

**Surviving the Spill: Stakeholder Perceptions of the Commercial Seafood Supply Chain in Alabama and Mississippi After the *Deepwater Horizon* Disaster**

by

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## Abstract

Stakeholders in the commercial seafood industry in Alabama and Mississippi have experienced a series of environmental and man-made shocks in the last decade. Hurricanes Ivan and Katrina, the recession of 2008, and the *Deepwater Horizon* oil spill have all left their marks on the United States' Gulf Region. Through interviews with actors in the commercial seafood supply chain in Alabama and Mississippi's coastline counties, this thesis addresses the opinions and beliefs held by those actors on the impacts of shocks on their industry, the role of the media in discussions of seafood safety, and their industry's future. This thesis finds that the commercial seafood industry is experiencing a prolonged decline that has been hastened by the shocks to the region as well as the media coverage of those shocks.

## Acknowledgements

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## CHAPTER 1: INTRODUCTION<sup>1</sup>

The northern coast of the Gulf of Mexico is a diverse and dynamic ecosystem. Made up of barrier islands and beaches, estuaries and sounds, the coast's natural beauty and valuable natural resources have made it a destination for settlement and cultivation for as long as humans have inhabited the region (Beatley et al. 2002). However, the proximity to the Gulf of Mexico and all that it contains also leaves Gulf Coast communities vulnerable to outside forces, whether natural or man-made. Several hurricanes, a recession, and the United States' largest oil spill all struck the Gulf Coast of the United States in the first decade of the 21<sup>st</sup> century, forcing the region to experience these shocks one after the other. There are many natural resource-dependent industries at work along the Gulf Coast, and any one of them could provide a helpful illustration of how the region has coped with these events. This thesis observes the impacts of environmental and man-made shocks on the Gulf Coast region by investigating the opinions of those working in the commercial seafood industry in the coastline counties of Alabama and Mississippi. The stakeholders in the seafood supply chain are identified as seafood harvesters, processors, retailers/wholesalers, and restaurateurs. The following objectives are addressed in this study:

- Determine the opinions and beliefs of the Gulf seafood industry held by those working in the commercial seafood supply chain;
- Identify the opinions held by these stakeholders of the safety and wholesomeness of seafood harvested from the Gulf of Mexico after the *Deepwater Horizon* spill;

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- Measure stakeholders' confidence in the seafood safety regulations put into place by local, state, and federal governments;
- Determine the extent to which stakeholders believe media coverage of the *Deepwater Horizon* spill influenced seafood consumers' perceptions of seafood safety.

These objectives are met by conducting in-depth interviews with stakeholders in the seafood supply chain. The interviews address these and other topics, and will be described in detail in subsequent chapters. A media content analysis is also employed in order to both quantify and qualify the media coverage of the Gulf seafood industry after the *Deepwater Horizon* disaster. The extent of media coverage of this topic influences questions asked during stakeholder interviews, and is also further discussed in later chapters. By observing the seafood supply chain in Alabama and Mississippi, this thesis provides a window into America's Gulf Coast communities in the wake of life-altering events.

### **The Gulf Coast in the 21<sup>st</sup> Century**

More than one-half of the United States' population lives on a coast or in a coastal watershed, a number that is expected to increase in spite of hurricanes, the threat of sea level rise, and the negative consequences of over-development (Beatley et al. 2002). The Gulf Coast Region (see Figure 1.1) is no exception to this trend, and in fact has experienced a 109% increase in population since 1970 (National Oceanic and Atmospheric Administration [NOAA] 2011a). Humans' love affair with the ocean and the land that meets it is storied, and shows no signs of abating despite the effects of increased pressures being placed on the coastal zone.

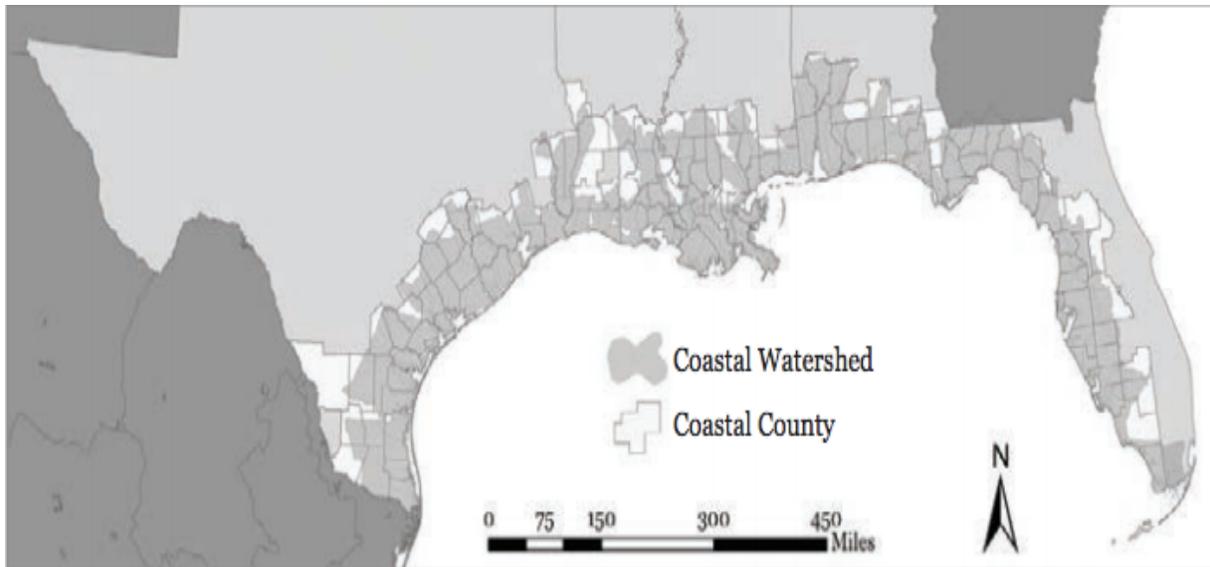


Figure 1.1 Map of the United States' Gulf Coast Region  
*Source:* NOAA 2011a

If the states of the Gulf Coast Region were combined to form a country, they would have the seventh largest gross domestic product in the world (NOAA 2011a). The maintenance of this economic strength relies heavily on the natural resources found in the region. The production of oil and natural gas in the Gulf of Mexico generated \$15.6 billion in wages for employees in related fields in 2009, and in 2011, over three thousand oil and gas platforms were active in the Gulf (NOAA 2011a). The ports of the Gulf States are vital for transporting goods to and from the United States: in 2010, New Orleans, Louisiana, Mobile, Alabama, and Pascagoula, Mississippi, all ranked in the top twenty United States ports by tonnage, handling a combined total of over 165 million tons of goods (NOAA 2011a; U.S. Army Corps of Engineers 2012). The ports also support commercial fishing, which in 2011 generated over \$800 million in landings in the Gulf Coast Region (see Table 1.1) (National Marine Fisheries Service 2012). Thanks to its beautiful beaches and mild climate, the Gulf Coast also enjoys a year-round leisure and tourism industry, which in 2011 provided over 700,000 jobs in the coastline counties (Bureau of Labor Statistics 2012).

**Table 1.1 Weight and value of commercial seafood landings in the Gulf Coast Region, 2011**

<b>STATE</b>	<b>METRIC TONS</b>	<b>U.S. DOLLAR VALUE</b>
Alabama	11,859.5	50,941,108
Florida <sup>2</sup>	35,201.1	163,873,300
Louisiana	583,269.2	333,618,927
Mississippi	126,136.4	30,299,581
Texas	44,502.9	239,081,531
<b>TOTAL</b>	<b>800,969.1</b>	<b>817,844,447</b>

*Source:* National Marine Fisheries Service 2012

Because the foundation of the Gulf Coast Region's economy is its natural resources, disturbances to those resources can be particularly damaging to the area's economic wellbeing. In the last decade, the Gulf Coast has experienced several damaging hurricanes, a recession caused at least in part by the downturn in the United States housing market, and the *Deepwater Horizon* oil spill. The Category 3 Hurricane Ivan made landfall in Baldwin County, Alabama, on September 16, 2004. The wind and water damage that accompanied the storm was concentrated mainly in the tourist-dependent communities found in Baldwin County and Santa Rosa and Escambia Counties in Florida, and ultimately caused damages totaling approximately \$14.2 billion (Tropical Cyclone Report 2005).

Hurricane Katrina, also a Category 3 storm, made landfall in Louisiana and brought extreme flooding and a staggering loss of human life and property to New Orleans, Biloxi, Gulfport, Bayou La Batre, and Mobile (National Hurricane Center 2005). Katrina was responsible for over 1,200 deaths, as well as estimated damages of over \$200 billion (Congleton 2006). Ninety percent of fishing vessels in Hancock and Harrison Counties, Mississippi, were damaged by the storm, ultimately totaling \$35.3 million in losses (Posadas 2008). In September

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<sup>2</sup> This figure represents landings only on Florida's Gulf Coast; Atlantic Coast landings are not included.

2005, the month after Hurricane Katrina made landfall on the Gulf Coast, the average unemployment rate in the United States was 4.8%; in Mississippi's coastal counties, it was 23.8% (Coughlin 2012).<sup>3</sup>

The explosion of the BP-operated *Deepwater Horizon* oil rig in the spring of 2010 and the subsequent oil spill that lasted through the summer brought another economic disturbance to the Gulf Region. Both the supply of and the demand for Gulf seafood were severely disrupted. The closures of fisheries around the uncapped oil well caused a 27% decrease in shrimp landings, and fears about contaminated seafood brought consumer demand for seafood products to a halt (Upton 2011). In an attempt to lessen the economic blow for the commercial seafood harvesters who were out of work, BP launched the Vessels of Opportunity (VoO) program, in which boat owners, captains, and crews were paid to use their vessels to clean up oil offshore (BP 2010).<sup>4</sup> Pursuant to the Federal Oil Pollution Act of 1990, BP was also responsible for covering the financial losses of other industries impacted by the spill, including restaurants, hotels, and local governments. As of February 28, 2013, BP's public records indicate that the company has paid out over \$10.4 billion in claims, which includes payments made to the state and federal governments to cover campaigns marketing the Gulf Coast as well as seafood safety testing and other research projects (BP 2013).

The purpose of this thesis is to explore how stakeholders in the commercial seafood supply chain in Mississippi and Alabama have experienced recent environmental and economic shocks. By targeting this population, we can hope to achieve a fuller understanding of the

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<sup>3</sup> In January of 2013, the average unemployment rate for Mississippi's coastline counties was 10.6%.

<sup>4</sup> The unemployment rate in the Gulf Coast Region grew after the *Deepwater Horizon* spill, but because of the recession it is difficult to tease out how many of those jobs were lost as a direct result of the spill as opposed to the economic downturn (Coughlin 2012).

problems and successes experienced in one of the Gulf Coast's iconic industries. It is expected that this work will serve as a case study for other natural resource-dependent communities that have experienced or are likely to experience economic and environmental shocks.

This chapter continues with background on the commercial seafood industry in Alabama and Mississippi, as well as a review of other concepts relevant to the project: the *Deepwater Horizon* oil spill, the historical and cultural coexistence of oil production and commercial fishing, the regulation of seafood safety, and finally, the media's coverage of seafood safety. A basic explanation of these dynamics and how they relate to each other is vital for understanding how the industry has been shaped and how it operates today.

## **Background and Literature Review**

### *Commercial Seafood in Alabama and Mississippi*

Commercial seafood has a long and productive history along the Gulf Coast. Initially, the products of Gulf fisheries were only available as local commodities because of their short shelf life, but the mid-19<sup>th</sup> century brought advancements in both transportation and processing technologies that allowed market expansion. In 1821, a steamship line was started to facilitate the shipment of cotton from Montgomery, Alabama, to Mobile for shipping around the world, and in 1850, the Mobile and Ohio Railroad linked the Gulf Coast to the Ohio River (Durrenberger 1992). In 1870, the Louisville and Nashville Railroad connected New Orleans with Biloxi and Mobile (Nuwer 2006). These developments, coupled with the newfound ability to make artificial ice to ensure that the seafood was preserved during transit, gave the Gulf Coast new access to inland markets for their products (Nuwer 2006; Durrenberger 1992). As an example of how this market growth affected the region, Durrenberger (1992:29) notes that before the Mobile and Ohio Railroad's construction, there were 34 fishermen and 2 oystermen working

in Mobile. After the railroad connected Mobile to the Midwest, 71 fishermen and 37 oystermen were counted in the city directory.

To capitalize on the new ability to ship seafood products farther afield, other processing innovations followed. The technology of preserving oysters and shrimp by pressure-sealing them in containers with their own juices was developed in New Orleans in 1875, reducing drastically the amount of ice necessary to ship seafood across the country (Durrenberger 1992). The first oyster canning facility in Biloxi opened in 1881 (Nuwer 2006). The Bayou La Batre (Alabama) Canning Company opened in 1896; three years later, the Mobile and Ohio Railroad constructed a direct line to Bayou La Batre to ship oysters from the local canneries to Chicago (Durrenberger 1992). By 1902, twelve canneries were operating in Biloxi, processing almost six million pounds of oysters and five million pounds of shrimp in one year (Nuwer 2006). Workers from the Chesapeake Bay region, Louisiana, and Eastern Europe were brought in to staff the canneries in Mississippi and Alabama (Nuwer 2006; Durrenberger 1992). The shrimp and oysters were harvested using schooners owned by the canneries, with each establishment operating around 150 boats (Nuwer 2006). Still limited by refrigeration and harvesting technologies, the canneries decided that oysters were to be brought in only during the winter, while shrimp could be caught in the summer months (Nuwer 2006).

The mid-twentieth century brought significant changes to commercial fishing communities. Technological advancements in the types of vessels and equipment used for seafood harvesting dramatically altered the workforce. During World War I, canneries experimented with towing schooners behind powerboats to ensure that the harvest made it in to port before it could spoil (Durrenberger 1992). By 1929, the production of schooners in Biloxi had halted in favor of gas-powered boats that required significantly less manpower to operate

(Nuwer 2006). The 1950s saw the rise of steel-hulled boats that could travel farther distances in search of shrimp or crab, opening the entire Gulf of Mexico to harvest. Larger boats meant larger nets, and the increased landings allowed what had been a part-time or seasonal industry to operate year-round (Moberg and Thomas 1993; Gaillard 2007).

With the increase in seafood production, processors searched for still better ways to preserve the catch. New freezing technologies ensured that large volumes of seafood products could be processed and shipped, but also opened up the domestic seafood market for international imports (Durrenberger 1992). The prices of local, wild-caught products tumbled as wholesalers and processors preferred to buy cheaper, farmed imports (Durrenberger 1992). In 1974, almost a third of the 300 shrimp boats operating in Bayou La Batre had been sold, as high diesel costs and rock-bottom shrimp prices made shrimping prohibitively unprofitable (Durrenberger 1992). Another important shift in the 1970s was the arrival of refugees from Cambodia, Laos, and Vietnam. Many of these Southeast Asian newcomers were incorporated into the crab market in order to supplement what had been a shrinking labor market as white and black employees left for better paying or less strenuous jobs (Moberg and Thomas 1993). By the late 1980s, the population of Bayou La Batre, Alabama, was one-third Southeast Asian (Gaillard 2007).

The modern-day production of Gulf Coast seafood is small scale compared to the international market, but the industry accounts for significant revenue for the states themselves. Seafood harvesting, processing, and sales generate an economic impact on the region of \$10.5 billion, making the Gulf Coast second only to Alaska in the amount of seafood harvested in the U.S. (Coastal Recovery Commission [CRC] 2010; Upton 2011). In 2008, two years before the *Deepwater Horizon* spill, jobs and revenue associated with commercial fisheries in Alabama and

Mississippi were responsible for an economic impact of \$836 million (CRC 2010), which was primarily the result of shrimping (Office of Science & Technology 2008). Of that \$836 million, over \$88 million came from commercial landings revenue (see Figures 1.2 & 1.3). In 2010, revenue declined; Alabama’s ports brought in landings valued at only \$27 million (see Figure 1.4), and Mississippi’s ports brought in over \$21 million (see Figure 1.5). In both states, over half the revenue collected came from shellfish, further confirming the relevance of this industry.<sup>5</sup>

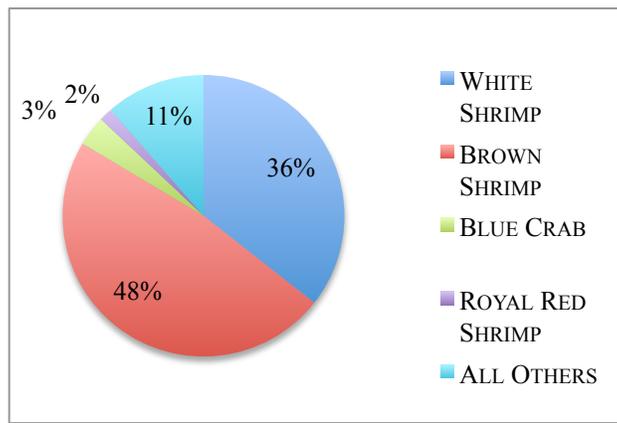


Figure 1.2 Alabama landings revenue by species, 2008. Total: \$44,355,582  
 Source: NOAA 2010a

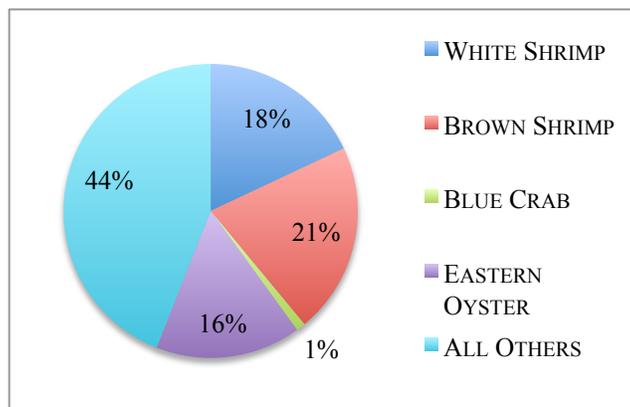


Figure 1.3 Mississippi landings revenue by species, 2008. Total: \$43,696,487  
 Source: NOAA 2010a<sup>2</sup>

<sup>5</sup> For both 2008 and 2010, the size of the “All Others” category in Mississippi is due to the large amount of Menhaden caught in the state. Menhaden, a finfish, is used to produce fish oil and animal feed, and generated \$18,533,559 in Mississippi in 2008 and \$8,378,337 in 2010 (Gulf States Marine Fisheries 2010).

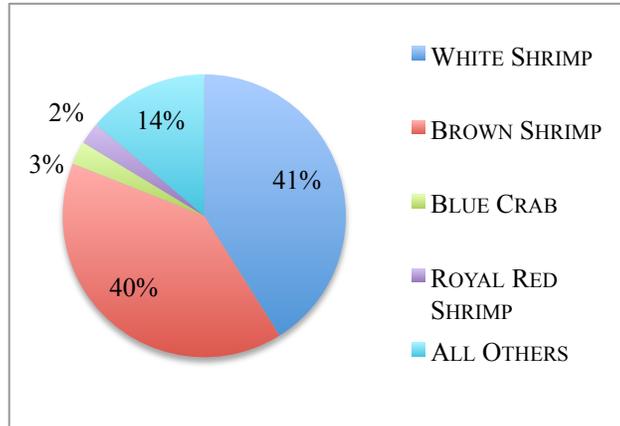


Figure 1.4 Alabama landings revenue by species, 2010. Total: \$27,239,209  
 Source: NOAA 2010a

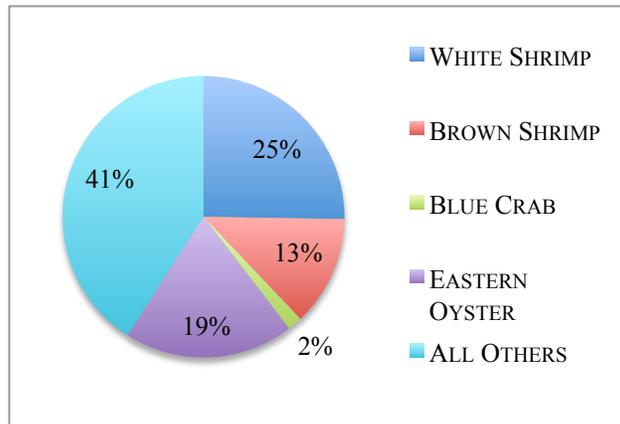


Figure 1.5 Mississippi landings revenue by species, 2010. Total: \$21,912,956  
 Source: NOAA 2010a<sup>2</sup>

### *The Spill*

On April 20, 2010, forty miles off the coast of Louisiana in the Gulf of Mexico, the crew of the 33,000-ton, Transocean-operated, BP-leased oil rig named *Deepwater Horizon* was finishing work on the Macondo oil well. The construction of a deepwater oil well is by no means a simple task, and the Macondo well had proven particularly difficult, so much so that the rig’s crew dubbed it “the well from hell” (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling [NCBP] 2011:2). When a new oil well is constructed, the immense pressures that occur at and below the ocean floor have to be taken into account, as do the bathymetry, or seafloor topography, and geology of the area being drilled (NCBP 2011:89).

Though inherently risky, deepwater drilling is undertaken readily by companies like BP, as the complicated technology provides the opportunity to tap into vast “deepwater hydrocarbon fields” (NCBP 2011:3), some of which contain over a billion barrels of oil. BP was the first company to drill on the Macondo’s lease site, further complicated their task. Work on the Macondo well had been plagued with delays and had run \$58 million over its original budget of \$96.2 million (NCBP 2011:2). The first rig to attempt to complete the well, the *Marianas*, had been so badly damaged by Hurricane Ida in November 2009 that it had to be replaced by the *Deepwater Horizon* (NCBP 2011).

Despite the difficulties faced by the *Deepwater Horizon* crew on the Macondo well, the rig’s engineers were optimistic on the morning of April 20, 2010. The cement seal on the bottom of the well had been put in place with no difficulties, which allowed the rig to skip a series of tests by an outside quality control team meant to ensure the cement had been laid properly (NCBP 2011). As was normal for deepwater wells, pressure tests were conducted that allowed the crew to test the seals of the well in both high pressure emergency conditions and low pressure conditions that simulate the pressure loss that would occur when the rig ultimately left the well (NCBP 2011). This so-called negative pressure check began at 5 p.m., and a problem emerged. “After bleeding pressure from the well, the crew would close it off to check whether the pressure within the drill pipe would remain steady. But the pressure repeatedly built back up” (NCBP 2011:5). After conducting the test another time, the crew decided that since they could get the pressure to stay at zero in an auxiliary pipe, the test could be deemed a success in spite of the main pipe retaining pressure (NCBP 2011). The final step was to plug the bottom of the well with cement.

Somewhere around 9:45 p.m., Tuesday, April 20, 2010, an intense vibration shook the *Deepwater Horizon*, and was shortly followed by an explosion. A surge of methane gas had shot up the well, past the blowout preventer device. Emergency measures that were supposed to disengage the rig from the oil well and supply auxiliary power to the engines all failed, and the crew was forced to abandon the vessel as the oil derricks burned (NCBP 2011). At 11:30 p.m., the *Deepwater Horizon*'s managers determined that eleven workers were missing (NCBP 2011).<sup>6</sup> Ultimately, these men were declared dead.<sup>7</sup> During the early morning of April 21, 2010, several more explosions occurred on the rig, separating it from the Macondo well and causing it to drift and list (NCBP 2011).

The rig's explosion set off a chain of events that continue to shape the Gulf Coast region over three years later. In the days that followed the blast, approximately five million barrels of crude oil spilled into the Gulf of Mexico,<sup>8</sup> covering an area the size of South Carolina and becoming the largest oil spill in the United States' history (Upton 2011). The well was capped on July 15, 2010, ending the flow of oil into the Gulf of Mexico 87 days after the crisis began (Robertson and Fountain 2010). Responses to the spill occurred at the local, state, and federal level in an attempt to ameliorate its negative effects.

Federal agencies responded to the spill by closing portions of Gulf fisheries that were at risk of being impacted by oil or the chemical dispersants used in an attempt to break it up in the water. These precautions were an effort to prevent the harvesting of fish that might be harmful to consumers or fishers. At the peak of the fishery closures, on June 2, 2010, NOAA (2010b)

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<sup>6</sup> The survivors of the spill were picked up from their life rafts by the *Bankston*, a supply vessel that worked with the *Deepwater Horizon*.

<sup>7</sup> The names of the deceased are as follows: Jason Anderson, Aaron Dale Burkeen, Donald Clark, Stephen Curtis, Gordon Jones, Roy Wyatt Kemp, Karl Dale Kleppinger, Jr., Blair Manuel, Dewey Revette, Shane Roshto, and Adam Weise.

<sup>8</sup> The exact number of barrels lost is being contested by BP in its civil trial.

reported that 37% of Gulf Coast fisheries, almost 90,000 square miles, were closed to commercial and recreational fishing (see Figure 1.6).

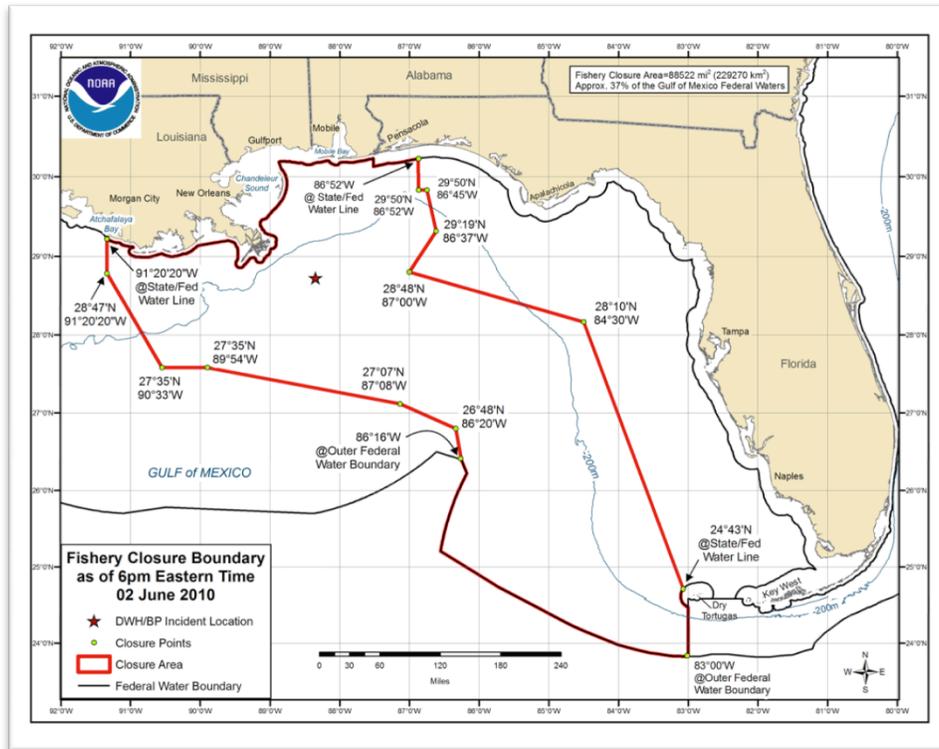


Figure 1.6 Federally-mandated fishery closures on June 2, 2010  
 Source: NOAA 2010b

Following the spill, the Obama administration issued a six-month moratorium on offshore drilling until a further investigation into the explosion on the *Deepwater Horizon* could be completed (Baker and Broder 2010). The congressional delegations from the Gulf States, who portrayed their constituents as reeling from the loss of access to coastal fisheries and concerned about the compounded economic consequences of a ban on oil drilling, fought the ban tooth and nail. The Louisiana delegation demanded a permanent end to the moratorium, and Senator Mary Landrieu (D-La.) held up a federal appointment to an unrelated agency, the Office of Management and Budget, in protest of the drilling ban (Tilove 2010). Legislators from across the Gulf Coast region, including Senator Jeff Sessions (R-Al.) and Senator Thad Cochran (R-

Ms.), sent an open letter to Secretary of the Interior Ken Salazar detailing the potential for drastic financial losses if oil rigs were not allowed to return to work (Reilly 2010). The letter made the point in no uncertain terms, saying, “Therefore, we urge the DOI [Department of the Interior] to take immediate action to resume and expedite the consideration and review of [drilling] applications, while providing applicants with an understanding of the new safety requirements. If the DOI does not do so, thousands of jobs will be at risk in the OCS [Outer Continental Shelf]” (Hutchison and Landrieu 2010).

Ultimately, the delegation’s lobbying worked, and on October 12, 2010, the federal moratorium on drilling was lifted over a month before its scheduled end. Secretary Salazar and Michael Bromwich, the director of the Bureau of Ocean Energy Management, Regulation, and Enforcement, said that the early end to the ban was for operators who could “meet the higher bar” of regulations that had been established since the spill as a result of hearings and interviews (Tilove 2010). Offshore drilling in both deep and shallow water continues in the Gulf of Mexico (See Figure 1.7).

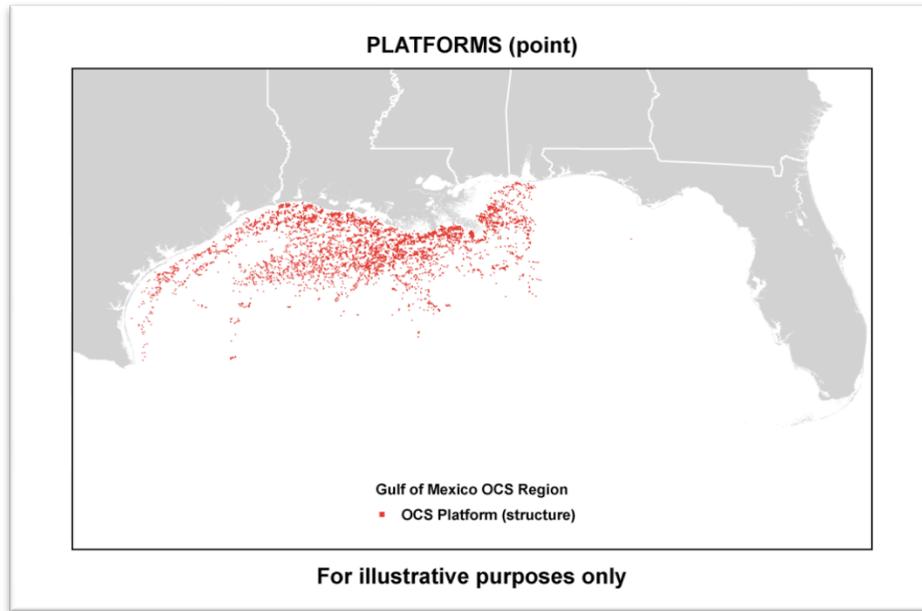


Figure 1.7 Active platforms in the Gulf of Mexico as of March 22, 2012.  
*Source:* Bureau of Ocean Energy Management 2012

**Oil and Fishing.** To the outside observer, the seemingly uncontested coexistence of oil and gas production, tourism, and commercial fishing in the Gulf of Mexico can be perplexing. Why would industries that rely on the health and beauty of the natural environment be unconcerned about the visual pollution of oil and natural gas rigs, refineries, and pipelines, and the far more worrisome potential for spills, leaks, or explosions? As Gramling and Hagelman (2005:115) note, “The area’s tremendous biological diversity provides one of the richest concentrations of natural resources on the planet.” The close relationship that citizens of the coast have to the waters that surround them led not only to an extensive fishing industry but also to the development of petroleum extraction along the coast and ultimately offshore (Gramling & Hagelman 2005). These two industries are closely tied for a variety of reasons beyond the fact that they take place in shared waters.

When petroleum companies began the initial exploration of the Gulf Coast, they relied on the knowledge of local fishermen as guides through the remote areas that were unfamiliar to

them (Gramling & Hagelman 2005). Additionally, the remoteness of the offshore rigs led to the development of a work schedule that required rig workers to be on the rig for a significant period of time, somewhere between one to three weeks, and then home for a similar period, allowing them ample time to fish or shrimp for subsistence or extra income during those weeks off (Gramling 1994; Gramling & Hagelman 2005). The development of both the fishing and petroleum industries has created an unusual relationship in Gulf Coast states, in which two industries with what at first glance could be considered disparate aims are united in a shared exploitation of the coastal waters, and a shared goal of economic growth and development.

### *Seafood Safety*

Seafood is regulated by a variety of agencies at local, state, and federal levels. While they are still alive, fish found in state waters (0 to 3 miles offshore in Alabama and Mississippi) are considered the property of the respective state, and are regulated by each state's departments of marine resources (Beatley et al. 2002). The National Oceanic and Atmospheric Administration (NOAA) has authority over fish found in federal waters and in the United States' Exclusive Economic Zone (EEZ), which extends from 3 to 200 miles offshore; the Food and Drug Administration (FDA) is responsible for ensuring the wholesomeness of the seafood that is sold for consumption (Golhke et al. 2011). NOAA's responsibility also extends to the management of federal fishing grounds, including the closure of the grounds in the event of a disruption to marine life (Yender et al. 2002). The FDA advises in this process as well to ensure that the fish that reaches consumers is safe to consume.

Before the spill, Alabama and Mississippi, in conjunction with the federal government, already had in place extensive food safety-related regulations on the harvesting, processing, sale, and preparation of shellfish. While NOAA is responsible for the marine life when it is in the

water, the FDA and state agencies take over once the marine life becomes seafood. Figure 1.8 traces the regulatory path that domestic seafood takes once it leaves NOAA’s jurisdiction and begins the road to the consumer.

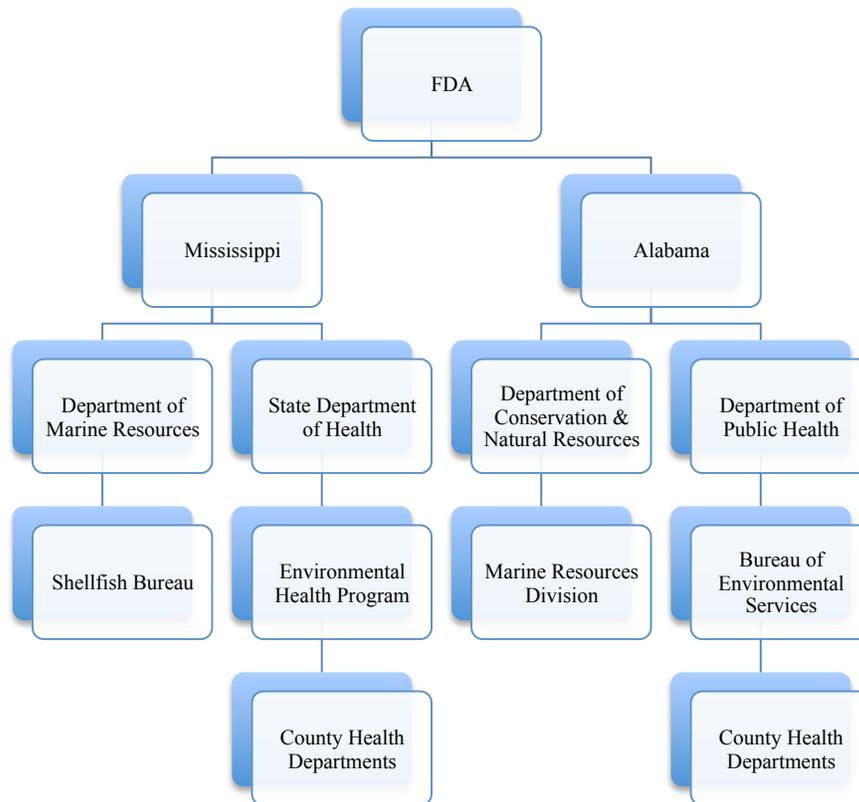


Figure 1.8 Jurisdiction of seafood safety

*Source:* Alabama Department of Public Health 2009, Alabama Department of Conservation and Natural Resources 2012, Mississippi State Department of Health 2012, Mississippi Department of Marine Resources 2012

The foundations of the food safety regulations applied to shellfish are the prohibition of adulterated seafood products and, for processors, the implementation of a Seafood Hazard Analysis Critical Control Point (HACCP) Plan, which is required by the FDA and the state departments of health in order to be issued a permit to work with shellfish (Alabama Department of Public Health [ADPH]). The FDA’s (2011) guidelines for creating a HACCP Plan note the importance of developing a flow chart for the products being handled in a seafood business, as well as identifying potential risks and critical limits. By having a HACCP Plan in place, the goal

is for those involved in the seafood industry to be able to quickly identify and correct any contamination or adulteration that might have occurred.

The Food Safety Modernization Act (2011) further details the FDA's food safety responsibilities beyond the mandating of the HACCP Plan, which include:

- Imposing mandatory safety programs;
- Specifying market names of seafood sold;
- Registering facilities that process seafood;
- Restricting labels;
- Maintaining the Reportable Food Registry of dangerous food products;
- Inspecting facilities, or delegating inspections to state agencies.

Once the seafood has left the FDA's immediate jurisdiction, each state manages it differently. In Alabama, the Department of Conservation and Natural Resource's Marine Division is responsible for issuing commercial seafood harvesting permits and developing a quota system for the commercial catch (Alabama Department of Conservation and Natural Resources 2012). When shellfish is harvested, the Alabama Department of Public Health (ADPH)'s Bureau of Environmental Services is responsible for ensuring that the catch is handled according to the Bureau's shellfish sanitation rules (Alabama Department of Public Health 2009). ADPH also issues, suspends, and revokes permits for shellfish processing facilities. Each facility's HACCP Plan must be approved before it can receive a permit, and it is then inspected regularly by ADPH. These inspections occur at different intervals based on the facility's purpose: shuckers and packers are inspected quarterly, while facilities that only ship pre-packed products are inspected semi-annually. ADPH maintains the authority to close Alabama's state waters. Ultimately, it is ADPH's job to manage the state's compliance with the FDA's federal

restrictions and guidelines. Restaurants in Alabama are inspected by county health departments, whether they sell seafood or not.

In Mississippi, the Department of Marine Resources' Shellfish Bureau is responsible for establishing and managing commercial catch limits, issuing commercial fishing permits, and also managing the state's Trip Ticket program (Mississippi Department of Marine Resources 2012).<sup>9</sup> The Mississippi State Department of Health's Environmental Health Program is responsible for the permitting, regulating, and inspecting of seafood production facilities (Mississippi State Department of Health 2012). As in Alabama, the Mississippi County Departments of Health are responsible for the inspections of restaurants.

The *Deepwater Horizon* oil spill prompted immediate concerns about the safety of the seafood in the Gulf of Mexico. Gohlke et al. (2011) note that because of the depth of the well that was being drilled, the large amount of oil that was released, and the chemical dispersants that were applied to the water in an attempt to break up the oil, the effects of the *Deepwater Horizon* spill are likely to be significantly different from previous spills. Historically, the main concern after oil spills has been contamination by polycyclic aromatic hydrocarbons (PAHs), which can accumulate in fish in levels that are unsafe for consumption, and stay in the ecosystem for a range of time that depends on the PAH in question (Gohlke et al. 2011). Shrimp, oysters, and crab, all common Gulf products, are most susceptible to the retention of PAHs, which can cause cancer and/or kidney diseases when consumed by humans (Rotkin-Ellman et al. 2012). Gohlke et al. (2011) note that there is a lack of longitudinal data that would allow researchers to make adequate predictions of the future health of the Gulf ecosystem in the wake of the *Deepwater Horizon* spill and potential PAH contamination.

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<sup>9</sup> Trip Ticket is a state-specific program that allows Mississippi to track commercial seafood landings more accurately.

By calculating what are considered acceptable “levels of concern” (LOCs) for PAH or other chemicals in seafood, the FDA decides whether fish are fit for consumption after chemical spills or other incidents. However, Rotkin-Ellman et al. (2012) offer extensive criticism of the FDA’s guidelines for the Deepwater Horizon spill, noting that the agency assumes a low seafood diet, which is not reflective of the Gulf Coast population. The majority of post-spill seafood testing has involved an organoleptic “sniff test” (Gohlke et al. 2011:1065; Rotkin-Ellman et al. 2012) to determine whether or not there was obvious contamination. While chemical tests of seafood products that failed the sniff test have indicated that there is no danger for the average seafood consumer, Gohlke et al. (2011) advocate for continued testing for both PAHs and dispersants, with the addition of tests for metals in the seafood. The FDA’s Deputy Commissioner of Foods issued a statement on January 11, 2012, detailing the safety of seafood harvested from the Gulf of Mexico, and stating that a person would have to eat 130 oysters every day for five years in order to reach the level of exposure to PAH that could be considered dangerous (Taylor 2012).

The chemical dispersant used to break up oil in the Gulf of Mexico, Corexit 9500, presents further seafood safety concerns. It is estimated that over a million gallons of Corexit were applied directly to the water’s surface, while an additional 800,000 gallons were put into the well head as it was releasing oil on the ocean floor (Benner et al. 2010). While Benner et al. (2010:1) note that many of the chemicals in Corexit are found in home cleaners and food additives, public concern over the potential danger of the dispersant remained, and NOAA and FDA engaged in testing for Corexit in seafood. Sodium dioctylsulfosuccinate (DOSS) was chosen as the indicator chemical in testing because it is more likely to stay in environment than other chemicals in the compound, and ultimately the experiment indicated that there is no danger

in consuming Gulf seafood as DOSS is quickly expelled from the organisms that are exposed to it (Benner et al. 2010). Despite the FDA's results, a new study indicates that Corexit may have a serious impact on the Gulf ecosystem as a whole, which would not yet be observable in larger species (McConnaughey 2012; Ortmann et al. 2012).

**Media Coverage.** The Deepwater Horizon oil spill thrust seafood safety and the tests used to ensure it into the national spotlight. The Pew Research Center for the People and the Press (2010) ranked the spill and its aftermath as 2010's second most important news story, with only the Haitian earthquake garnering more public attention. Newspaper articles on safety concerns surrounding Gulf seafood and new measures like the "sniff test" being used by inspectors attempting to spot oil in seafood products were published in papers from the Mobile, Ala., *Press-Register*, to the Singapore *Straits-Times*. The media coverage of seafood safety provided the opportunity for a global audience to witness the spill and its aftermath.

From April 20, 2010, to September 17, 2012, over 1,300 newspaper articles were published on the topic of Gulf seafood safety (see Figure 1.9). While the articles spanned the globe, the majority were published in local papers like the Biloxi *Sun-Herald* (see Figure 1.10). Observing the quantity and distribution of the newspaper articles on seafood safety in the wake of the *Deepwater Horizon* spill confirms that this was a heavily covered story that had the potential to reach a considerable audience.

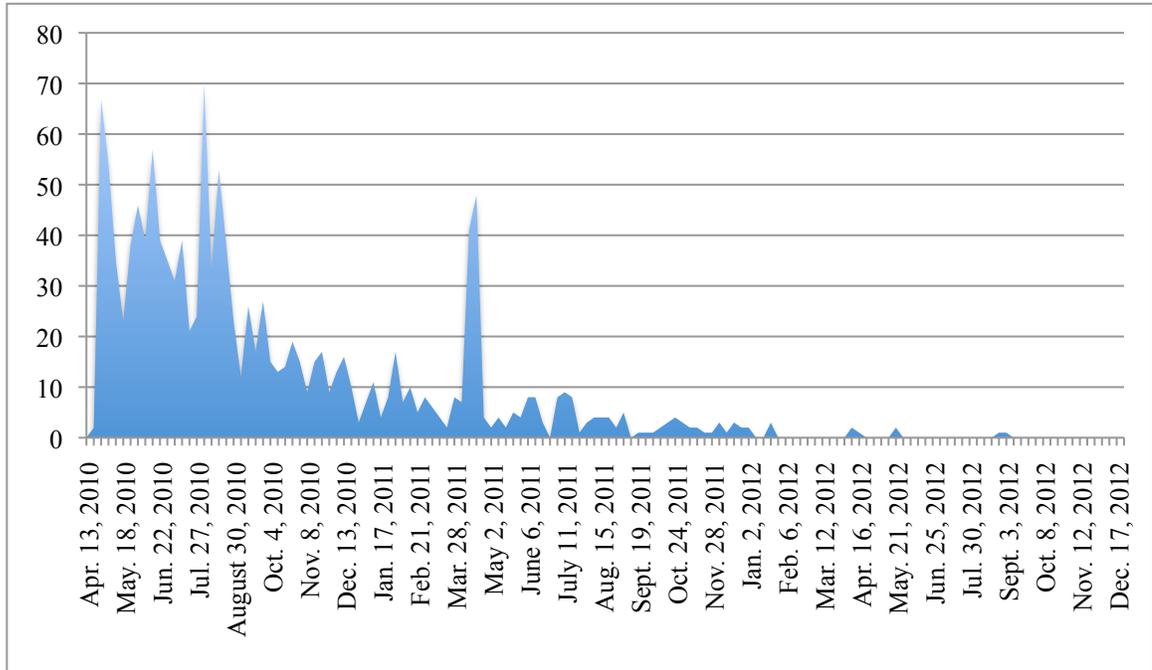


Figure 1.9 Newspaper articles per week covering Gulf seafood safety, N = 1,340  
 Source: Christensen and Worosz 2013

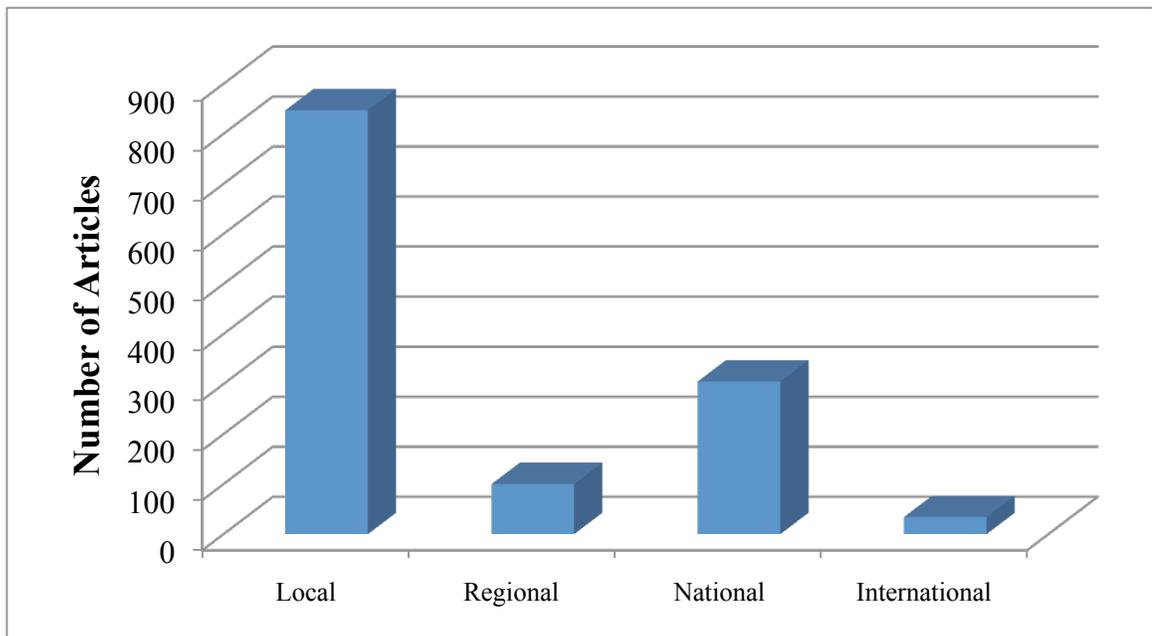


Figure 1.10 Geographic distribution of newspaper articles on Gulf seafood safety, N = 1,340  
 Source: Christensen and Worosz 2013

## **Road Map**

Having discussed both the current of the commercial seafood industry in Alabama and Mississippi and its history, the *Deepwater Horizon* disaster, and the seafood safety regulations that govern the industry in general, this project now moves to an attempt to uncover the opinions and beliefs held by members of the commercial seafood supply chain about the impact of the spill on their industry.

Chapter 2 presents the theoretical frameworks that shape this project: political ecology, community resilience, natural resource dependency, and the media's role in presenting environmental problems. Chapter 3 discusses the methodology for this qualitative research process, including the setting for the research itself, the sampling and interviews, and the limitations for work of this kind. Chapter 4 contains the results of the study. Chapter 5 draws conclusions and details the contributions of this project to the existing literature.

## CHAPTER 2: THEORY AND CONCEPTUAL FRAMEWORK

The question of the impact of the *Deepwater Horizon* spill on the commercial seafood industry is a question of the interaction between human and non-human forces. To explain this interaction, this thesis draws from political ecology as well as the concepts of resilience, resource dependency, and the role of the media in shaping environmental problems.

### **Political Ecology**

At its core, political ecology<sup>10</sup> is an attempt to observe and understand environmental problems by addressing their economic, social, and/or biophysical components together, recognizing that each component has a role to play in shaping the problems themselves and the public's responses to them. The field developed out of the American environmentalism movement of the 1970s and the accompanying sense that environmental research was neglecting the political dimension of environmental problems (Atkinson 1991; Bryant 1998).

Political ecology has experienced several distinct evolutions. Its roots are Marxian, and the original approach focused on the global capitalist superstructure at the expense of local stakeholders. The field grew to examine the influence of social movements, and political ecology is now considered a post-structuralist approach that observes the intersections of knowledge and power (Bryant 1998). Above all, there is, Bryant (1998:82) stresses, “an underlying assumption [that] politics and environment are everywhere thoroughly interconnected.” The field of political ecology as a whole seeks solutions to environmental problems that can be applied by communities. As Paulson et al. (2003:212) note, political

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<sup>10</sup> Atkinson (1991:4) clarifies that “ecology” in this context refers not to the biological systems of the planet, but instead to a holistic understanding of problems that incorporates both human and biophysical elements.

ecology “has been as much about finding practical solutions to environmental problems as it has been building new methodologies and theoretical approaches to study those phenomena.”

Criticism of political ecology reflects the duality of the discipline. Its practitioners are divided: does political ecology spend too much time on politics while neglecting biophysical realities, or is it too focused on the natural world while ignoring the social? In a case study of the degradation of a mangrove forest in the Philippines, Vayda and Walters (1999) argue that political ecology will inherently fail if the unique biophysical characteristics of the ecosystem in question are ignored. In their case study, control of a mangrove forest was given to the local community in an attempt to carry out one of the tenets of political ecology, which places a premium on community involvement in natural resources management (Vayda and Walters 1999). When community control of the mangroves resulted in degradation at similar rates as when the national government was in charge, Vayda and Walters (1999) concluded that there was a failure to include the ecological realities of the mangrove resources and their uses.

Atkinson (1991:17) notes that the entire field of political ecology is rooted in what he calls the “ecological problematic,” which focuses on pressures placed on natural resources and ecosystems by the increasing demands of population growth and economic expansion. The ecological problematic is not, however, seen the same way by all people; power structures and subjective realities heavily influence the interpretation of environmental problems (Atkinson 1991). Atkinson (1991:171) notes, “The political ecologist is aware that these [environmental decisions] are not individual choices but social ones and so is concerned to ask the question, ‘Will the choices currently being made by our society satisfy our material and spiritual needs and avoid ecological destruction?’”

Political ecology includes among its tenets a focus on the discourse surrounding environmental problems, and how that discourse is shaped. Escobar (1996:46) notes that discourse helps to explain the social structure of the communities in question. The words used to describe social and environmental problems are not a means of portraying truth, but rather a means of creating it (Escobar 1996:46). For instance, when the continued production and flow of capital requires the maintenance of an ecosystem, the owners of the means of production use terms like “sustainable development” and “biodiversity” to signal that they are committed to protecting the environment they need to exploit (Escobar 1996:47-49). The discourse surrounding the idea of sustainability is heavily criticized by political ecologists, who note that the word is “intended to create the impression that only minor corrections to the market system are needed to launch an era of environmentally sound development, [while] hiding the fact that the economic framework itself cannot hope to accommodate environmental concerns without substantial reform” (Escobar 1996:52).

Observing the differences in how environmental problems are constructed is not an attempt to diminish or dismiss the problems themselves, but rather “to show how their selective identification and representation is a political process” (Bryant 1998:88). Definitions of environmental problems are dynamic, and are shaped by interactions among stakeholders and their shared awareness of the issues at hand (Zimmerer 1996). Paulson et al. (2003:209) note that trying to understand environmental problems without addressing the cultural environmental knowledge that exists within a study area would be considering the environment “an unproblematic category, an arena of ‘natural laws.’” Robbins (2006:191) suggests that different responses by stakeholders to environmental policies are the result of knowledge that “...is not something an individual has ‘more’ or ‘less’ of, but rather reflects the specific forms of practice

undertaken in daily life.” The “barstool biology,” or collective knowledge held by laymen, of environmental best practices is heavily influenced by the relationship of the individual to the resources themselves (Robbins 2006:197).

The role of institutions, including various levels of government as well as academia and the global financial market, is another focus of political ecology. When environmental problems arise, it is up to the political ecologist to first ask herself whether or not the governmental structure that exists will allow for the changes that are necessary to ensure the long-term wellbeing of the ecosystem in question (Atkinson 1991). Atkinson (1991:187) states that capitalism, “...bent mindlessly on accumulation at the expense of other cultures,” prevents any real environmental conservation or protection from taking place. The interaction between the global financial market and politics is also taken into consideration, as Princen (2001:14) raises the question, “How does the polity change as democracy is increasingly defined as a vote in the marketplace?” Princen (2001:12) notes that the dominant position of economics is that “goods are good, so more goods must be better,” which leads to a continued exploitation of natural resources. When environmental problems are viewed from the economic perspective, the problems are “solved” (but really just postponed) by attempted to improve production efficiency through increased regulations on the products themselves, or even levying taxes on their usage (Princen 2011:13, 19).

Because the central government is seen to limit environmental conservation, political ecologists favor a localized approach to regulation and enforcement. Roussopoulos (1993:19) criticizes environmentalism for seeking to solve environmental problems with as few changes to the dominant social order as possible, ameliorating negative impacts of exploitation without making significant changes. In some cases, prevailing wisdom in political ecology indicates that

a “statist” approach to solving environmental problems will yield a passive and uninterested people, unable or unwilling to become involved in their own environmental issues (Roussopoulos 1993:111). While certainly some centralization is inevitable, political ecologists seem to agree that the best work on environmental problems emerges from involved citizens at the local level. Academia has also been criticized by political ecologists. Yapa (1996:71) notes that many responses to environmental problems are “formed by ahistorical, subject-specific disciplines and paradigms.” The failure of these academic disciplines to work together and with stakeholders yields “fragmented... discourse” (Yapa 1996:71) that inevitably reinforces the dominant social order.

Though solutions at the local level are favored, political ecology incorporates a multi-scale, multi-dimensional discussion of environmental problems (Paulson et al. 2003). Harper (2004:299) notes in her study of respiratory diseases in Houston, Texas, that environmentally related health problems are not evenly distributed, but rather are the result of “social relations and inequalities such as malnutrition, environmental hazards, poor housing, and poverty.” To study these kinds of problems requires a commitment to looking at all levels of social, economic, and environmental policy and the various types of degradation that occur.

The concept of panarchy is introduced to discuss social systems that experience changes across spatial and temporal scales (Davidson 2010; Gunderson and Holling 2002). Panarchy allows the observer to take into account the “cross-scale, interdisciplinary, and dynamic” (Gunderson and Holling 2002:5) nature of environmental problems. When environmental problems transcend scales, policy solutions can be difficult (Gunderson and Holling 2002). For example, the Gulf of Mexico spans several states and countries, and is utilized by a wide range of industries. It exists in a grey area of regional governance. Developing policies for common

entities like the Gulf is often considered a “wicked problem” (Gunderson and Holling 2002:156; Rittel and Webber 1973) because of the entity’s lack of political definition or jurisdiction.

## **Resilience**

The term “resilience” finds application in a variety of academic and professional fields, including economics, health care, and public policy. During the first presidential debate between President Barack Obama and Governor Mitt Romney, “resilience” was referenced almost immediately in President Obama’s opening statement as one of the unique characteristics of the American people that has assisted in our economic recovery (Commission on Public Debates 2012). In practice, as demonstrated in the debate, resilience is often a nebulous term, meant to convey a positive quality that ensures a return to normalcy. In academic theory, there is significant disagreement as to not only the definition of resilience, but also its usefulness as a rubric for evaluating organizations, ecosystems, and/or communities. The evolving concept of resilience demands a critical look at existing and emerging theories if it is to be helpful in describing and understanding the responses of communities to shocks. Though political ecology is littered with competing definitions of resilience, they can be organized into three categories: engineering resilience, ecosystem resilience, and evolutionary resilience (Gunderson and Holling 2002; Davoudi 2012).

These three types of resilience are classified according to their conceptualization of the idea of equilibrium. Engineering resilience requires a return to one specific equilibrium after a shock is experienced, and puts a premium on the stability and predictability of the ecosystem or community in question (Gunderson and Holling 2002; Walker and Cooper 2011). The definition of resilience applied by Adger et al. (2005:1036) also falls under the engineering category: “...the capacity of linked socio-ecological systems to absorb recurrent disturbances such as hurricanes

or floods so as to retain essential structures, processes, and feedbacks.” Under this interpretation, if a community or industry or ecosystem can experience a disaster, whether natural like the ones mentioned above or technological like the *Deepwater Horizon* spill, and emerge from that disaster with the ability to return to normalcy, it can be considered resilient.

Ecosystem resilience refers to a more nuanced view of resilience that acknowledges that there can be a number of equilibria in any system, and that those equilibria can in many cases change to reflect new primary functions in a system that has adapted as a result of the shock(s) experienced (Gunderson and Holling 2002). To illustrate this, Gunderson and Holling (2002) use the concept of the adaptive cycle (Figure 2.1). The adaptive cycle is a tool for tracing the evolution of complex organizations. If ecosystem resilience is present, the cycle begins with the identification and exploitation of a resource. Once that resource is found to be profitable, it is “conserved,” which in this case means its exploitation becomes as efficient as possible. In the release state, a shock breaks down this conservation and consolidation effort, and the energy from the system is released to be reorganized in what could be a new system altogether.

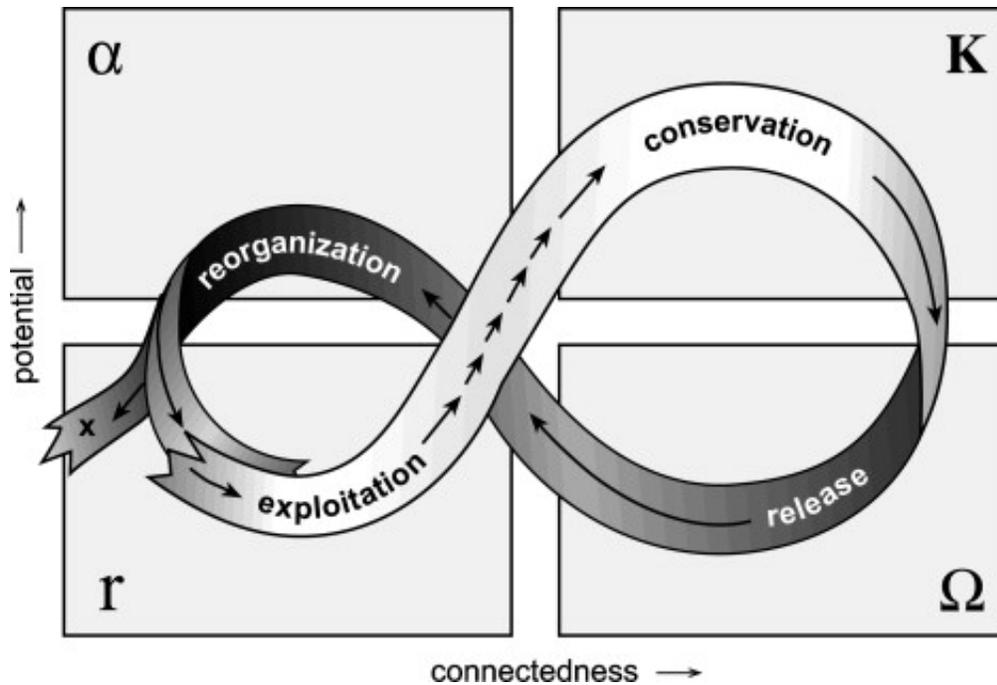


Figure 2.1. The adaptive cycle.  
 Source: Gunderson and Holling 2002

However, the adaptive cycle fails to consider that, in some cases, a return to pre-shock normalcy might not be a desirable outcome. Davoudi (2012) provides the example of Hurricane Katrina. For many New Orleanians, going back to the pre-Katrina status quo was not acceptable. This idea is echoed by Davidson (2010:1137), who notes, "...the association of sustainability with notions of stasis and equilibrium poses entirely counterintuitive notions of social change. History tells us that sustainability... does not exist."

Evolutionary resilience, which completely abandons the idea that equilibria exist in social systems, addresses some of these concerns. Evolutionary resilience rejects the idea that a resilient community "*preserv[es]* what we have and *recover[s]* to where we were" (Davoudi 2012:302). Davoudi (2012:302) notes that resilience thinking that attempts to preserve an equilibrium often fails to recognize that "gradual, small, and cumulative changes" are often to blame for the problems that are only given attention after a large shock has disrupted the system.

Evolutionary resilience suggests questions should be asked about components of a system that have been gradually altered. For example, what role does importing seafood play in a community's vulnerability to hurricanes? To what extent does the United States' deepwater drilling policy endanger water-dependent industries? Peterson (2000:327) notes that diversity is the only defense against the collapse and reorganization of systems, but that diversity is essentially anathema to a system that is succeeding in its consolidation phase.

The concept of resilience has received a great deal of attention in coastal communities that rely on natural resources. Along the coasts, where climate change and sea level rise are presenting new problems, the increase of industry and inhabitants is raising serious questions about the long-term plans for dealing with disturbances to the natural resources that support these areas (Adger 2000). Commercial fishers have been studied along with the techniques used to keep their products marketable and in-demand in response to environmental and economic changes (Andreatta and Parlier 2010; Deale et al. 2008; Paolisso 2002; Jentoft 2007). During these changes, small, family-owned businesses are most likely to suffer (Zissimopoulos and Karoly 2010). Problems also arise when man-made disasters occur and settlements are ordered by the court system, as the legal structures often pits community member against community member and can drag out for considerable lengths of time (Picou et al. 2004).

It is entirely possible that some communities will never recover from the shocks they experience. Dyer (2002:161, 164) calls this failure "punctuated entropy," and defines it as "a permanent decline in the adaptive flexibility of a human cultural system to the environment brought on by an accumulation of disaster events." This decline is the combined result of economic, social, political, and ecological forces prohibiting the basic functions of a community. Dyer (2002:184) identifies three key steps in the facilitation of punctuated entropy: "(1) the

natural resource base has been compromised, (2) external assistance has been misdirected or withheld, and (3) the postdisaster political ecology of the region has hindered restoration of traditional patterns of human-environmental interaction.” Punctuated entropy, while not likely to become part of a public policy lexicon that is devoted to growth and expansion, is an important concept to consider for coastal communities. Davidson (2010:1144-1145) stresses, “Resilience itself should be understood to be one of three possible responses to disturbance, with the other two being adaptation and transformation, and the researcher should not presume *ipso facto* that resilience is necessarily the preferred response.”

### **Resource Dependency**

Though the Gulf Coast Region is home to a wide variety of industries, including chemical production, oil and natural gas extraction, shipping, tourism, and commercial and recreational fishing, a great deal of them rely to varying degrees on one common natural resource: an accessible and productive Gulf of Mexico. Natural resource dependence influences many aspects of communities’ economic and social stability, and exploring that influence is vital to understanding communities’ responses to shocks that limit or remove access to the resource in question. The most pressing questions related to natural resource dependent communities are 1) How can we recognize them? and 2) What impact does this dependency have?

Recognizing and classifying natural resource dependent communities can be difficult. Marshall et al. (2007) detail the characteristics of the individuals and groups who are dependent on natural resources, noting that they experience the following types of dependencies:

- Social dependency
  - Cultural importance of a job, and the lack of transferable skills
  - Attachment to place

- Familial responsibilities
- Economic dependency based on business skills and competency;
  - Business skills and competency
  - Level of income, debt, and specialization
- Environmental dependency<sup>11</sup>
  - Length of time spent in industry
  - Personal investment

Marine resources further complicate the matter. The potential impacts of marine resource policies on commercial fisheries must be assessed before such policies are put into place, as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (Watson and Beleiciks 2009; Jacob et al. 2010). The MSA defines a fishery-dependent community as “a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such a community” (Magnuson-Stevens Act 2006).

In attempting to identify and define fishing communities in the context of the MSA, Clay and Olson (2008) note that most fishery-based communities are classified by geographic area, type of gear used for harvesting, the species being harvested, and/or ethnicity. However, this fails to incorporate other industries that are water dependent. “Small coastal communities are unique in their access to marine resources; both extractive-based industries, such as commercial fishing and seafood processing, and amenity-based sectors, such as recreation and tourism, as well as in opportunities for ocean shipping” (Watson and Beleiciks 2009:254-255). To include a

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<sup>11</sup> The term “environment” refers here to the setting in which a person works, not to the natural world.

wider range of activities, Watson and Beleiciks (2009) developed a dependency index to determine whether or not small communities were dependent on their marine resources based on the percentage of employment in each community that is derived from marine resources (Watson and Beleiciks 2009). Jacob et al. (2010:1308) echo this methodology, noting that the percentage of the population employed in agriculture, fishing, and hunting is a useful indicator of dependence.

The dependence of a community's livelihood on natural resources can pose enormous problems for those communities and their inhabitants. The cycle of dependence is in many cases damaging for towns that have relied on one natural resource, as the boom-and-bust nature of these resource-based industries strains communities' social and economic structures, from requiring expensive infrastructure to discouraging diversification and investment in human capital (Rural Sociological Society 1993; Mencken and Flynn 2004; Freudenberg 1992).

Dependence on marine resources can also impact community decisions regarding the conservation and maintenance of their resources in the face of environmental problems. These problems are inevitable, argue Marshall et al. (2010:306), because, "due to population growth and the accelerating impacts of climate change, communities and industries will put additional stress on marine resources which may lead to a further spiral of accelerating and mutual decline." In investigating commercial fishing communities in the Red Sea, Marshall et al. (2010) found that the more dependent an individual was on fishing, the less likely he was to comply with conservation regulations. Conservation was seen as an unattractive option by those fishers who were older, had families to support, and had no other means of earning income, while fishers who responded that they could easily find another job had no problem with the implementation of conservation measures (Marshall et al. 2010:310). Ultimately these social and economic

constraints are important to keep in mind when considering resource dependent-communities' conservation decisions.

In the case of commercial fishers, the total dependence on the natural resource of seafood renders them unable to respond to market changes. They are then left without any control or economic self-determination when changes inevitably occur (Marshall et al. 2007; Peluso et al. 1994). Small, family-owned businesses are the most vulnerable to market changes, particularly when they come as the result of an environmental disaster, as was the case after the *Deepwater Horizon* spill (Zhang et al. 2009).

When well-paying jobs that require little formal education, such as work in a seafood processing plant or distribution warehouse, are available, there is little incentive for the workforce to continue their education; then, when the resource is depleted, the community is left with an uneducated workforce with the debt and financial responsibilities that they accumulated when times were better (Freudenburg and Gramling 1994; Goldenberg et al. 2010). The relative wealth that natural resource-dependent jobs provide is attractive, but there are costs to investing in them that remain unseen until much later. In the case of the Gulf commercial fishing industry, when fishery closures and consumer fears brought about a halt to production, there were widespread worries that the industry, and indeed the way of life that it supported, would never recover.

### **The Role of the Media in Environmental Problems**

When a community is dependent on a consumable natural resource, the public perception of the safety of that resource is vital for its continued stability, particularly in the face of an environmental shock or disturbance. Hoffman and Oliver-Smith (2002:4) define a disaster as “a process/event combining a potentially destructive agent/force from the natural, modified, or built

environment and a population in a socially and economically produced condition of vulnerability, resulting in a perceived disruption of the customary relative satisfactions of the individual and social needs for physical survival, social order, and meaning.” The concept of public perception becomes important for defining a disaster, particularly since disasters can “[expose] the way in which people construct or ‘frame’ their peril” (Hoffman and Oliver-Smith 2002:6). A media report of an environmental problem is often the first time consumers become aware of that problem, so the media plays an invaluable role in presenting and shaping perception of environmental issues and disasters (Hannigan 2006). Environmentalism itself, the birth of a collective focus on environmental problems, was nurtured by the media thanks to its packaging of environmental issues in an attractive and accessible manner (Atkinson 1991).

Fundamentally, the media’s role in environmental problems is reflective of what Atkinson (1991:63) calls the relativity of truth, which is to say the haphazard way that ideas are formed and then provoke action or inaction. Each of these truths is shaped by cultural influence, and the media is perhaps the best-equipped actor to shape culture. This idea of influence and meaning is at the foundation of political ecology. As Bryant (1998:87) notes, “political ecological conflicts are thus as much struggles over meaning as they are battles over material practice.” Attempting to understand an environmental problem without investigating the media’s coverage of that problem is in essence omitting a vital step in the creation of its collective definition. The media’s role also illustrates the multi-scale, panarchical nature of environmental problems. Media coverage of a story can advance it from the individual scale to the international scale if it is found to be of interest to a general audience (Gunderson and Holling 2002).

Robinson (2002) and Boyd et al. (2009) offer examples of framing to explain how the media dealt with major health and safety concerns (e.g. discovery of contamination in the Love

Canal community, an outbreak of Mad Cow Disease). In the case of Love Canal, the study focused on the competition for dominance among the frames used in media coverage, and how the successful frame ultimately won out. Media coverage distilled the fear of the toxic chemicals and their disruptive effects on personal health and community well-being into iconic imagery: boarded-up homes, children on playgrounds, chemical drums, people in wheelchairs. Szasz (1995) points out the “saturation” (1995:206) of the Love Canal story, as well as the recurring rhetorical devices that painted the impacted community as a “nightmare,” a “tragedy,” and a “ticking time bomb” (1995:207). These articles expand on Hannigan’s (2006) discussion of framing by incorporating the role of media consumers’ experiences and opinions in shaping their construction of the events happening around them. They also provide examples of how environmental problems are constructed. As Molotch and Lester (1975:236) put it, “We see published or broadcast news not as a report of a world but as tracings or residues that can be used to reveal the purposes and programs of the social actors who had practical reasons for producing one sort of news instead of another.”

The framing of these problems has direct impact on which environmental issues find an audience that can advocate for solutions or remediation. Wolfe and Schweitzer (1996) note that the gradual contamination of the Tennessee Valley by the Oak Ridge Reservation was only addressed after it received significant media attention. Beamish (2002:25) details the Guadalupe Dunes, California, oil spill, which struggled to receive media coverage and public attention because of its rural location and crevice qualities: “Initially, at least, the spill was just not dramatic enough to get on TV or make the paper.” The idea that an environmental problem has to reach the classification of “disaster” in order to be sufficiently addressed is important. Wolfe

and Schweitzer (1996:2) note that the failure of an event to receive this classification results in “consideration and uncertainty” instead of a unified response to the problems it causes.

Uncertainty plays an important role in how environmental problems are discussed and addressed. Button (2010:16) uses case studies (including the *Exxon-Valdez* and *Deepwater Horizon* oil spills) to “examine how the conscious tendency to manufacture, revise, or withhold knowledge politicizes the discourse in the wake of disasters.” This process begins in the initial stages of disasters with a fight to define and control the words used to describe the event. After the *Exxon-Valdez* spill, Exxon attempted to replace the word “clean” with the phrase “environmentally stable” as a way to avoid being legally responsible for removing all the oil from the beaches by arguing that the presence of some oil would not keep the beach from returning to normal on its own (Button 2010). After the coal ash incident in Tennessee, the Tennessee Valley Authority (TVA) mobilized a public relations team to rebrand the spill as a “sudden accidental release” instead of a disaster (Button 2010:137). By convincing the public that these disasters are merely accidents, the entities responsible can absolve themselves of the mismanagement of the sites. This has the added benefit of making any clean-up work seem like charitable giving instead of required remediation.

The incorporation of public relations professionals into disaster response is something Button (2010) deals with extensively. Button (2010:159) notes that because of significant changes in the news industry, reporters are no longer expected to have the scientific knowledge that would be required to adequately cover environmental disasters. They also cannot expect to remain in one community for large portions of their careers, as local media is increasingly consolidated and national wire services take over the role of the beat reporter. This inability to adequately cultivate sources and develop indigenous knowledge seriously changes how stories

are reported. When disasters happen, reporters unfamiliar with the dynamics that caused them look for answers, and, as Button (2010:154) puts it, those answers often come from “who has both access to the media and a sophisticated understanding of how the media works.” Enter the public relations industry, which does nothing but ensure that the narrative most beneficial to their client is the one that achieves the most attention. Button (2010:163) gives the excellent example of how, in the wake of the *Deepwater Horizon* spill, environmentalists who had pushed for restrictions on shallow water drilling were blamed for the deepwater accident. This kind of “logic” is an illustration of how, when corporations are struggling to present themselves in a positive light, they attempt to introduce enough uncertainty into a discussion to cloud and confuse the understanding of disasters (2010:161). Uncertainty becomes a powerful tool in introducing reasonable doubt into the discussion of environmental disasters.

Technological disasters provoke very specific coverage from media outlets. Often, coverage of the environment is given priority over coverage of the human victims of technological disasters (Button 2002). This is an attempt by the entities involved in the disaster to “naturalize” (Button 2002:154) the event and separate themselves from the victims. Button (2002:147) points out that when these types of events occur, the media tends to focus on the individual rather than the group or community affected, which has far-reaching impacts. “The outcomes of important questions---who is to blame, who is to be compensated, who suffers disproportionate risk exposure, and who should be involved in essential decisions such as remedial treatment and preventative policies---pivot on whose voices are heard” (Button 2002:145). When the perspectives of impacted populations are neglected, there is a failure to fully understand the consequences of environmental disasters.

In many cases, the media's coverage of seafood safety in the Gulf of Mexico is tightly bound to its coverage of the *Deepwater Horizon* spill and the oil industry as a whole. For this reason, it is important to understand how complicated technology is discussed in the media. Hendry (2008:309) suggests that the media creates a "technospecter," which she defines as "(1) a ubiquitous but unseen presence; and (2) a powerful, foreboding threat, that (3) eludes the constraints of controlling agents; and (4) is a product of our past iniquities." The technospecter allows the media to treat technologies like oil rigs as Frankenstein-like creatures that are created by humans to serve a specific purpose but totally out of our control, thereby rendering humans blameless when these technologies fail (Hendry 2008). This idea is echoed by Daley and O'Neill (1991), who argue that the mainstream media reinforces the development model that is supported by industry and the government, which suggests that growth is required for success, and that growth is achieved by using technology to control nature.

## CHAPTER 3: METHODS

The work included in this thesis is part of a larger project that seeks to understand how coastal communities cope with economic and environmental shocks. The goal of this part of the study is to obtain the opinions and beliefs held by members of the seafood supply chain in Alabama and Mississippi on their industry in the wake of the *Deepwater Horizon* disaster. For the purposes of this project, “seafood” refers to some of the most common and iconic Gulf shellfish products: shrimp, crab, and oysters. “Supply chain” refers to the harvesters, processors, wholesalers/retailers, and/or restaurateurs who depend on Gulf seafood for their livelihood. The term “stakeholders” is also used to refer to these members of the supply chain as further acknowledgement of their involvement in and reliance on the Gulf seafood industry. There are two methods used in this study. The first method is a media content analysis of all the articles written on the topic of the safety of seafood harvested from the Gulf of Mexico. The second method is the in-person interviewing of stakeholders.

A relatively simple way to obtain these opinions and beliefs would be an electronic or mailed survey to a large sample of the seafood supply chain population. However, several characteristics of this study population and the study topic itself make that method an unwise choice. Though the *Deepwater Horizon* spill occurred over three years ago, there is a very limited amount of research on the topic that is relevant to this study. The lack of existing data means that we must allow the research subjects to help shape the research itself. They know firsthand the problems being experienced in their communities, and baseline studies such as this one should be heavily influenced by their responses. A mailed or electronic survey does not allow for this flexibility and continuous modification. Additionally, the topics covered by this study can be intensely personal. While the anonymity of a mailed survey might in some cases be

beneficial, the rapport built in a successful in-person interview can generate much more thorough and useful answers about topics like financial and emotional hardship that are addressed by this study.

The study population also presents difficulties for a mailed or electronic survey. There is no comprehensive database of the population, particularly since it spans two states and five counties. There is also a significant and in many cases insular Southeast Asian population of harvesters and processors. Besides the obvious problems of gaining entrée to this group and communicating effectively with them, there is also the additional concern that the issues they have faced in the wake of the spill might be different than those faced by native English speakers. Speaking with them, even if through a translator, allows members of the Vietnamese, Laotian, or Cambodian communities to share their experiences in a way that is meaningful and appropriate.

Therefore, because this population is complicated and the topic is unstudied, this thesis uses qualitative, semi-structured interviews as a tool to explore the opinions and beliefs held by the seafood supply chain in coastal Alabama and Mississippi. The interviews cover the impacts of the *Deepwater Horizon* oil spill, as well as other environmental and economic shocks experienced by the region such as Hurricanes Katrina and Ivan and the 2008 recession. Interviews also cover the opinions of the media coverage of the seafood industry and seafood safety in the wake of the *Deepwater Horizon* spill.

### **Research Questions**

- What are the opinions held by stakeholders in the commercial seafood supply chain (that is, fishers, processors, wholesalers, and restaurateurs) in Alabama and Mississippi on their industry in the wake of the *Deepwater Horizon* spill?

- What are the opinions held by stakeholders of the safety (that is, wholesomeness) of Gulf Coast seafood (that is, seafood products harvested in the Gulf of Mexico), as well as the existing seafood safety regulations at the state and/or federal level?
- What, if any, influence do stakeholders believe media coverage (originating from television, newspapers, and/or online sources) has had on consumers' opinions of the safety of Gulf seafood, and how do stakeholders view the media coverage of their industry?

### **Media Content Data**

The *Deepwater Horizon* spill and its impacts captured national and even international attention, prompting this study to include the research objective of determining the extent to which commercial seafood stakeholders felt the media influenced Gulf seafood consumers. Before exploring stakeholders' opinions on the media coverage, it is helpful to more fully understand the coverage itself.

#### *Population*

The population for the media content analysis was all newspaper articles written in English and available via online databases.

#### *Sample*

To quantify and qualify the media coverage of the commercial seafood industry in the context of the *Deepwater Horizon* spill as well as the perception of seafood safety in the Gulf of Mexico, every newspaper article was collected that was written between April 20, 2010, the date the spill occurred, and March 2013 on the topic of Gulf seafood safety.

### Data Collection

Newspaper articles were collected through a variety of online databases. The primary sources were LexisNexis Academic and Access World News, but other newspaper-specific databases like NYTimes.com and AL.com were searched as well. The search terms used were “Gulf + seafood + safety.” Each article was then read to ensure it was not a false positive, i.e. an article that mentioned the words “seafood safety” but did not address the research objective. Data collection was ongoing from the summer of 2011 to the spring of 2013. A total of 1,340 newspaper articles were collected from newspapers including the Mobile, Alabama *Press-Register*, the Biloxi, Mississippi, *Sun-Herald*, the New Orleans *Times-Picayune*, *The New York Times*, *The Times* of London, and *The (Singapore) Straits-Times* (see Figure 3.1).

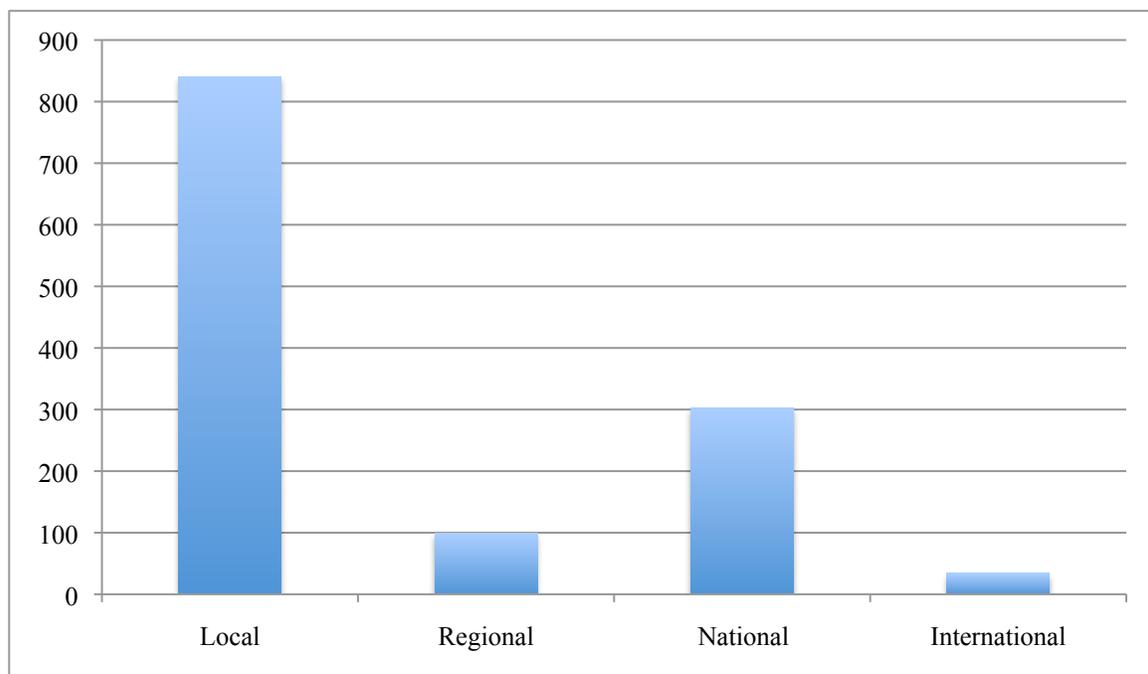


Figure 3.1 Geographic distribution of newspaper articles on Gulf seafood safety, N = 1,340  
Source: Christensen and Worosz 2013

### *Analysis*

Newspaper articles were digitally stored in NVivo (QSR International 2008), where they were analyzed based on their proximity to the study area, in which newspaper they appeared, and the reporters' names, as well as tone and subject matter.

### **Seafood Supply Chain Interviews**

#### *Research Setting*

This research is conducted in the coastline counties of Alabama and Mississippi: Mobile and Baldwin Counties in Alabama, and Harrison, Hancock, and Jackson Counties in Mississippi (Figures 3.2-3.4). The primary fishing ports in Alabama are Bon Secour-Gulf Shores (Baldwin County) and Bayou La Batre (Mobile County); in Mississippi, the primary ports are Pascagoula-Moss Point (Jackson County) and Gulfport-Biloxi (Harrison County) (Office of Science and Technology 2008). Processing and wholesaling of the products harvested at these ports happens in their immediate vicinity, so this setting includes all relevant members of the seafood supply chain who produce and sell Gulf products. There are, of course, restaurants selling Gulf Coast seafood away from the Coast itself. Those restaurants are not included in this study.

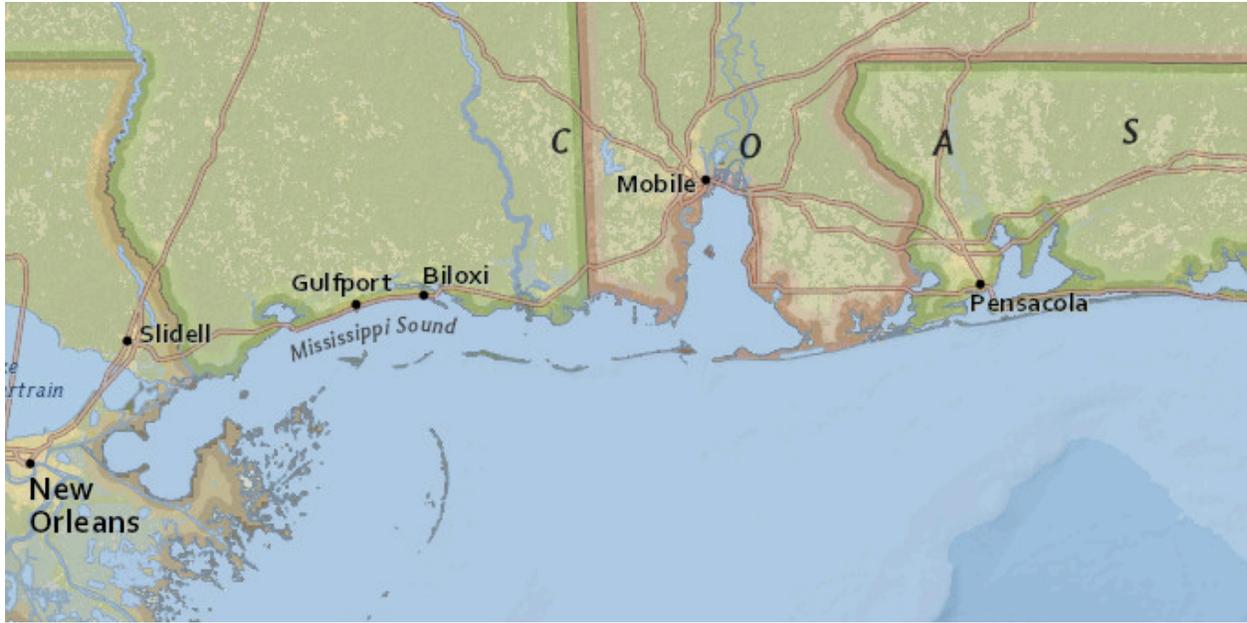


Figure 3.2 Study area in the context of surrounding Gulf States  
*Source:* NOAA 2013

### *Marine Resource Dependency Index*

For many residents of Gulf Coast communities, resource dependency is part of life. To provide a quantitative picture of that dependency before discussing its qualitative impact as demonstrated in stakeholder interviews, Table 3.1 adapts the marine dependency index created by Watson and Beleiciks (2009) and discussed in Chapter 2 of this work. Watson and Beleiciks (2009:266) note, “We believe that using an index comprised of either the percent of total employment or the percent of total GRP [gross regional product] that can be traced to the economic base (export) activities of marine resource industries is the most appropriate measure of economic dependency for use in policy analysis.” The table shows the percentages of employment in marine-dependent sectors for each of the coastline counties in Alabama and Mississippi based on the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) database for the fourth quarter of 2011, the most recent and complete data available.

**Table 3.1 Marine dependency index for study area, 2011 Q4**

<b>NAICS Sector<sup>12</sup></b>	<b>Baldwin, AL</b>	<b>Mobile, AL</b>	<b>Hancock, MS</b>	<b>Harrison, MS</b>	<b>Jackson, MS</b>
<b>Agriculture, Forestry, &amp; Fishing</b>	590 (1%)	593 (0.36%)	10 (0.09%)	10 (0.01%)	29 (0.06%)
<b>Mining, Quarrying, Oil &amp; Gas Extraction</b>	48 (0.08%)	632 (0.38%)	17 (0.1%)	N/A	131 (0.3%)
<b>Manufacturing</b>	3608 (6%)	13,812 (8%)	759 (7%)	3619 (5%)	12,999 (29%)
<b>Real Estate, Rental &amp; Leasing</b>	1819 (3%)	3283 (2%)	136 (1%)	1289 (2%)	412 (0.9%)
<b>Arts, Entertainment, &amp; Recreation</b>	808 (1%)	1254 (0.8%)	800 (7%)	2535 (3%)	348 (0.8%)
<b>Accommodations &amp; Foodservices</b>	9269 (16%)	13,827 (8%)	1553 (13%)	17,209 (22%)	3924 (9%)
<b>Transportation &amp; Warehousing</b>	869 (1%)	8657 (5%)	120 (1%)	2565 (3%)	881 (2%)
<b>Total Marine-Dependent Employment</b>	17,011	42,058	3395	27,227	18,724
<b>Total Employment</b>	56,987	164,630	11,633	78,065	44,777
<b>Marine Dependency Index</b>	<b>30%</b>	<b>26%</b>	<b>29%</b>	<b>35%</b>	<b>42%</b>

*Source:* U.S. Census Bureau 2011a

<sup>12</sup> The U.S. Census Bureau's Longitudinal Employer-Household Dynamics data exists only for the sector level of the North American Industry Classification System (NAICS). There is precedent for using this level of data in Watson and Beleiciks (2009).

Watson and Beleiciks (2009) do not provide a range for which scores should be considered a reflection of significant marine resource dependence, indicating instead that these scores are highly relative. Alabama and Mississippi's combination of industrial and recreational waterfront uses ensures that a score of 25% on the index, meaning that one-quarter of all jobs are marine-dependent, can be considered low. The greatest usefulness of this index for policymakers and researchers is in allowing the data to tell a story. Distinct differences between the counties emerge from the marine dependency index. We start to see which counties are blue-collar, rooted in manufacturing and transportation, and which rely on tourism and the service economy. Mobile County, Alabama, contains by far the largest number of marine-dependent jobs, most of which are generated by the manufacturing and accommodations and services industries. However, Mobile County also has the lowest marine dependency index score, likely reflecting Mobile's large population and more diversified economy, which encompasses large medical and business components. The city of Mobile's population of almost 200,000 sets it apart from other coastline communities in Alabama and Mississippi; the next largest population in the study area is Biloxi, with just under 45,000 residents (U.S. Census Bureau 2011b). Manufacturing and accommodations and services provide the majority of Baldwin County's marine-dependent jobs, and the county scores relatively low on the index.<sup>13</sup>

In Mississippi, Harrison County has almost double the number of marine-dependent jobs as Jackson County, but Jackson County's economic reliance on the shipyards in Pascagoula gives it a higher marine dependency index score. Harrison County's largest marine-dependent

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<sup>13</sup> Baldwin County has experienced significant demographic and economic changes in the last twenty years. Much of the land once used for agriculture has been developed to accommodate the influx of families and retirees from around the country.

employment sector is accommodations and services, which is thanks to the development of the waterfront casino industry in Biloxi.

### *Population*

The study population is made up of individuals and businesses within the commercial seafood supply chain operating in coastal Mississippi and Alabama (Table 3.2). While the table might appear completely unhelpful thanks to the large amounts of data that are non-disclosable, it is an affirmation of the methods used for this study. The seafood-dependent population in the study area is not well quantified, and existing data for this population is spotty at best.

**Table 3.2 Employment by relevant sector in study area**

<b>County</b>	<b>Fishing</b>	<b>Seafood Processing</b>	<b>Seafood Wholesale/Retail</b>	<b>Restaurants</b>
Baldwin (AL)	ND <sup>14</sup>	ND	98	8,510
Mobile (AL)	ND	ND	208	12,438
Hancock (MS)	ND	ND	ND	ND
Harrison (MS)	ND	ND	ND	ND
Jackson (MS)	ND	ND	12	3,517

*Source:* BLS 2011

### *Sample*

Face-to-face interviews were conducted with supply chain stakeholders. These stakeholders are involved in the harvesting, processing, and sale of Gulf seafood, and also include restaurateurs who buy and serve local seafood within the study area. The initial sample of interview subjects was purposeful, based on information and guidance from key informants, including a representative of the Gulf States Marine Fisheries Commission and a seafood safety

<sup>14</sup> The Bureau of Labor Statistics uses “ND” to signify when data are nondisclosable. BLS does not offer information about why the data is not public.

inspector. Snowball sampling was then employed to solicit advice and recommendations on whom to interview next from the stakeholders in the initial sample (Lamont and White 2008; Sudman 1983). In some cases this allowed me to experience first-hand the commercial seafood supply chain, as interview subjects told me which processing houses they bought from or sold to, which restaurants sold their products, and/or which harvesters brought in their catch.

In the interest of being able to quickly reference names,<sup>15</sup> locations, and roles in the supply chain, Table 3.3 lists this information for those interviewed for this study.

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<sup>15</sup> Identifying information has been removed; all names are pseudonyms.

**Table 3.3 Supply chain roles, locations, and pseudonyms of interview subjects**

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<b>Supply Chain Role</b>	<b>Location</b>	<b>Pseudonym</b>
<b>Harvester</b>	Mobile County	Leslie Lawrence
	Mobile County	Sam Stevens
	Mobile County	Donna Day
	Harrison County	Tammy Trent
	Harrison County	Greg Guy
<b>Processor</b>	Baldwin County	Allan Adcock
	Baldwin County	Sarah Shepherd
	Mobile County	Claire Curtis
	Mobile County	Beau Bright
	Mobile County	Linh Lo
	Mobile County	Phuong Pho
	Hancock County	Kevin Keiler
	Harrison County	Mary Miller
	Harrison County	Clint Campbell
	Harrison County	Dale Davis
	Harrison County	Adam Allen
	Jackson County	Paul Post
<b>Retailer/Wholesaler</b>	Baldwin County	Charles Cook
	Baldwin County	Mike Marshall
	Mobile County	Walker White
	Harrison County	Frank Fox
	Harrison County	Bill Bourland
	Harrison County	Steve Smith
<b>Restaurateur</b>	Baldwin County	Travis Taylor
	Baldwin County	Jake Jackson
	Baldwin County	Nick North
	Mobile County	Roger Riley
	Harrison County	Tom Thompson
	Harrison County	Rick Ross
	Jackson County	Ed Ellis

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### *Survey Instrument*

The survey instrument included open-ended questions designed to respond to each of the previously stated objectives. This semi-structured interview guide was used to provide basic direction to the interviews (Appendix A). The open-ended questions allow the interviews to focus on the topics of interest to the subjects themselves as opposed to following a preordained script. This is appropriate since this research topic is in its infancy and the interviews can yield responses that are much different than anticipated. The objectives were operationalized to allow for more natural discussion in a non-academic setting. For example, to understand stakeholders' opinions on the status of their industry, the following questions were asked:

- How do you think the seafood industry changed since you first got involved?
- How much has your business recovered from Hurricane Katrina, the *Deepwater Horizon* spill, and the recession?
- What has been most helpful in your businesses recovery? Least helpful?

To address the objective related to stakeholders' opinions of seafood safety regulations, the following questions were asked:

- Do you have any concerns about fishing in the Gulf?
- After the oil spill, did your eating habits change?
- Who monitors seafood safety? Are you satisfied with their performance?
- What seafood safety procedures do you have to follow in your business?

Finally, to ask about the respondents' opinions on the media, questions like the following were asked:

- Did you see media coverage of seafood safety after the spill?
- What did you think about the coverage? Was it accurate?

- What kind of influence do you think the coverage had on your customers?
- Did customers reference the media when they talked to you about your products?

While the questions on the guide were specifically targeted to the stated objectives, the semi-structured nature of the interviews allowed me to focus on topics that were of interest to each respondent. To further validate the choice to perform interviews instead of conducting a mailed survey, I will note that without this type of open-ended questioning, I would have missed out on several issues that were of the utmost importance to the stakeholders I interviewed yet had not been included in this interview guide because little to no published research exists on the topics.

#### *Data Collection*

Data were collected through face-to-face interviews conducted during the summer of 2012, late fall of 2012, and the spring of 2013.<sup>16</sup> Interviews were conducted at the location of the subject's choice, which could be his (this is not just a convenient pronoun: the population is overwhelmingly male and only eight out of the thirty interviews have been with women) home, boat, office, or restaurant. A printed consent form was given to each subject to read and sign. Provided the subject consents, all interviews were digitally recorded for later transcription and storage. Hand-written notes were also taken during the interviews. A total of 30 interviews were conducted (Table 3.4).

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<sup>16</sup> This project was approved by the Auburn University Institutional Review Board (#12-161 EX1205).

**Table 3.4 Number of interviews conducted by supply chain role and location**

<b>Supply Chain Role<sup>17</sup></b>	<b>Alabama</b>	<b>Mississippi</b>	<b>TOTAL</b>
Harvester	3	2	<b>5</b>
Processor	6	6	<b>12</b>
Wholesaler/Retailer	3	3	<b>6</b>
Restaurateur	4	3	<b>7</b>
<b>TOTAL</b>	<b>16</b>	<b>14</b>	<b>30</b>

### *Analysis*

All data were transcribed and digitally stored in NVivo (QSR International 2008) for analysis. Data were analyzed using a modified three-step coding process (Glaser and Strauss 1967). In the first step, the data were categorized with codes that reflected both existing literature and the study's objectives (Strauss 1995). Data were then "open coded," meaning that emergent themes were identified based on the responses provided in the interviews.

Additionally, each question asked during the interviews was coded in this step. In the third step, axial codes were created from the dimensions of the open code, providing more detail to the open codes. Finally, the relationships between axial and open codes were examined and interpreted.

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<sup>17</sup> In several cases, interview respondents' businesses performed more than one role in the supply chain (processor and wholesaler, processor and retailer, etc.). When that issue arose, I designated their business based on the primary business function as expressed by the respondent during the interview.

## CHAPTER 4: FINDINGS AND ANALYSIS

The objective of this thesis is to determine the opinions and beliefs held by stakeholders in the commercial seafood supply chain on a range of topics related to their industry. To lay a foundation for addressing these objectives, a media content analysis was conducted to determine the extent to which Gulf seafood was covered by the print news media in the wake of the *Deepwater Horizon* oil spill. In-depth, in-person interviews with supply chain members were used to uncover stakeholders' opinions on the commercial seafood industry itself, the safety and wholesomeness of Gulf seafood, the seafood safety regulations that govern their industry, and the impact of media coverage of Gulf seafood safety on their consumers.

### **Media Content Analysis**

The total number of articles collected on Gulf seafood safety was 1,340. While data collection began during the summer of 2011 and continued through the end of 2012, the flow of articles covering this issue had virtually ceased by the end of 2011 (see Figure 4.1). The dates of publication for these articles are important, as the tone of coverage shifted during the story's lifespan. Immediately following the oil spill, media coverage focused on the threat of damage to the Gulf of Mexico's natural resources and the livelihoods they supported. After the well was closed and the oil spill was no longer front page news, coverage centered on the disaster's impact on the region. Before the story of the oil spill disappeared from media coverage entirely, media coverage of the Gulf Coast became an advertisement for a thriving playground that welcomed tourists.

On April 27, 2010, a week after the explosion of the *Deepwater Horizon*, the Mobile *Press-Register*'s environmental reporter published the first story about seafood safety after the disaster, headlined, "Beaches and Fisheries Threatened By Oil." He followed it with another

article on the same day called “Slick Headed for Gulf’s Fertile Crescent.” The national media also began exploring the potential consequences for the Gulf of Mexico. On April 28, 2010, the *Associated Press* wire service ran the first national news story that mentioned seafood safety, headlined, “Alabama Coast Eyeing Movement of Oil Slick.” It was followed on April 30, 2010, by an *Associated Press* story headlined, “Gulf Coast Spill May Eclipse Exxon Valdez Disaster.” On April 30, 2010, only ten days after the rig explosion, the New Orleans *Times-Picayune* interviewed fishermen for a story entitled, “Fishers Fear Lasting Damage to Livelihoods.”

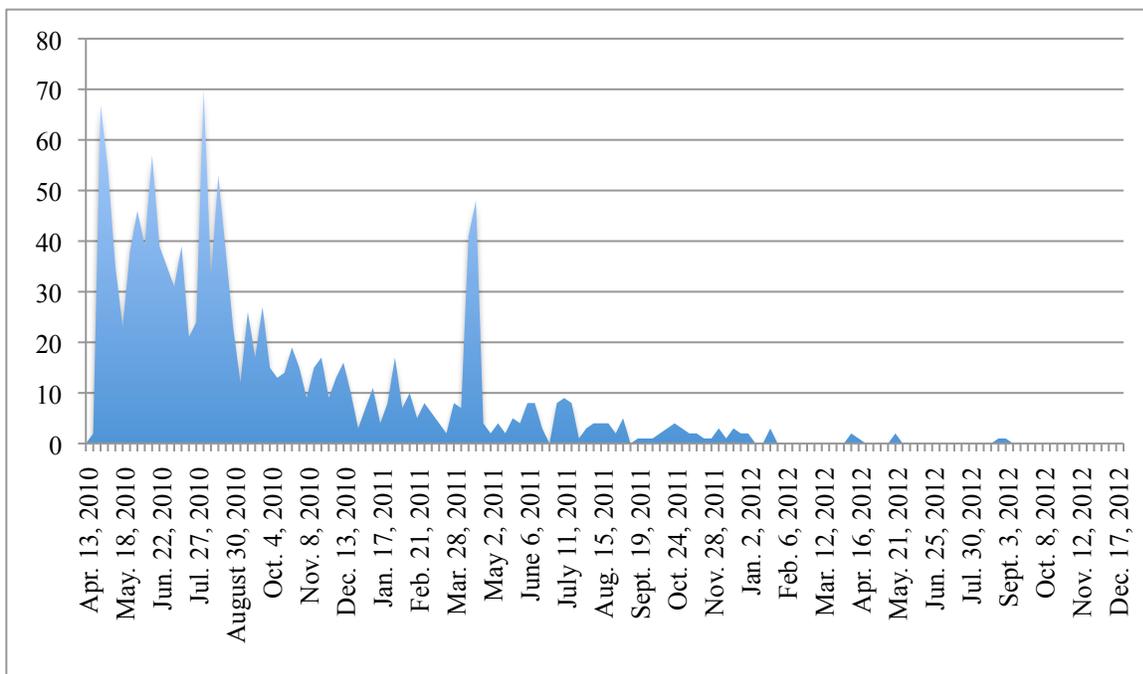


Figure 4.1 Newspaper articles per week covering Gulf seafood safety, N = 1,340  
 Source: Christensen and Worosz 2013

The uncertainty surrounding the disaster permeated early media coverage. Information changed quickly, particularly about the spill’s scope. Media outlets used a variety of voices to tell the story of the Gulf’s potential future, including scientists, oil industry representatives, politicians both local and national, and citizens of Gulf Coast communities. Two distinct types of articles emerged: those that were rooted in scientific data and statements from local, state, or

federal leaders, and those that focused on the impacts of the spill at the local, individual level. For example, on April 28, 2010, the *Mobile Press-Register* published an article headlined, “Disaster Looms for Seafood, Tourism.” The article quotes a crab processor who shares his fears that the spill’s effects will ruin his industry. Contrast this with another article published in the *Press-Register* on April 28, 2010: “Scientists: Mass of Oil Will Wash Ashore in Alabama.” This article quotes scientists from Louisiana State University and the Dauphin Island Sea Lab as well as Coast Guard Rear Admiral Mary Landry. The article is void of any personal sentiments.

By the fall of 2010, coverage of the spill’s impact on seafood safety had declined. The articles that were published after this time had a distinctly different focus than those that were printed immediately following the spill. Restoration and recovery were now the topics of interest. At the end of October 2010, the FDA and NOAA released test results that indicated Gulf seafood was safe to eat. The coverage of these results lasted for four days, from October 29, 2010 to November 1, 2010. However, on December 19, 2010, the New Orleans *Times-Picayune* published an article entitled, “Many Staying Away from Gulf Seafood.” According to print media coverage, the stigma remained despite the federal test results.

Not surprisingly, the first anniversary of the *Deepwater Horizon* oil spill prompted a resurgence of articles discussing its impact on the Gulf Coast’s seafood industry. During the week of April 4, 2011, there were only four articles published on the topic of Gulf seafood safety. During the weeks of April 11 and April 18, 2011, there were a total of 99 articles. The articles published in these two weeks accounted for 32% of all articles published on Gulf seafood safety in 2011, and 7% of the total articles published for the entire study period. In the year after the spill, the tone of the coverage had changed. “All Federal Gulf Waters Reopened to Fishing,” proclaimed the *Mobile Press-Register* on April 20, 2011. On the same date, the wire service

Reuters published an article with the headline, “A Year After Spill, Gulf Gets Taste of Recovery,” that featured quotes from scientists and chefs detailing the Gulf Region’s recovery from the spill. The Biloxi *Sun-Herald* ran a story on May 26, 2011, with the headline, “Coastal Shrimpers Persevere.” The positive nature of these articles indicated that the Gulf States were making an unimpeded recovery, and restaurants, charter boats, and hotels were all open for business.

While the articles written in 2011 are decidedly optimistic about the economic future of the Gulf Region, suspicions remained about the health and safety of the seafood it produces. The Baton Rouge *Advocate* published a story on August 2, 2011, entitled, “Specialist: Stigma on Seafood Remains,” detailing the results of seafood testing that said the products were safe to eat, as well as the criticisms of the tests themselves. On September 7, 2011, the Mobile *Press-Register* published an article called, “Oil Impacts Linger in Seafood Markets.” The media coverage of the seafood industry no longer suggested a state of emergency, but the uncertainty and fear stemming from the spill’s impacts remained.

The second anniversary of the spill, April 20, 2012, passed with little to no media fanfare. One two articles on the subject were published in the lead-up to the anniversary, both related to the economic impact of the oil spill. Only one article addressing seafood safety was published on April 20, 2012: an *Associated Press* story entitled, “FDA: Gulf Seafood Safe Despite Oil Spill Concerns.” Even two years after the fact, the perception that Gulf seafood was dangerous or unwholesome lingered.

## Stakeholder Opinion<sup>18</sup>

*“We canceled our paper. We just couldn’t take it anymore.”<sup>19</sup>*

The media coverage of the seafood industry in the wake of the *Deepwater Horizon* oil spill was discussed extensively in the interviews (see Table 4.1). All of the English-speaking respondents pointed to the media’s prolonged coverage of Gulf seafood as a significant barrier to their financial recovery. Regardless of their position in the supply chain, location, or age, English-speaking respondents demonstrated a high level of awareness of the media and a very savvy understanding of the media’s influence on the consumers of seafood products. Steve Smith, the wholesaler in Harrison County, maintained that the coverage of the spill’s impact on seafood was overblown: “They tried to put a hysterical air, blow it out of proportion as to what it really was. I think it cost people a lot of money.”

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<sup>18</sup> For a full list of interviews subjects, including their pseudonyms, supply chain roles, and location, refer back to Table 3.3.

<sup>19</sup> Charles Cook, retailer, Baldwin County

**Table 4.1 Responses, by supply chain role and location, to question, “What do you think of the media coverage of Gulf seafood?”**

<b>Role</b>	<b>Location</b>	<b>Response</b>
<b>Harvester</b>	<b>Baldwin</b>	“They always overdramatize things”
	<b>Harrison</b>	“I think it was basically right”
<b>Processor</b>	<b>Baldwin</b>	“A lot of reports were absurd, and continue to be”
	<b>Mobile</b>	“This is our biggest fear, it’s the media”  “In the beginning, they were doing what they were supposed to do, but around the halfway point, that’s when I think people started getting bought off”
	<b>Harrison</b>	“Some people didn’t exactly know what was going on”
	<b>Jackson</b>	“From day one, they crucified us”
<b>Wholesale/Retail</b>	<b>Baldwin</b>	“They did what they do with all stories: when it’s a story, it’s the only story, and it’s the biggest, worst, horrible thing you can imagine”  “Terrible. They made it seem like the beaches were just covered up”
	<b>Harrison</b>	“Everything they do, they blow it out of proportion”
	<b>Baldwin</b>	“They didn’t get anything right; they were just being lazy”
<b>Restaurateur</b>	<b>Harrison</b>	“They’re all into sensationalism”
	<b>Jackson</b>	“They made it so people were afraid to try [Gulf seafood]”

Stakeholders’ impressive comprehension of the news media’s coverage of their industry was demonstrated on several levels. Allan Adcock, a seafood processor, delivered a thorough critique of the media’s coverage of scientific stories:

The news media in general struggle with any story that is at all science-based, and there was a lot of science associated with that story. Everything from the amount of oil coming out of the pipe, and how deep it was, all the way through what were the effects of the oil once it got to the beach. So they struggled. It would be easy for me to beat up on them. A lot of reports were just absolutely absurd, and continue to be.

Processor Sarah Shepherd understood that the drop in demand she saw from the wholesalers she normally sold to was related to the Gulf Coast's negative publicity. "Would you buy a chicken from Chernobyl Farms?" she asked me. Travis Taylor described prank calls to his restaurant that asked him if his shrimp were 1040 weight, and joking customers that told him, "I want mine unleaded." Leslie Lawrence clearly made the connection between media coverage and consumer concern, saying, "The less news coverage, the less the media makes out of it, the less you have people asking you questions about it." Shepherd also mentioned this phenomenon, saying, "Like everything else, after a certain point they beat it to death and kept it going and kept people from gaining confidence back, and still tainting the image of the Gulf Coast."

The idea that media coverage of the potential dangers facing the seafood industry was taking money out of their pockets was a common one among the stakeholders. Frank Fox noted:

It was a bad situation, but like always they made a bad situation worse. If the media coverage wasn't as intense as it was, I don't think the tourism industry would've been hurt as much as it was, that's our bread and butter because that's who we service, local restaurants and casinos. When they go down, our business drops.

Ed Ellis, a restaurateur in Jackson County, described it this way:

My honest opinion about the oil spill is it hurt because it stopped production, our harvesting of seafood. I don't think that the impact of the oil spill as it happened was as bad as the media impact on it. That's what killed business along the coast, or along the affected areas, more than the oil spill itself... They made it so people were scared to eat it, and we were eating it every day. It didn't stop local people from eating it... All of our tourist business was gone.

About a quarter of the respondents mentioned the concept of iconic imagery, all identifying the oil-soaked pelican as the iconic image of the *Deepwater Horizon* oil spill (see Figure 4.2). Sarah Shepherd asked:

How many times did you see that pelican covered in oil? That wasn't even here. That was in Grand Isle [Louisiana], and it was just that one incident, but they played that same footage over and over for up to a year later, so people don't get things like that out of their mind. Even for me, that's what I remember the most about it, is that dadgum pelican.

Leslie Lawrence also related to the bird, saying, "That poor pelican with oil on him that they showed 10,000 times, I was saying I have seen him enough!"



Figure 4.2 Oil-soaked pelican on East Grand Terre Island, Louisiana  
*Source: Charlie Riedel, Associated Press 2010*

The Vietnamese-speaking<sup>20</sup> interview respondents reported watching English-language news, but they did not connect the media coverage to any decrease in seafood sales. Phuong Pho, an oyster shucker and crab picker, told me that during the oil spill, she spent any free minute she had watching the news. Linh Lo was not as committed of a viewer, but both women felt that the news media reported the story accurately. Lo told me, “I don’t know anything about oil, so I was trusting them.”

*“Anything is a problem in the seafood industry.”<sup>21</sup>*

For stakeholders in the commercial seafood supply chain, recovery from the shocks their industry has experienced is not a foregone conclusion (see Table 4.2). In addition to the media’s influence on consumer perception of Gulf seafood safety, the most commonly discussed barriers to recovery are as follows:

- Increased costs of fuel, insurance, and technology necessary for seafood harvesters;
- The BP/Gulf Coast Claims Facility financial claims process;
- The unfamiliarity of the man-made oil spill disaster.

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<sup>20</sup> There are also Laotian and Cambodian communities that are involved in the seafood industry in the Gulf States. Because of the insular nature of these communities, I had to rely on a non-profit organization to facilitate interviews with their members. The non-profit focused mainly on the Vietnamese community, so only Vietnamese people were made available for interviews.

<sup>21</sup> Sarah Shepherd, Baldwin County processor

**Table 4.2 Responses, by supply chain role and location, to question, “What is the biggest barrier to your recovery?”**

<b>Role</b>	<b>Location</b>	<b>Response</b>
<b>Harvester</b>	<b>Baldwin</b>	“Our biggest problem is overhead”
	<b>Harrison</b>	“There’s nothing good to say”
<b>Processor</b>	<b>Baldwin</b>	“The spill’s impact on the coastal economy”
	<b>Mobile</b>	“Eventually it gets too expensive; they’re oysters, not caviar”
		“The number one problem is oyster availability”
	<b>Hancock</b>	“The bad publicity is embedded in people’s minds”
	<b>Harrison</b>	“Our oyster business is still a little messed up”
<b>Wholesale/Retail</b>	<b>Harrison</b>	“The claims process has been a nightmare”
<b>Restaurateur</b>	<b>Baldwin</b>	“Dealing with people coming in and saying, ‘Your shrimp has been covered in oil’”
	<b>Harrison</b>	“The claims people not paying”
	<b>Jackson</b>	“If the media had been quieter, you wouldn’t have seen as big of a drop [in sales]”

**Increased Costs.** According to respondents, the increasing costs of maintaining a seafood harvesting fleet is an economic reality. The problems associated with those increased costs exist even without hurricanes or oil spills, but they can be amplified by any environmental or economic shocks that the commercial seafood industry experiences. Fifty-seven percent of those interviewed described the cost of seafood production as a significant barrier to the economic recovery of their businesses, and their industry as a whole. Frank Fox, a processor in Harrison County, told me, “The cost of production has gone up tremendously compared to the price of the product. Fuel prices and insurance are pretty much the biggest detriment to the

industry.” As Sam Stevens, a shrimp harvester from Mobile County, put it, “Our biggest problem is overhead... the technology’s increased, but we have skyrocketing overhead.” This new technology, including satellite radios and nets designed to bring in larger volumes of seafood, enables harvesters to travel the length of the Gulf of Mexico in search of their catch, but requires them to bring home huge quantities of product to cover their costs.

The problems of domestic production costs are made worse by competition with the global seafood market. Allan Adcock, another processor from Baldwin County, succinctly described the imported seafood’s impact on his family’s business:

The imported shrimp... really began to flood in, in the 80s. About 1988 was the year we saw the first really big slug of white shrimp from China. Those are all farmed, pond-raised shrimp, and they sold for anywhere from \$1 to \$2 a pound less than domestic production. A lot of restaurant chains and retailers tried the shrimp, and at first they had difficulty using them, but they found a way to use them. Now we’re 8 to 12% of the market... so we’re the tail of the dog rather than the dog. If we have a poor production year and they happen to have a good production year overseas, the price is down... That’s the kind of thing a production-oriented industry can’t survive.

Sarah Shepherd, a processor from Baldwin County, told me it was her opinion that most seafood consumers are not concerned with where their seafood was produced:

Do you check the label before you eat? Most people don’t. Most people don’t care. They’re getting a shrimp. They don’t care where it’s from. They’re getting it. They want it; they crave it... They don’t care. They’re going to get crabmeat coming from Venezuela because it’s crabmeat and they don’t care where it comes from. They want their crab au gratin and that’s all they want.

**Claims Process.** Problems in the industry persist beyond the daily realities of operating costs and competitions. The claims process that was established in the wake of the *Deepwater Horizon* oil spill was meant to be a means of assistance for those impacted by the spill. Instead, 52% of those interviewed said that the process had a negative impact on their ability to recover from the spill. The owner and operator of an oyster processing plant in Mobile County, Beau Bright considered the claims process more traumatic than the spill itself. He described having to

work odd jobs 16 hours a day to keep his family fed, and almost losing his home to foreclosure while waiting for his claim to be processed:

After the spill, I thought I had enough money to make it... All small business owners are blood, sweat, and tears. They all have the mentality of we've made it, we'll get through it... But then you don't get any money so you cash in your life insurance policy. That pays the house note and a few bills. Then you start to get drastic. What about our savings? The savings are gone. Let's sell our jewelry, because the price of gold was extremely high. So we sold all the jewelry we had. Even my wedding ring... I was selling real estate, cutting grass, digging ditches. I was working 16-17 hours a day, because once you build a lifestyle after 19 years in business, you're trying to keep it... Doing everything we can to survive, while BP had millions of dollars and just watched us disintegrate. Then they come back and say here's the final offer we'll give you, which is basically 10% of what they should've given us. That's when we turned it over to a lawyer.

The claims process was first handled directly by BP. It was then transferred to the United States government, which processed the claims through the Gulf Coast Claims Facility (GCCF), administered initially by Ken Feinberg, who had been responsible for managing the September 11 Victim Compensation Fund. Discussing these claims processes provoked a variety of responses. Claire Curtis, a processor in Mobile County, said the BP claims process seemed designed to ensure that claimants would take the smallest settlement possible. When BP offered her a \$5,000 lump sum early on in the process, she was told that it would be better to take that than wait for an individual settlement. She took the lump sum and signed away her right to sue BP in the future, saying: "BP was out here. They were throwing money at everybody. 'Here! Have some money! Be quiet!' It's scary. You're wondering if in ten years you're going to say, I should've not signed that. I should've waited a little while. You just don't know."

The GCCF version of the process was considered even less helpful. Mike Marshall, the owner of a seafood retail and wholesale shop in Baldwin County, said that, in essence, he was forced to give up his fight for what he thought was a reasonable claim: "I ended up having to take their final settlement, even though my accountant said it wasn't what it should have been.

You get to a certain point, you got no choice. And they know that.” Beau Bright, the processor who almost lost his home while waiting for a settlement, did not mince words when I asked him how he felt about the process: “GCCF is a bunch of crooks, plain and simple.”

The worry that claims were being awarded unjustly was a common refrain in the interviews. As Jackson County processor Paul Post told me, “Anyone can buy a pair of shrimp boots. It doesn’t mean this is how you make your living.” In Mobile County, Leslie Lawrence, a harvester, said she tried to share a list of legitimate fishers with the claims office, but no one was interested:

After Hurricane Katrina, we came in with Marine Resources [Division of the Alabama Department of Conservation and Natural Resources] and we have a list of fishermen, we know who they are. I actually took it down, and I said, here’s a list of legitimate fishers. They didn’t want it. They wanted to write checks when they set up down here... They were actually writing \$5,000 checks without a computer, without any paperwork. They just said, sign here if you’re a fisherman, and they would write you a \$5,000 check. It was almost that quick.

The perception among stakeholders that the process was completely arbitrary and not at all related to one’s involvement in the industry is still provoking visceral reactions over three years after the spill. Sarah Shepherd, the Baldwin County processor, described how difficult it is to apply any kind of compensation formula to her industry: “Their formula doesn’t fit a processor. We’re not typical people. We’re not typical work. Ours is on a hope and a prayer, and speculation. Ours is not a regimented income like [other industries].”

Claire Curtis, the Mobile County processor, said the seemingly arbitrary compensation amounts were stressful for the whole community:

I know boys that were sitting next to each other shucking oysters on a daily basis. One may have gotten \$15,000, and the other one got \$75,000. I personally know this for a fact, and I’m going, ok, where does this make any sense... I don’t know how much any of them should have been entitled to, that’s not my question. My question is it had absolutely no rhyme or reason what they were doing. In the long run, the stress that it put

everybody under, the not knowing, everybody's owed something for that. Because it was ridiculous.

Vietnamese respondents echoed the perception that the claims process was unfair. Both Linh Lo and Phuong Pho described the process as "uneven," and told me about coworkers who received a significantly larger settlement than they did. Pho also told me that the claims process seemed skewed to help the people who owned boats or seafood-related businesses. She felt that the workers like herself who were responsible for preparing the seafood for sale were left out, receiving far less than they deserved.

**Unfamiliarity of Oil Spill.** Thirty-two percent of interview respondents reported their unfamiliarity with man-made disasters as a significant barrier to their recovery. As Charles Cook, a retailer in Baldwin County described it, hurricanes are the cost of living on the Gulf Coast, something that everyone was used to. Cook's market had survived Hurricanes Ivan and Katrina, but struggled to recover from the *Deepwater Horizon's* impact:

We were able to build through the hurricanes. Those are things that people on the Gulf Coast are used to. You deal with it. You board up, things are going to get broken, you throw out your stuff and you move on. And the people are ready for seafood. The spill on the other hand, that was something that nobody had ever really dealt with here on the Gulf Coast, and it was rough. It was really the scariest time of our existence.

Nick North, the operator of a restaurant that had been through not only Hurricanes Katrina and Ivan, but also Hurricane Frederick in 1979, echoed the sentiment, saying, "The oil spill was the worst. The oil spill was horrible. I'd never felt like I'd worked so hard and had so little to show for it." Another Baldwin County restaurateur, Travis Taylor, described it this way: "The hurricane, it dealt a blow, but it was easy to come back from it initially. Once people start rebuilding, power got cut back on, those guys got back out there making money. The oil spill, however, was a completely different monster."

Respondents also noted that the spill affected the market for seafood products much differently than a hurricane ever had. “We couldn’t produce because we couldn’t sell it, because the consumer wasn’t buying it. We’d never seen anything like that,” said processor Sarah Shepherd. Unlike hurricanes, which caused demand to build up while boats were out of the water and facilities were not operational, the oil spill shut down both the supply of seafood and the consumer demand for it.

*“I feel safer eating seafood before I eat anything else.”<sup>22</sup>*

The seafood safety regulations that govern commercial seafood production, processing, and sales were discussed at length. The opinions on seafood safety regulations varied widely in the interviews. Steve Smith, a former processor whose business became wholesale-only after losing his processing facilities in Hurricane Katrina, was the only respondent to advocate for more seafood safety regulations. However, he acknowledged the financial drain the required inspections can have on small businesses:

Most of it is really quite lenient in my opinion. It’s more of a self-policing thing than, say, in the meat industry where you have an inspector in the plant. The volume of seafood that a company processes compared to the volume of meat that’s processed, the costs are exorbitantly high to be passed on to such a small volume of product... I would say there should be some more regulations, really. I’m not typically for that but I think people get away with too much cheating in the industry and it un-levels the playing field.

Mike Marshall, the retailer, is on the opposite end of the spectrum with his opinions on regulations: “Even the HACCP stuff is stupid to a certain degree. I say that, if a person does their job and can run a clean place, they run a clean place. If you don’t, you don’t. It’s just more and more paperwork and bookwork put on the small business owner.” An idea persisted among interview respondents that self-policing was in stakeholders’ best interests. The intense scrutiny of the seafood industry, and in particular the oyster industry, was seen as a deterrent from any

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<sup>22</sup> Travis Taylor, Baldwin County restaurateur

kind of deviation from best management practices. Beau Bright told me, “If you make one person sick, if you kill one person, you might as well go on and sell your business. You’re done.”

The spill was not seen as having altered the seafood safety regulations that governed these stakeholders. Steve Smith told me, “For awhile you were supposed to keep track of where the product came from in relation to the well, but that’s no longer the case... It’s status quo now. Pre-spill status quo.” As for the regulations that were applied in response to the spill, Frank Fox said, “After the spill they were more intense. Nothing really changed as far as what they found, but they were looking harder. Just I guess for the public, for public assurance that there was nothing out there that could be really harmful.”

The idea that any increased attention to seafood safety after the spill, including the closures of fisheries around the well site, was mainly for show was echoed several times in interviews. Mike Marshall, the retailer, noted, “Even if [increased regulation] wasn’t needed, you had to look like they were doing something. The feds, NOAA, whoever’s in charge of it.” Walker White, a wholesaler and processor in Mobile County, was more optimistic about the fishery closures: “I’m sure it was the best thing to do at the time. I’m sure it worked according to their plan, because after the spill, according to the USDC [U.S. Department of Commerce], I don’t believe they reported any hauls that had any oil contamination.”

One of the questions asked of every interview respondent was whether or not s/he changed his/her seafood eating habits in the wake of the oil spill. Seventy-eight percent of stakeholders interviewed responded with an unequivocal “no.” Two stakeholders answered with what I call a qualified “no.” Sarah Shepherd told me she does not eat seafood at all because of her taste preferences, but she continued to serve shrimp and oysters to her family several times

each week during the spill's aftermath. Tammy Trent, a shrimp harvester, also said her eating habits did not change, but it was because she was financially unable to avoid eating the seafood that she and her husband harvest. She still has questions about its safety: "All that dispersant that went out there? They said they washed it, but we didn't see it. We were out there working during it. We know what we see."

Two stakeholders out of the thirty interviewed responded that yes, their eating habits had in fact changed. Beau Bright said that after his processing business shuttered, he could not afford to purchase Gulf seafood for his family. It was a financial decision, not a health decision. The only respondent who told me that his eating habits changed because he was concerned that the seafood was not safe for consumption was Kevin Keiler, a processor in Hancock County. Keiler closed his processing facility after the spill, concerned that he might sell unsafe products to his consumers:

I knew that I wasn't feeling comfortable at the time to sell anything from the Gulf. As a matter of fact, it probably took a year after the oil spill, and everything was open in that year, it took a year to a year and a half before I even felt comfortable sending fishermen out to fish. So I held my fleet of boats back... My issue was my product liability coverage. I was very concerned about that. Some companies would not even cover anything that may be related to an oil spill illness, or anything at all from dispersants, or the combination of [the two]... I slid a piece of paper over to the head of the FDA and gave him a pen and said, if you can write on that piece of paper that you will stand in my corner and the federal government will protect me from any liability due to this, I will get up outside of this meeting and tell all my fleet and the whole Gulf Coast to go back to work, that they're protected. And the man had to say, I'm sorry, we cannot do that. So obviously he was preaching something he couldn't practice.

Stakeholders expressed their opinions that the seafood industry is unfairly penalized by excessive regulations and restrictions even in normal production times. In particular, oysters were identified as having an undeserved bad rap. Sarah Shepherd, the oyster processor, told me, "Many more people get sick from eating raw eggs, fish, shrimp, but they've decided to go after

the oysters because it's such a small market. There's not big money that will fight them." Beau Bright, another oyster processor, described how he believed oyster-borne illnesses occurred:

The problem is not at the processing plants. The problem with people getting sick from oysters is at the restaurants, because you have the restaurant owners who have a manager, and then they have a purchasing person, and everybody, to maintain their jobs, has checks and balances. If the purchasing manager orders sixteen gallons of oysters on Thursday and they come in Friday and business goes to crap, that person needs to keep her job, so they're going to put specials out... So you put a big sign where you've been charging \$8.95 a dozen, oysters this weekend are \$4.95 a dozen. So mainly these old guys come piling in there, they have cirrhosis of the liver and they're drinking beer and eating three dozen oysters that are old. They know they're not supposed to be eating them anyway but they can't help it, and then they go home Saturday and they die. They say it's the oysters. No it ain't. It's the restaurants.

Travis Taylor, whose restaurant serves both cooked and raw seafood, asked me:

When was the last time you heard about anybody getting sick from seafood? It doesn't happen. It's inspected by the FDA, the RDA [sic], the USDA, the USDC.<sup>23</sup> It's the most heavily inspected of the food products that you put in your mouth. Obviously, I feel safer eating seafood before I eat anything else.

Mike Marshall sums up his feelings on seafood regulations by saying: "I know people who have been buying from me from day one, and they said, 'How do you know it's safe?' I said, 'Use your nose. Use your eyes, use your nose.' And then go by the rule here: 'When in doubt, throw it out.' Common sense, come on." Stakeholders were also asked generally if they think Gulf seafood is safe for consumers to eat (see Table 4.3).

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<sup>23</sup> Taylor references the Food and Drug Administration, the U.S. Department of Agriculture, and the U.S. Department of Commerce. "RDA" could be a joke or a slip of the tongue; we did not discuss it further in the interview. Refer to Chapter 1 for a discussion of the seafood safety bureaucracy.

**Table 4.3 Responses, by supply chain role and location, to question “Do you think Gulf seafood is safe to eat?”**

<b>Role</b>	<b>Location</b>	<b>Response</b>
<b>Harvester</b>	<b>Baldwin</b>	“You know, I really don’t know”
	<b>Harrison</b>	“No, but I’m eating it”
<b>Processor</b>	<b>Baldwin</b>	“There are always people who should be careful about eating shellfish”
	<b>Mobile</b>	“Down here, it’s what you feed your family”
	<b>Jackson</b>	“Just don’t eat raw oysters if you have a liver problem”
<b>Wholesale/Retail</b>	<b>Baldwin</b>	“Every one of the oysters has a warning label. That doesn’t mean I’m selling something that I want to hurt people with”  “I think more people get sick on bad beef or chicken than they do from seafood out there in the Gulf”
	<b>Harrison</b>	“Yes. If I’m not going to eat it, I’m not going to sell it”
	<b>Jackson</b>	“I think it’s fine. I eat it every day”
<b>Restaurateur</b>	<b>Baldwin</b>	“Yes, I don’t see any reason why not”
	<b>Harrison</b>	“I don’t think anyone has a problem unless they’re allergic”
	<b>Jackson</b>	“I think it’s fine. I eat it every day”

*Place- and Role-Based Differences*

While the seafood industry seems to be in decline across the Gulf Coast, that decline is experienced differently based on stakeholders’ geographic location and role in the commercial seafood supply chain. The stakeholders in Mississippi’s coastline counties, which bore the brunt of Hurricane Katrina, seem to be experiencing the decline much more quickly than those in Alabama. Processors like Kevin Keiler and Steve Smith described in detail how the financial

impact of Hurricane Katrina fundamentally changed their businesses. In Keiler's case, he was completing work on a multi-million dollar processing facility to replace the one he lost during the storm that was scheduled to be up and running on May 1, 2010. However, the *Deepwater Horizon* spill forced him to delay opening his facility until he felt comfortable selling seafood products again over a year later.

Regardless of location, restaurateurs report having been most successful in returning to a level of normal business operations (see Table 4.4). Charles Cook, who runs a small quick-service restaurant that serves local seafood on the side of his retail market, described how in the wake of the oil spill, the restaurant was the only thing that kept him in business. Since our interview, Cook has closed the retail market portion of his business and now operates only the restaurant. Harvesters, the originators of the seafood supply on the Gulf Coast, describe the greatest difficulties in achieving recovery. In the middle of the supply chain, we find processors struggling to find access to seafood products at a cost that will allow them to generate a small profit margin.

**Table 4.4 Responses, by supply chain role and location, to question, “Has your business recovered?”**

<b>Role</b>	<b>Location</b>	<b>Response</b>
<b>Harvester</b>	<b>Mobile</b>	“No.” “I’m working at the shipyard instead.”
	<b>Harrison</b>	“It’s all bad; there’s nothing good to say.”
<b>Processor</b>	<b>Baldwin</b>	“A little bit.” “I wouldn’t say it’s recovered.”
	<b>Mobile</b>	“From 2009 to now, I’m down \$623,000.” “Since Katrina, it’s been one giant obstacle after another.”
	<b>Hancock</b>	“We can’t build back; it’s not feasible.”
	<b>Harrison</b> <b>Jackson</b>	“No, not entirely.” “We spent every dime we had to stay in business.”
<b>Retailer/Wholesaler</b>	<b>Baldwin</b>	“You don’t ever get it back. You’ve lost that money.” “I wouldn’t even say we’re at 50%.”
	<b>Harrison</b>	“We’re pretty close to it.” “We’re close; my retail business is, but the wholesale business is getting closer.”
<b>Restaurateur</b>	<b>Baldwin</b>	“...one of the better years we’ve had in a while.” “Everything’s back to business as usual.” “We’re stronger than ever and we see that trend continuing”
	<b>Harrison</b>	“We’ve recovered pretty well.” “I think I probably am.”
	<b>Jackson</b>	“Yes, our business is great.”

For Vietnamese stakeholders, the main concern reported was that the commercial seafood industry has changed so much in recent years that it will no longer be a viable option for their community. I asked Phuong Pho if she thought the Vietnamese community would leave Bayou La Batre; she replied that many people already had.

## CHAPTER 5: CONCLUSIONS

### Summary

This thesis sought to answer several questions related to the beliefs and opinions of actors in the commercial seafood supply chain about their own industry, the rules that govern it, and the media's portrayal of it after the *Deepwater Horizon* oil spill. Now, over three years after the disaster, media coverage of the industry and a variety of publicly- and privately-funded advertising campaigns tell us that all is well on the Gulf Coast. Statewide seafood promotional campaigns exist in both Alabama and Mississippi, tourists have flocked back to the Gulf beaches in record numbers, and it appear to be business as usual for the communities that rely on the Gulf of Mexico. However, this research indicates that there is no such thing as “business as usual” for the commercial seafood harvesters, processors, wholesalers/retailers, and restaurateurs living and working on the coast of Alabama and Mississippi. Even during “normal” years, without catastrophic hurricanes or man-made disasters, these stakeholders are engaged in a daily struggle to make ends meet in their respective professions.

Ultimately, this case study illustrates the significant, decade-spanning difficulties that have been faced by the commercial seafood industry. These problems began before Hurricane Katrina, before the recession, and certainly before the *Deepwater Horizon* oil spill, but each of these events compounded the industry's problems and hastened its decline. In spite of, and in many cases because of, federal and state programs meant to assist the industry after the oil spill, the commercial seafood industry's recovery from the disaster has been fitful and fragmented.

The media's portrayal of the seafood safety debate that took place in the wake of the *Deepwater Horizon* disaster caused immediate and lasting problems for those making their living from seafood production and sales. Whether the coverage was fair or unfair is often in the eye of

the beholder, but regardless of accuracy it is believed to have had a lasting impact on the potential consumers of Gulf seafood. The stakeholders interviewed reported feelings of resentment, anger, and frustration over the extent of the media's influence, and their own inability to counteract the coverage or communicate what they were experiencing.

For the participants in this study, recovery from the impacts of hurricanes, the recession, and the oil spill has happened on different timelines that are related to each business' position in the seafood supply chain. Restaurant owners and operators claim they have recovered to their pre-oil spill sales levels. Wholesalers and retailers are moving toward full recovery. Harvesters indicate that they continue to struggle, as do many processors. The negative affects of Hurricanes Katrina and Ivan, the recession, and the *Deepwater Horizon* disaster accumulate to a larger extent the further we move down the socio-economic hierarchy. At the bottom of this structure are Vietnamese processing workers, who indicated that their recovery is virtually non-existent and the future of their livelihood remains uncertain.

## **Contribution to Literature**

### *Resource Dependency*

Dependence on the Gulf's natural resources was demonstrated in a variety of ways. Interview respondents exhibited the types of dependencies discussed by Marshall et al. (2007): social dependency, as reflected by familial ties to the seafood industry and the Gulf region; economic dependency, as reflected by business skills that had been developed specifically for the seafood industry and were often unusable outside of it; and environmental dependency, as reflected by the length of time that had been invested in the seafood industry. For all of the difficulties that had been faced by interview respondents, none of them mentioned leaving the industry or the area in which they lived. Others who had left already were discussed, and

challenges for future generations were mentioned frequently, but for the middle-aged or older adults that were interviewed, the seafood industry in Alabama or Mississippi was their only option for employment.

The difficulties that come from reliance on a natural resource like the Gulf of Mexico were clearly demonstrated in the wake of the oil spill. As Freudenberg and Gramling (1994) discuss, the seafood industry had provided relatively high-wage jobs that required little to no formal education. These jobs are the foundation of many Gulf Coast communities, and when the oil spill made it impossible for fishers and processors to work, there were serious economic and social consequences. Uncertainty and confusion plagued the communities, and the financial and emotional strain left a lasting mark on many.

Even though all the interview respondents for this project work in a natural resource-dependent industry, they have not all experienced that dependence in the same way. As Marshall et al. (2007) and Peluso et al. (1994) point out, commercial fishers will always be the most affected by interruptions or fluctuations in the seafood industry. Conversations with interview respondents supported this concept. The harvesters simply could not find a market for their products that generated an income that would support continued profitable harvesting. Zhang et al. (2009) note that small, family-owned businesses have the most to lose during environmental disasters. Again, this was illustrated in interviews; the businesses that had recovered the most since the spill were restaurants that operated under a corporate structure that had the ability to increase their advertisements, as well as connections to a large network of seafood suppliers. Businesses that were owned and operated by family members continue to struggle to stay afloat.

### *Punctuated Entropy and the Problem of Resilience*

Resilience is one way to attempt to understand the forces at work in resource-dependent communities that have experienced a disaster, whether natural or man-made. Resilience, or a return to pre-disaster conditions, is assumed to be a foregone conclusion or at least a worthy goal in cases of disaster recovery in the United States (Davidson 2010). Perhaps that assumption would be appropriate if the Gulf Coast's commercial seafood industry was struggling only because of the *Deepwater Horizon* oil spill. Instead the oil spill was merely the latest in a line of problems that were compounded by the economic realities associated with operating in a global market. In this study, the concept of resilience does little to explain or elucidate the commercial seafood industry in Alabama and Mississippi in 2013. Rather, resilience provides rose-colored glasses that fail to acknowledge the realities experienced by individual actors in the supply chain.

In discussing resilience, it is deceptively easy to ignore the individual in favor of the system. The adaptive cycle (Gunderson and Holling 2002), a tool for tracing the evolution of organizations, treats catastrophic events as simply another stage in an ecosystem's development. For scholars that ascribe to this theory, disasters are merely a release of energy that allows an ecosystem to redirect that energy to another use. When another use is identified and the energy is reabsorbed elsewhere, it is an indication of a resilient organization. However, this notion objectifies supply chain actors. For example, out-of-work oyster harvesters would likely take no comfort in being told they are experiencing the growing pains of ecosystem resilience at work, and that the energy they used to expend on oystering will eventually be reabsorbed into the system as it adjusts to a new function.

A more detailed example of the adaptive cycle is the town of Bayou La Batre, Alabama, where the harvesting and sale of seafood was identified as a profitable operation from the time

the community was settled. To capitalize on this industry, the town and its workforce consolidated their efforts around seafood production until it took up a large amount of the town's resources, human and otherwise. When Bayou La Batre experienced the shock of the *Deepwater Horizon* oil spill, the system was disrupted. The simplistic view of resilience suggests that the energy that had been expended on harvesting, processing, preparing, and selling seafood was now available for other systems to absorb. A shrimper and his boat could work in the Vessels of Opportunity (VoO) program. An oysterman could work in a shipyard. However, this interpretation of resilience does not take into account the likelihood that in the case of severe shocks, large numbers of people and energy might not be reabsorbed into any kind of local system. In Bayou La Batre, businesses have closed and workers have left town. One interview respondent whose energy has been "successfully reabsorbed" into a new industry reported his unhappiness and frustration at having to do something besides oyster harvesting. While resilience can certainly be a long-term goal for a community, it fails to be helpful at the individual level in the aftermath of a disruption.

Additionally, the perpetuation of the idea that resilience is not only possible but also desirable can serve as a roadblock to significant social and economic change. Whose resilience should we prioritize? As Davoudi (2012) points out, what if going back to the good ol' days is not, in fact, desirable for many members of the community? For actors in the seafood supply chain, does resilience mean a return to the conditions under which the Gulf Coast industry experienced its peak in the 1970s? This would involve scrapping devices meant to protect the workers and their environment, as well as regulations that protect seafood workers and consumers. For harvesters and processors, resilience might mean that Southeast Asian workers are excluded from the American seafood industry altogether.

Davoudi's (2012) discussion of evolutionary resilience, in which small, cumulative changes are often the root cause of significant problems that are demonstrated after a disaster, is a more realistic approach for understanding suffering communities. The level of resilience that can protect a community from some disasters is cultivated and nurtured long before any such disasters occur. Residents of resilient communities have worked to correct systemic problems by diversifying their economic and social structures. Little can be done immediately following a disaster to restore the impacted communities to any kind of status that would approximate resilience. Resilience is found in the prevention of damage, not the repair.

This is analogous to the marshes that protect the Gulf Coast from storm surge and wave energy: when the marshes are healthy as the result of prior protection and cultivation, they function properly during a storm, absorbing the water and dampening the waves before they reach the inhabited shoreline (Peluso et al. 1994). When marshes are destroyed or weakened, they cannot perform these basic functions, and the shoreward community is left vulnerable to the inevitable storm surge. While attempting to restore the marsh after a disaster can help in the future, it cannot undo the damage that has already been done. So it is with coastal communities that realize too late the importance of protection against disasters.

The social phenomenon being experienced in the commercial seafood supply chain in Alabama and Mississippi might be best explained by punctuated entropy (Dyer 2002). Punctuated entropy, as a refresher from Chapter 2, is "a permanent decline in the adaptive flexibility of a human cultural system to the environment brought on by an accumulation of disaster events" (Dyer 2002:161). In cases of punctuated entropy, a variety of external forces prevent a community's basic functions. Table 5.1 provides an illustration of how punctuated entropy has taken root in the commercial seafood industry after the *Deepwater Horizon* oil spill.

**Table 5.1 Punctuated entropy in the commercial seafood industry**

<b>Key Step</b>	<b>Illustration in Study Area</b>
Compromised natural resource base	Potential for long-term contamination of seafood products
Misdirected or withheld external assistance	BP claims process and Gulf Coast Claims Facility; Vessels of Opportunity program
Post-disaster political ecology hindering human-environmental interaction	Lingering concerns over seafood safety; continued pressure from imported seafood competition; increased fuel and insurance costs; limited market for Gulf of Mexico-branded seafood products

*Source:* Adapted from Dyer (2002:184)

### *Media's Role in Covering Disasters*

The difficulties faced by the natural resource-dependent communities that rely on the commercial seafood industry are a perfect illustration of the importance of political ecology as a theoretical framework. If seafood sales were based only on the availability of seafood products, the industry would be thriving. However, biological and environmental health is only one part of this discussion. Stakeholders in the industry are faced with competition from relatively inexpensive imported seafood. Because of the high costs of diesel, insurance, and the required equipment modifications that are designed to prevent environmental damage, competing with the costs of comparatively unregulated imports is virtually impossible. Additionally, domestic wild-caught seafood can come under intense media scrutiny. Whether the publicity is the result of the *Deepwater Horizon* oil spill or an oyster-borne illness, negative media coverage is perceived to be a constant threat by stakeholders.

Interview respondents identified the media as the primary cause of the difficulties they experienced after the *Deepwater Horizon* oil spill. As Hannigan (2006) discussed, the media was seen as responsible for the framing and construction of the seafood industry's story, leaving the stakeholders to feel like they had been omitted from the conversation about their industry.

Those involved in the seafood industry struggled to tell what they felt was a very different story, and found themselves unable to combat the tide of coverage that came from local, national, and international outlets. Atkinson's (1991:63) concept of the relativity of truth is applicable in this situation. Many media consumers presumably took it for granted that the stories they were reading or seeing were accurate. Some reporters and producers likely realized that they were not able to tell the whole story because of budget constraints, deadlines, or pressures to cover the story in a specific way, but presented the information they had as if it were reflective of the entire Gulf Coast seafood industry. For those who felt their own realities were not being accurately represented, the coverage was seen as either the unintentional bungling of the truth or the deliberate misleading of media consumers.

The coverage of the *Deepwater Horizon* disaster demonstrated what Button (2010) discussed in his look at the role of today's changing news industry in covering environmental disasters. When I asked questions about the media, my interview respondents brought up the inability of the news media to get any kind of scientific story "right," as well as reporters' unfamiliarity with the Gulf Coast region and the commercial seafood industry. This unfamiliarity translated into reporters' reliance on a handful of voices to represent the entire industry. Once a media outlet found an individual who was readily accessible and relatively media-savvy, he or she became a *de facto* spokesperson, and was quoted on television or in the paper repeatedly. The actors in the seafood industry that I interviewed were unaccustomed to operating this way, and often found themselves misrepresented or painted with broad strokes.

The quick and easy identification of the oiled pelican as the *Deepwater Horizon's* "mascot," or iconic image, was one of the most striking components of this research. Unprompted, the pelican was referenced time and time again, demonstrating the media saturation

that Szasz (1995) discussed. Through its near constant use in the coverage of the oil spill, this image had become the unofficial touchstone of the entire environmental disaster. Szasz (1995) argues that iconic images can be more compelling than any written or spoken words, and indeed, the pelican triggered interview responses at a rate far beyond any headline or sound bite. The bird came to represent the dominant narrative of the Gulf Coast in the wake of the oil spill: an ecosystem trapped in the mire of toxic sludge, barely surviving the crushing weight of the disaster. Some interview respondents rejected this image, saying it was from Louisiana or elsewhere, and as such did not truly reflect the condition of the environment in Alabama and Mississippi. This is a reflection of stakeholders' broader rejection of the media's portrayal of the seafood industry.

### **Policy Implications**

The differences in how actors in the supply chain experienced the spill and are working towards recovery makes it very difficult to put into place any kind of standardized or centralized recovery program. This was demonstrated by the problems faced by both the BP and GCCF claims processes. The socio-economic differences occurring at each supply chain level require a panarchical approach that takes into account the “complex, interdisciplinary, and dynamic” (Gunderson and Holling 2002:5) nature of the problems faced by the industry. Policy solutions that will be successful must also be mindful of the lack of clear boundaries of jurisdiction in the Gulf of Mexico as it is used by the commercial seafood industry. Certainly federal and state boundaries exist in the waters of the Gulf itself, but if a shrimper lives in Biloxi and harvests from Florida to Texas, how should he or she be compensated for closures off the coasts of Louisiana and Alabama? The shared resource of the Gulf poses problems for effective governance. Non-profit and research alliances that span the Gulf Region exist, but the

responsibilities of developing and enforcing regulations falls to the federal and state governments as there is no regional governmental framework in the United States.

We have seen the results of the policies that were implemented immediately following the spill. The stakeholders interviewed describe the claims process as a disaster on par with the oil spill itself. It is difficult to find people who feel they were justly compensated for their losses. Stakeholders perceive the Vessels of Opportunity (VoO) program as a boondoggle that racked up billable hours without serving any other purpose, and squandered an opportunity to use local labor to clean up oil on the water's surface. Now that the immediate crisis of the spill is over and RESTORE Act<sup>24</sup> dollars are on the horizon, it is time to be thoughtful about what programs could be of assistance to the commercial seafood industry.

In an industry where many workers have experienced prolonged periods of unemployment or reduced income, a buyback or repair program for boats and/or processing facilities could be a helpful use of RESTORE Act funds. This would have the added bonus of allowing for upgrades or modifications that could make the boats and processing facilities more efficient and environmentally sound. Additionally, any projects that are funded by RESTORE Act money in the Gulf Coast states should include a "first hire" component, meaning that contractors have to at least attempt to hire local workers to staff these projects.

To avoid another public relations disaster, the seafood industry in the Gulf Coast must develop an organized method of dealing with the media and the government. There are some local organizations that seafood workers can join that would offer public statements and do a limited amount of lobbying on their behalf. However, these are relatively unequipped to deal

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<sup>24</sup> The RESTORE Act, signed by President Obama in July of 2012, redirects 80% of the money that will come from Clean Water Act penalties levied on BP to the states that were affected by the spill. Under the Clean Water Act, that money would normally go to the federal treasury for the clean up of future spills (Blum 2012).

with disasters on the scale of the *Deepwater Horizon*, and have yet to demonstrate an ability to effectively influence legislation. For many people in the seafood industry, the work is attractive because of its relative freedom from things like schedules, bosses, meetings, and business suits, but that freedom is inhibiting actors' abilities to respond to the challenges faced by the industry.

If members want to be represented in a way that they believe to be fair, the first step is organizing in a way that is recognizable to television producers, legislative assistants, newspaper reporters, and the like. If there is no structure to the industry, its response will continue to be fragmented and ineffective. It seems likely that the ideal structure would allow for each state to be represented separately, and then when necessary, the separate state-based organizations can come together under the umbrella of a Gulf-wide coalition, like the Gulf Coast Seafood Coalition, which is a grant-funded offshoot of the Gulf & South Atlantic Fisheries Foundation, Inc. However, the variety of viewpoints represented under the umbrella of the commercial seafood industry will make organization challenging.

Since the oil spill, there have been major strides in advertising and marketing seafood from the Gulf States. Glossy ad campaigns run in magazines and newspapers, and billboards advertising Alabama's Gulf seafood can be found all along I-65 and the other routes to the beach. However, these logos and advertisements are nowhere to be found at grocery stores, leaving me to wonder what the return on this advertising investment is for those in the seafood industry. The Gulf Coast Seafood Coalition's current stated goal is to increase the demand for Gulf seafood on the international market, and the branding and advertising that has to occur domestically is left to the individual states (Gulf Coast Seafood Coalition 2013). I would not go so far as to say that the domestic market for Gulf seafood products has been abandoned, but it

certainly seems that significant work remains to cultivate any kind of increased market share for Gulf seafood in its own backyard.

A final problem with the current organizational structure of the seafood industry is its inability to effectively lobby for legislation that would benefit stakeholders. A search for lobbyists that are working on behalf of the seafood industry on FollowTheMoney.org, a public interest lobbying database, yields few promising results. The Alabama Seafood Association (ASA) hired a lobbyist in 2010, but they made no campaign contributions that year and they have not employed a lobbyist since then (Follow the Money 2013). The Organized Seafood Association of Alabama hired a lobbyist in 2010 and 2011, but has not since. No registered organizations are on the record as having hired a lobbyist at any point to advocate for Mississippi's seafood interests.

### **Limitations and Future Research**

The primary limitation for this research is related to the rural nature of many of the communities located in the study area. Even when these communities are in close proximity to one another and share many of the same primary economic and cultural functions, they are not conducive to pure snowball sampling. The largest processors and wholesalers are known throughout the region, but smaller companies, especially those outside of the largest seafood production communities of Bayou La Batre and Biloxi, are harder to identify and/or engage with. Snowball sampling also introduced the possibility of another form of bias. Because the sampling method relies on respondents to suggest future interview subjects, there is the risk of the sample reflecting the opinions of stakeholders who are friends, coworkers, or perhaps hold the same beliefs on the oil spill and its effects; that is to say, actors who think alike.

This study has a bias toward larger processing and wholesale facilities. The smaller family-owned and -operated plants are difficult to contact, and in many cases, they are not used to working with those outside their normal routines. For example, during the course of July 2012, I routinely passed by a residential trailer on the way to Dauphin Island that often had signs out advertising royal red shrimp for sale. It appeared to be the case that the owner of the property harvested the shrimp and then processed them in his home. Over the course of a month, I stopped at the stand three to five times, and called the number listed on the sign whenever I was in the area, but was never able to reach anyone. This type of operation, which does not participate in the traditional market, is difficult to target, particularly over the geographical span of five counties. Conversely, I found that small, family-owned restaurants were much more likely to be willing to participate in this study than the larger restaurants with corporate structures. The restaurants I contacted that employed marketing professionals uniformly declined to participate, regardless of the guarantee of anonymity.<sup>25</sup>

Another limitation that emerged during the course of this study was the survey's bias in favor of the managers or owners of seafood-related businesses. The questions were developed for individuals who have a significant working knowledge of their industry and its challenges and successes. An intimate understanding of the financial processes of the business is virtually assumed. When interviewing members of the supply chain that are not the owners or operators of the facilities, it is necessary to significantly modify the survey instrument. Even for workers who have been shucking oysters for twenty years, the questions are too complicated and expect far too much knowledge of the economic details of the business operation.

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<sup>25</sup> In a similar vein, I attempted to interview reporters from the Associated Press who had covered the story of Gulf seafood, but was told by the AP's public relations staff that on-the-record interviews would not be possible under any circumstances.

Another limitation was the unwillingness of several potential respondents to discuss the oil spill or its effects so long after the disaster itself. Regardless of their position in the supply chain, actors expressed interview fatigue, and they were reluctant to participate regardless of any accommodations that were made. This is a consequence of the delay between an event and the academic community's response to that event. In the case of the *Deepwater Horizon* oil spill, most research grants to date have focused on the study of the disaster's biological impacts. This study was funded by the Mississippi-Alabama Sea Grant Consortium, one of the few programs that provided an opportunity for social science research into the oil spill. While the biophysical impacts require attention, the political, legal, economic, and social consequences of such a large-scale disaster should not be pushed off for later.

This study, by virtue of how it was constructed and when it was conducted, omits those stakeholders who have already had to shutter their businesses in the wake of hurricanes, the recession, and/or the early days and months of the *Deepwater Horizon* oil spill. Future research should include in its budget and timeline the necessary work of tracking down as many of the businesses and individuals who have removed themselves from the commercial seafood supply chain as possible. These interviews would provide invaluable insight into the *Deepwater Horizon's* impact on communities. It would also be beneficial to explore the opinions of Gulf seafood held by consumers living outside the immediate Gulf Region, which this study was not equipped to do.

Since the *Deepwater Horizon* disaster, the *Mobile Press-Register* and the *New Orleans Times-Picayune* have significantly downsized their newsroom staffs. These organizations have moved to an increasingly statewide scope of coverage as they make use of staff from across the state to cover a variety of stories. The oil spill may have been covered quite differently by the

region's news organizations in their current state. Without experienced reporters with well-developed local sources, Gulf Coast newspapers will likely have to rely on wire services' coverage of disasters in their own backyard.<sup>26</sup> In this study, the Associated Press articles on Gulf seafood safety were reprinted in newspapers across the Gulf Region and the entire United States. Future research on the media's coverage of disaster events will by necessity have to include a lengthy discussion of how the changing climate in the media industry is affecting media outlets' ability to effectively cover regional disasters.

The media content analysis for this project was limited in several ways. First, the lack of an accessible, affordable television news database limited the study to focusing exclusively on print media. Second, limitations arose from the lack of an academically rigorous method of searching for news sources that are exclusively online but widely read, like *The Huffington Post* or *The Drudge Report*, or even magazines like *Time* or *Newsweek* that have an extensive online presence. Third, similar limitations apply when searching through social media posts, like those found on YouTube, Twitter, or Facebook. Increasingly these outlets are the first place media consumers go for their news, and academic researchers must find a way to incorporate this and other media in their methodology to remain relevant and useful.

The primary limitation for a newspaper-only media content analysis is that the databases in which newspaper articles are stored do not include information about any photos or graphics that may have accompanied the print version of the articles. Moreover, while some databases may include the page numbers where the articles appeared, it is not possible to easily find and/or see the surrounding pages, which might include influential advertising or other content, including articles on the oil spill. Finally, because of a lack of time, money, and access, this study was not

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<sup>26</sup> The *Mobile Press-Register's* sole environmental reporter recently left the paper for an executive position at an environmental non-profit.

able to interview media consumers outside the seafood supply chain about the coverage of the seafood industry.

The solution to almost all of these limitations is additional time for focused, specific research. This project served its purpose as a dip of the toe into the vast sea that is the *Deepwater Horizon*'s lingering impact. As many or more questions have been raised as have been answered, and the communities in question deserve a thorough investigation that is focused on finding practical policy solutions that will translate into tangible benefits for those involved in the commercial seafood industry, as well as society at large.

## **Conclusion**

After presenting initial findings at academic and outreach conferences like Bays and Bayous and the Gulf of Mexico Oil Spill and Ecosystem Conference, I found myself apologizing for the downright depressing nature of the findings and conclusions from this study. The difficulties faced by the seafood industry are not episodic. They have been accumulating in resource-dependent communities for generations and show no sign of abating. In spite of this, I do believe that the communities can thrive again, given the necessary support and the cultivation of new and/or larger markets for their products. Assisting these communities in finding and receiving outside support and formulating a strategy to market themselves and their industry will no doubt be a herculean task. A skilled community developer would be invaluable in the management of this process.

The money coming to the Gulf Coast through the RESTORE Act framework presents a once-in-a-lifetime chance to undo decades of mismanagement in the Gulf of Mexico. However, projects have already been selected for the National Resources Damage Assessment (NRDA) Early Restoration money, and Alabama's choice is not encouraging. Of the \$100 million

allocated to the state for projects that are meant to restore damaged natural resources or compensate communities for their lost use, Alabama has chosen to spend \$85 million on the construction of a new conference center on the beachfront property of the Gulf State Park in Gulf Shores (Alabama, Office of the Governor 2013). If a conference center finds itself in the “environmental” category of expenditures in Alabama, it remains to be seen what the state considers an “economic” project.<sup>27</sup>

Those involved in the seafood industry must take a careful look at how they were covered by the media in the wake of the *Deepwater Horizon* oil spill, as well as the legislation that was ostensibly passed on their behalf. If they are not being represented in a way they feel is accurate, it would benefit them to work towards driving and creating the story about Gulf seafood that they want to see for themselves and their industry. That will require a concerted effort and an unprecedented level of organization, but the alternative is for the industry to find itself at the mercy of the media, public relations firms, legislators, regulators, and anyone else with a dog in the fight when seafood is in the news. Until the commercial seafood industry chooses to come to the table in a way that is recognizable by decision-makers, their voices will never be heard.

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<sup>27</sup> It is also not encouraging that Bayou La Batre’s mayor, Stan Wright, has been absent from all Alabama Gulf Coast Recovery Council meetings because of his indictment and subsequent conviction of corruption charges (Kirby 2013).

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## Appendix A: Interview Guide

### ***Ice Breaker***

1. How did you become a [harvester/processor/wholesaler/restaurateur]?
  - a. How long have you been in the business?
  - b. How has the business changed since you started?

### ***Disturbance***

2. The Alabama seafood industry has experienced several major disasters: Hurricane Katrina in 2005, the Recession, and the DWH spill in 2010.
  - a. To what degree has your business recovered?
    - i. What has been most helpful in your recovery?
    - ii. What has been least helpful in your recovery?
3. Do you have any concerns about fishing in Gulf waters?
  - a. What are your thoughts on fishery closures?
    - i. Who should be responsible for fishery closures?
  - b. What is environmental certification?
- c. What is seafood safety certification? What does it do?
4. Do you have concerns about eating seafood from the Gulf?
  - a. Should any consumers be cautious about eating Gulf seafood?
  - b. Who monitors seafood safety?
    - i. What is it that they do?
    - ii. Are you satisfied with their performance?
  - c. What have you heard about seafood testing?
    - i. What's being tested?
    - ii. What are they testing for?
    - iii. How are the tests conducted?
      - 1) Are you satisfied with the procedures being used?
    - iv. What happens if the seafood is found to be contaminated?
      - 1) Is there a way to trace seafood back to the processor or harvester?
  - d. What food safety rules do you have to follow in your business?
    - i. Have there been any new food safety rules since the spill?
    - ii. How effective are the seafood safety rules?
    - iii. Generally speaking, how have the rules been working for you?
    - iv. What type of food safety training have you received?
      - 1) Are you satisfied with your training?
5. Did you see media coverage of seafood safety in the Gulf of Mexico?
  - a. If so, was it in newspapers/magazines/TV/online?
  - b. What did you think about how the media covered Gulf seafood safety?
  - c. What kind of influence do you think the media coverage had on your customers?

### ***Conclusion***

6. We've talked about many topics today. Do you have any other concerns you'd like to discuss?
  - a. What do you think is the most challenging issue that [you/the industry] face?
7. Are there any other seafood [producers/processors/buyers] in Alabama or Mississippi that you think we should speak to?