Size**
  - For example, a medium-sized oyster. Size is based on longest measurement across the shell. We'll use three sizes:
    - **small** (about 2 inches)
    - **medium** (about 3 inches)
    - **large** (about 4 inches)
  - To help you with this one, click here to see a photo of some small, medium, and large oysters side by side.
- **Taste**
  - This one is tricky. But we keep it simple, focusing on the saltiness of the oysters. We'll use three categories: **sweet** (very little salt flavor), **mildly salty**, and **salty**.
- **How it's produced**
  - Oysters can be produced in different ways. Here, we focus on two of the most common: wild-caught and cultivated (farm raised).
    - **Wild-caught** oysters are oysters grown in a natural sea-bottom reef and harvested directly from the reef.

- **Cultivated** oysters are usually grown in cages that are suspended off of the sea bottom, or floated at the water surface.

- **Price**
  - For each oyster we'll give you the price per half-dozen (6 oysters).

[IF INFO_GROUP = 2]
[DISPLAY]
In a few moments, we will ask you to consider different choices of raw oysters on the half-shell that you might see on a menu at a restaurant.

In this survey, you obviously cannot taste the oyster or see it in person. So we ask you to treat it like a trip to a restaurant where all you may know about the oysters is what you see written on the menu.

In this survey, we will give you TWO pieces of information about each oyster to help you make your choices:

- **Name / Harvest location**
  - For example, *Moonstone* oysters from Point Judith Pond, Rhode Island. But not all oysters have a brand name. Some oysters are just sold by their harvest location, like Wellfleet, Massachusetts.
- **Price**
  - For each oyster we'll give you the price per half-dozen (6 oysters).

[DISPLAY]
Starting on the next page, we will ask you to consider different choices of raw oysters on the half-shell that you might see on a menu at a restaurant.

For each set of choices, we'd like to know 2 things:

- Which oyster variety are you **most likely to buy** at the stated prices?

- Which oyster variety are you **least likely to buy** at the stated prices?

You can only choose <u>one</u> **most likely to buy** and <u>one</u> **least likely to buy**.

So even if you see two varieties of oysters that you'd be equally likely to buy, please try to make a choice, just like if you were in a restaurant you'd have to choose which to order and which not to order.

You will be asked to consider **SIX** different sets of oysters. Each set will show you THREE oysters at a time.

PLEASE TREAT EACH SET AS A DIFFERENT TRIP TO A RESTAURANT.

[IF INFO_GROUP = 1, INSERT FOLLOWING TEXT ON SAME PAGE]
Note that you may see the same oyster repeated at a different price or with a different level of one of the other characteristics. This is OK. Just like in real life, you may see the same oysters sell at a different price from one restaurant to another, or from one day to the next. Also, some oysters will taste different from one day to the next.

[IF INFO_GROUP = 2, INSERT FOLLOWING TEXT ON SAME PAGE]
Note that you may see the same oyster repeated at a different price. This is OK. Just like in real life, you may see the same oysters sell at a different price from one restaurant to another, or from one day to the next.

[IF INFO_GROUP = 1]
[GRID SP ACROSS; CHECK BOX]
[CHOICE SET – TO BE REPEATED 6 TIMES ACCORDING TO BLOCK ASSIGNMENTS]
[PROMPT IF EITHER COLUMN "MOST LIKELY" OR "LEAST LIKELY" IS REFUSED]
Q4. Imagine you are at a restaurant that is known to serve high-quality raw oysters on the half-shell in, say, November, and that the following selection of oysters is on the menu at the following prices.

Suppose they sold only as a half-dozen (6 oysters) and you could only order one variety of oyster at a time.

Based on the menu shown below, which oysters are you **most likely** to buy, and which oysters are you **least likely** to buy?

Raw Oysters on the Half-shell	*Price per half-dozen*	*MOST Likely to Buy*	*LEAST Likely to Buy*
[FOR THIS COLUMN, PLEASE INSERT DYNAMIC TEXT FOR NAME, PLACE, CULTIVATION, SIZE AND SALT ACCORDING TO BLOCK ASSIGNMENT]	**[FOR THIS COLUMN, PLEASE INSERT DYNAMIC TEXT FOR PRICE ACCORDING TO BLOCK ASSIGNMENT]**	1	2
[Name] [Cultivation] oysters, [size], [salt]	$[price]	1	2
[Name] [Cultivation] oysters, [size], [salt]	$[price]	1	2
[Name]	$[price]	1	2

[Cultivation] oysters, [size], [salt]			

[CHECKBOX] Check here ONLY if you are not likely to buy ANY of these oysters at these prices.

[IF INFO_GROUP = 2]
[GRID SP ACROSS, CHECK BOX]
[CHOICE SET – TO BE REPEATED 6 TIMES ACCORDING TO BLOCK ASSIGNMENTS]
[PROMPT IF EITHER COLUMN "MOST LIKELY" OR "LEAST LIKELY" IS REFUSED]
Q5.
Imagine you are at a restaurant that is known to serve high-quality raw oysters on the half-shell in, say, November, and that the following selection of oysters is on the menu at the following prices.

Suppose they sold only as a half-dozen (6 oysters) and you could only order one variety of oyster at a time.

Based on the menu shown below, which oysters are you **most likely** to buy, and which oysters are you **least likely** to buy?

Raw Oysters on the Half-shell	*Price per half-dozen*	*Most Likely to Buy*	*Least Likely to Buy*
[FOR THIS COLUMN, PLEASE INSERT DYNAMIC TEXT FOR NAME, PLACE, CULTIVATION, SIZE AND SALT ACCORDING TO BLOCK ASSIGNMENT]	**[FOR THIS COLUMN, PLEASE INSERT DYNAMIC TEXT FOR PRICE ACCORDING TO BLOCK ASSIGNMENT]**	1	2
[Name]	$[price]	1	2
[Name]	$[price]	1	2
[Name]	$[price]	1	2

[CHECK BOX] Check here ONLY if you are not likely to buy ANY of these oysters at these prices.

[GRID SP ACROSS]

Q6. We'd like to ask you some more questions about what's important to you when buying raw oysters.

Please rate how strongly you **AGREE** or **DISAGREE** with the following statements, where a 1 is Strongly Disagree and a 10 is Strongly Agree.

Strongly Disagree 1	2	3	4	5	6	7	8	9	Strongly Agree 10
1	2	3	4	5	6	7	8	9	10

a. Knowing where the oysters were harvested from is very important to me when buying oysters.
b. Knowing if the oysters are a particular brand name is very important to me when buying oysters.
c. Knowing whether the oysters were wild-caught or cultivated (farm-raised) is very important to me when buying oysters
d. Knowing whether the oysters were produced and harvested in a sustainable manner is very important to me when buying oysters.
e. I prefer to buy oysters that have been post-harvest treated to kill bacteria.
f. Price is the most important factor for me when buying oysters.

[GRID SP ACROSS]
[INSERT GRID BREAK AFTER SIX ITEMS]
Q7. **[IF S1 = 2:**Even though you indicated that you do not eat raw oysters, please answer the following questions anyway to the best of your ability?**]**

Please rate what you perceive to be the overall quality of raw oysters on the half-shell from the following places, where a 1 is Poor and a 10 is Excellent.

Poor 1	2	3	4	5	6	7	8	9	Excellent 10	"Don't Know
1	2	3	4	5	6	7	8	9	10	11

a. Apalachicola Bay, Florida
b. Cape Cod, Massachusetts
c. Chesapeake Bay, Virginia
d. Coastal Louisiana
e. Coastal Northern California
f. Coastal Oregon
g. Galveston Bay, Texas
h. Gulf of Mexico
i. Long Island Sound, New York
j. Mississippi Sound, Mississippi
k. Mobile Bay, Alabama
l. Puget Sound, Washington

[GRID SP ACROSS]
[INSERT GRID BREAK AFTER SIX ITEMS]
Q8. Please rate what you perceive to be the overall level of <u>food safety</u> of <u>seafood in general</u> from the following places, where a 1 is Poor and a 10 is Excellent.

Poor 1	2	3	4	5	6	7	8	9	Excellent 10	Don't Know
1	2	3	4	5	6	7	8	9	10	11

a. Apalachicola Bay, Florida
b. Cape Cod, Massachusetts
c. Chesapeake Bay, Virginia
d. Coastal Louisiana
e. Coastal Northern California
f. Coastal Oregon
g. Galveston Bay, Texas
h. Gulf of Mexico
i. Long Island Sound, New York
j. Mississippi Sound, Mississippi
k. Mobile Bay, Alabama
l. Puget Sound, Washington

[DISPLAY]
[TEXT BOX]
Q8A.
While answering the previous questions, did you have any particular concerns about any of the oysters that had a big influence on your choices?"

[open-ended comment box]

[Display]

That concludes our questions about oysters.

For the remaining questions, we are interested in how you deal with risky choices.

[DISPLAY]
In the following section, we are interested in how you make decisions about possible <u>risks to your personal health and safety.</u>

For example, you might think about risks to your personal health and safety when deciding travel plans, which job to take, what to eat or drink, or where to live.

Suppose you were faced with a situation where you had <u>*no choice but to face some risk to your personal health and safety.*</u>

You will be asked FIVE questions. For each one, you are asked to choose between two different risks of _spending some number of days in the hospital_.

[SP]
Q9. Which risk of *days spent in the hospital* would you prefer to face?.

A 1-out-of-10 chance of spending 5 days in the hospital and a 9-out-of-10 chance of spending 4 days in the hospital. 1

A 1-out-of-10 chance of spending 10 days in the hospital and a 9-out-of-10 chance of spending 1 day in the hospital. 2

[SP]
Q10. Which risk of *days spent in the hospital* would you prefer to face?

A 3-out-of-10 chance of spending 5 days in the hospital and a 7-out-of-10 chance of spending 4 days in the hospital. 1

A 3-out-of-10 chance of spending 10 days in the hospital and a 7-out-of-10 chance of spending 1 day in the hospital. 2

[SP]
Q11. Which risk of *days spent in the hospital* would you prefer to face?

A 5-out-of-10 chance of spending 5 days in the hospital and a 5-out-of-10 chance of spending 4 days in the hospital. 1

A 5-out-of-10 chance of spending 10 days in the hospital and a 5-out-of-10 chance of spending 1 day in the hospital. 2

[SP]
Q12. Which risk of *days spent in the hospital* would you prefer to face?

A 7-out-of-10 chance of spending 5 days in the hospital and a 3-out-of-10 chance of spending 4 days in the hospital. 1

A 7-out-of-10 chance of spending 10 days in the hospital and a 3-out-of-10 chance of spending 1 day in the hospital. 2

[SP]
Q13. Which risk of *days spent in the hospital* would you prefer to face?

A 9-out-of-10 chance of spending 5 days in the hospital and a 1-out-of-10 chance of spending 4 days in the hospital. 1

A 9-out-of-10 chance of spending 10 days in the hospital and a 1-out-of-10 chance of spending 1 day in the hospital. 2

[DISPLAY]
You're almost finished!

These last few questions give you a chance to earn <u>real money</u>.

In the following section, we are interested in how you make decisions about possible losses of money.

So that you don't lose any of your own money, we are providing you with $10 to start.

The expected (average) loss is about $5, so you can expect (on average) to keep $5.

However, there is <u>some chance</u> that you will lose all of the $10 you're given, <u>but you WILL NOT lose any more than the $10 you are given.</u>

Therefore you cannot lose any more than what is given to you and you may actually get to keep some of it.

You will be asked to make 5 choices, but only one choice will be randomly selected to determine your actual earnings, but you will not know in advance which one will be used.

So please take all five questions seriously, as each one has an equal chance of being used to determine your earnings!

(Please note, any dollar amounts awarded to you after completing this survey will be provided as dollar-equivalent bonus points. For example, a $5 payoff will earn you 5,000 bonus points.)

In order to be eligible for the reward, you must answer all five corresponding questions.

[SP]
[PROMPT ONCE]
Q14. Which risk of *loss of money* do you prefer to face? (Keep in mind that this question might be chosen to determine your actual payoff, so please take it seriously!)

A 1-out-of-10 chance of losing $5 and a 9-out-of-10 chance of losing $4 1

A 1-out-of-10 chance of losing $10 and a 9-out-of-10 chance of losing $1 2

[SP]
Q15.
Which risk of *loss of money* do you prefer to face? (Keep in mind that this question might be chosen to determine your actual payoff, so please take it seriously!)

A 3-out-of-10 chance of losing $5 and a 7-out-of-10 chance of losing $4 1

A 3-out-of-10 chance of losing $10 and a 7-out-of-10 chance of losing $1 2

[SP]
Q16.
Which risk of *loss of money* do you prefer to face? (Keep in mind that this question might be chosen to determine your actual payoff, so please take it seriously!)

A 5-out-of-10 chance of losing $5 and a 5-out-of-10 chance of losing $4 1

A 5-out-of-10 chance of losing $10
and a 5-out-of-10 chance of
losing $1 2

[SP]
Q17.
Which risk of *loss of money* do you prefer to face? (Keep in mind that this question might be chosen to determine your actual payoff, so please take it seriously!)

A 7-out-of-10 chance of losing $5
and a 3-out-of-10 chance of
losing $4 1

A 7-out-of-10 chance of losing $10
and a 3-out-of-10 chance of
losing $1 2

[SP]
Q18.
Which risk of *loss of money* do you prefer to face? (Keep in mind that this question might be chosen to determine your actual payoff, so please take it seriously!)

A 9-out-of-10 chance of losing $5
and a 1-out-of-10 chance of
losing $4 1

A 9-out-of-10 chance of losing $10
and a 1-out-of-10 chance of
losing $1 2

[DISPLAY if value awarded is greater than 0. If value is "0", do not show]

Thank you for participating in the risk exercise. Congratulations, you will receive [Payoff display] bonus points within one month of today.

[DISPLAY]

[IF XPH10220 = 3 (MISSING)]
[SP]
Q36. Have you smoked at least 100 cigarettes in your ENTIRE LIFE?

Yes..1
No 2

[ASK Q37 IF Q36="YES"]
[SP]

Q37. Do you NOW smoke cigarettes every day, some days, or not at all?

Every day......................................1
Some days.....................................2
Not at all.......................................3

[IF XPH10304 = 3 (MISSING)]
[MP]

Q39. Which of the following have you had to drink in the past month?

Beer (any variety)...........................1
Wine (any variety, including port, champagne, etc.).......................2
Hard liquor (any variety, including mixed drinks, cocktails, shots, etc.) 3
None of these **[SINGLE SELECT]**......4

Q43. Below is a list of the different kinds of health plans or health insurance people have, including those provided by the government.
[SPACE]
Please indicate whether or not you are currently covered by each type of insurance or not.

	Covered	Not covered	Not sure

[DO NOT RANDOMIZE]

Health insurance through your or someone else's employer or union
Medicare, a government plan that pays health care bills for people aged 65 or older and for some disabled people
Medicaid or any other state medical assistance plan for those with lower incomes
Health insurance that you bought directly
Health insurance from some other source

[ASK Q43A IF "COVERED" NOT SELECTED FOR ANY ITEM IN Q43]
[SP]

Q43A. Does this mean you personally have NO health insurance now that would cover your doctor or hospital bills?

I do NOT have health insurance 1
I HAVE some kind of health insurance 2
Don't know 3

[PROMPT IF FEET < 4]

Q2. How tall are you without shoes? Please type in the number of feet and inches separately. For example, if you are 6'0" tall, type 6 in the feet box and 0 in the inches box.

Feet **[NUMBER BOX WITH RANGE 2-7]**

Inches **[NUMBER BOX WITH RANGE 0-11]**

Q3. How much do you weigh without shoes?

Pounds **[NUMBER BOX WITH RANGE 50-500]**

[GRID - SP ACROSS, MP DOWN]

Q1. Using the scale below, please tell us how much you agree or disagree with the following statement about your work and life.

Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable

I tend not to take many risks in everyday life

[STANDARD CLOSE]