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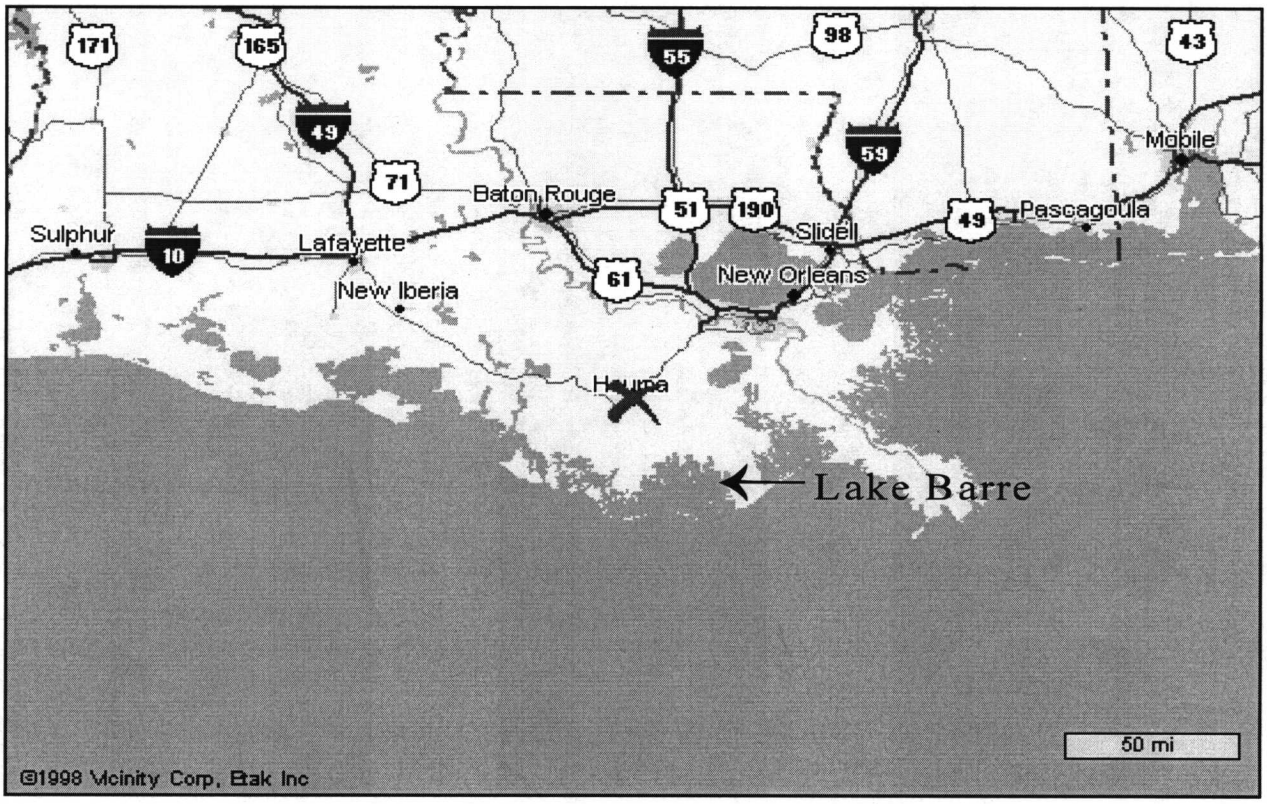
Coastal Marine Institute

Economic and Social Consequences of the Oil Spill in Lake Barre, Louisiana



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Economic and Social Consequences of the Oil Spill in Lake Barre, Louisiana

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ABSTRACT

This is a "spill-of-opportunity" study conducted with grants from the Louisiana Applied Oil Spill Research and Development Program and the U.S. Department of the Interior's Minerals Management Service of the social and economic consequences of a 5,000 barrel oil spill that occurred in the saltwater Lake Barre, off the coast of Louisiana, in May 1997. The research team interviewed officials from Texaco, the subcontractors hired by Texaco for the cleanup effort, governmental officials, business owners and operators, and other residents in the area most directly affected by the spill and analyzed a detailed statement furnished by Texaco of approximately $9.8 million expended in the cleanup operation. In addition, the team examined the *Incident Action Plans,* which describe, among other things, the number of workers and types of materials being used at the spill site on a daily basis.

The short-term social and economic consequences of the oil spill were modest. Three explanations for the limited nature of the short-term economic and social consequences of the spill are as follows.

- First, the oil spill cleanup industry along the Gulf Coast operates as a flexible, adaptive coalition when dealing with large spills. As a consequence, there was no increase in employment in the spill area.

- Second, the relatively short duration of cleanup activities limits the short-term economic and social impact of cleanup expenditures. Further, from 60 to 70 percent of cleanup expenditures go to firms located outside the spill area.

- Third, this spill site was geographically isolated, and most recreational and commercial coastal/ocean users were able to avoid the spill site at modest, if any, additional cost.

There is no persuasive evidence at this time either to support or to refute concerns expressed in the area about negative economic and social consequences in the longer term if fishing, shrimping, or oystering were to suffer, or were to be perceived as having suffered, because of the spill. State officials and cleanup professionals involved in the cleanup effort characterized the response to the spill as quick and well organized and do not anticipate serious long-term damage to the area. However, owners of oyster leases are suing for alleged damage to oyster beds.

This pattern of a short and limited social and economic impact and disruption was confirmed by the responses during interviews with individuals in the local area. Based upon information from these interviews, short-term effects of this spill appear to have been very limited. Longer-term effects are difficult to characterize and evaluate so soon after the spill occurred. The preponderance of those interviewed believed there would be no negative effects from the spill, but a significant minority said they were worried that longer-term effects might yet manifest themselves.

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EXECUTIVE SUMMARY

This is a "spill-of-opportunity" study of the social and economic consequences of a 5,000 barrel oil spill that occurred in the saltwater Lake Barre, off the coast of Louisiana, in May 1997. While the spill was not in Federal OCS waters, its nearshore nature makes it worthy of investigation. The study was conducted with grants from the Louisiana Applied Oil Spill Research and Development Program and the U.S. Department of the Interior's Minerals Management Service. The spill resulted from the rupture of a 16-inch pipeline bringing 170,000 barrels of oil per day to shore from offshore facilities. The response was prompt. The operator, Texaco Pipeline, shut-down the line within ten minutes of the drop in pipeline pressure. Satellite imaging was used to determine the location of a slick seven miles long and two miles wide, and work crews were dispatched. By the following morning people and equipment had been mobilized and were on the site. Winds from the southeast pushed the spill into coastal marshes. About half of the 5,000 barrels of oil spilled eventually was recovered.

The research team interviewed officials from Texaco, the subcontractors hired by Texaco for the cleanup effort, governmental officials, business owners and operators, and other residents in the area most directly affected by the spill and analyzed a detailed statement furnished by Texaco of approximately $9.8 million expended in the cleanup operation. In addition, the team examined the *Incident Action Plans,* which describe, among other things, the number of workers and types of materials being used at the spill site on a daily basis.

The short-term social and economic consequences of the oil spill were modest, as measured either with the available data on cleanup expenditures and the number of people employed or as reflected in the interviews conducted with the business, public officials, and residents in the area. There were concerns in the area about negative economic and social consequences in the longer term if fishing, shrimping, or oystering were to suffer, or were to be perceived as having suffered, because of the spill. However, there is no persuasive evidence at this time either to support or to refute such concerns. State officials and cleanup professionals involved in the spill characterized the response to the spill as quick and well organized and do not anticipate serious long-term damage to the area. However, owners of oyster leases are suing for alleged damage to oyster beds.

There are three explanations for the limited nature of the short-term economic and social consequences of the spill.

- First, the oil spill cleanup industry along the Gulf Coast operates as a flexible, adaptive coalition when dealing with large spills. A lead subcontractor is designated–usually by geographic proximity. The lead subcontractor then contacts other cleanup firms, many of whom they have worked with during past spills. Pricing of cleanup services is on a day-rate basis, with rates uniform among firms. This system provides experienced and trained workers to deal with spills in a very short period of time; however, few new workers are hired locally. New expenditures, thus, are limited to lodging and meals–neither of which has high expenditure "multipliers," especially when they are recognized as temporary.

- Second, the relatively short duration of cleanup activities limits the short-term economic and social impact of cleanup expenditures. The number of individuals working on the Lake Barre spill peaked at about 300 in the first ten days of the cleanup. Then employment fell to and averaged about 125 for the next 10 days, and then fell again, averaging about 25 for the rest of the cleanup. Thus, the secondary lodging and eating/drinking expenditures also were of limited duration.

- Third, this spill site was geographically isolated, and most recreational and commercial coastal/ocean users were able to avoid the spill site at modest, if any, additional cost.

This pattern of a short and limited social and economic impact and disruption was confirmed by the responses during interviews with individuals in the local area.

- Twenty percent of those contacted for interviews were unaware that a spill had occurred. This finding is surprising since the individuals contacted were either owner/operators of businesses, civic leaders or local officials. If the spill had resulted in major economic or social problems or dislocations, it seems doubtful that one out of five members of the economic, political, and social leadership would be unaware that a spill had taken place.

- Thirty percent of the community leaders or civic officials who were aware of the spill and were interviewed did not believe the spill had any impact on their community, and 57 percent of the businesses owners or operators said the spill had no effect on their business.

- Twenty-five percent of the civic leaders were afraid the spill would have a negative impact on their community, and 11 percent of the business owners and operators expected a negative effect on business as a consequence of long-run damage to fishing, shrimping, or oystering in the area.

- Twenty-two percent of the civic officials and leaders responded that the spill had a positive impact due to expenditures by cleanup crews, and another 16 percent also thought the spill had a positive impact due to increased restaurant and lodging sales. Twenty-five percent of the business sector respondents said associated spending had increased revenues of their businesses.

- Two percent of the community leaders cited traffic congestion as a negative impact, and five percent were unsure if there were impacts or had no opinion.

To summarize, the oil spill cleanup industry on the Gulf Coast operates more as a cooperative coalition than as a group of competing firms. This structure is a result of the driving imperative of the oil spill cleanup industry–to be able to respond immediately to an unexpected and ill-defined event with hundreds of skilled and experienced workers who need large amounts of specialized equipment to do their jobs. Although this structure is a rational and efficient adaptation to the imperative it reflects, it also limits any positive, short-term, economic impact in the spill area from the cleanup activities.

Negative social and economic consequences of an oil spill also appear to be limited. Based upon information from the interviews with community officials and business operators in the spill region, short-term effects of this spill appear to have been very limited. Longer-term effects are difficult to characterize and evaluate so soon after the spill occurred. The preponderance of those interviewed believed there would be no negative effects from the spill, but a significant minority said they were worried that longer-term effects might yet manifest themselves.

1.0 Objectives

The effects of oil spills on the biological and geological aspects of coastal and marine environments have been studied in many different settings from many different perspectives. This is not the case for the social and economic consequences of a spill. The objective of this study is to ascertain and document the social and economic effects of a large oil spill for the communities, businesses, and individuals in an adjacent geographic area that is typical of the U. S. Gulf Coast.

1.1 Expenditures, Revenues, Costs, and Consequences

First, we need to get the fundamentals right. As in this case study, the cleanup and remediation of an oil spill may involve the expenditure of millions of dollars. Such expenditures are revenues for business and individuals, but the spill is a cost, not a benefit, to society and is a deduction from, rather than an addition to, any comprehensive measure of economic output.

The best economic measure of the cost of a spill is its opportunity cost. In this case the opportunity cost has two generic components.

- The first is the direct cost or loss as reflected in normal accounting conventions. In our case, this would include about $10 million spent by firms and governments to cleanup and remediate the spill, approximately one million dollars to repair the pipeline, and the value of the oil that was not recovered–a little less than $50,000 at prices prevailing at the time of the spill. The value of the goods and services that could have been produced with these resources–had they gone to production or consumption, rather than the cleanup–is a measure of this component of the spill's opportunity costs.

- The second is the value of the opportunities lost or precluded–to produce (e.g., harvest oysters) or consume (e.g., recreational fishing)–that are not captured in the normal accounting of direct expenditures included in the first category. Some of these costs may become easier to quantify as time passes. For example, the detrimental effects of the spill on oyster beds will be quantified as their owners either negotiate with Texaco or litigate in the appropriate courts. Such sums will be entered in Texaco's books and allocated to the spill. However, other costs such as inconvenience to recreational fishermen will not enter Texaco's books although they may be substantial in the aggregate. In addition, ideally, any permanent damage to productivity or amenities of the area's natural resource base should also be recorded and treated analogously to the depreciation, obsolescence, or loss of physical capital.

It is true that the revenues of firms in the cleanup, repair, and remediation businesses may increase, but these increased revenues are increased costs without concomitant production by the firm responsible for the spill. Such costs will be passed on through higher prices to consumers of the products produced and/or by reduced dividends to the firm's stockholders. These costs are much easier to estimate than those not directly associated with cleanup activities. The second category of

costs, often termed nonmarket or external costs, is hard to estimate quantitatively, and we will use interviews to make qualitative estimates of their likely magnitude. For a discussion of the opportunity costs of oil spills, see *The Socioeconomic Impacts of Oil Spills*, 1984, American Petroleum Institute.

From a regional rather than a societal perspective, the economic consequences may be less clear-cut, since competing effects vary with the relative size and character of the parties involved in the region. Even a small spill/cleanup in a pristine, remote, Alaskan setting, for example, may be so intrusive as to disrupt a traditional, local subsistence economy permanently, whereas a much larger spill in an urban coastal/industrial area long devoted to heavy industrial development, such as the Houston ship channel, may have little if any immediate social or economic impact.

1.2 Scope and Duration

Our objective in the following study is to trace and understand the economic and social consequences of a relatively large spill of about 5,000 barrels. The spill occurred in a part of the Gulf Coast where both petroleum production and the recreational and commercial pursuit of fish, shrimp, and oysters are established and important components of the economy.

The area included in the study is fairly densely populated but still essentially rural rather than urban. The spill is a good case study because it was large enough to test the internal oil-spill-response structure of the responsible company and the relevant state and local agencies and governments, but not so large as to constitute a catastrophe lying outside the bounds of planning or expected contingencies.

It is necessary and useful to separate the immediate or concurrent economic and social consequences from longer term consequences. The spill that is the focus of this study occurred less than a year before most of the data in this study were gathered. Thus, we are not able to observe or directly characterize longer-term effects of the spill.

We discussed their perceptions of the spill's longer-term consequences with those we interviewed about the spill. If their perceptions and expectations had been uniform, we might have been able to infer likely consequences. However, we found their longer-term expectations were neither uniform nor very well defined. Further, litigation concerning the longer-term effects of the spill on the productivity of oyster beds in the area considerably complicates gathering reliable information about the longer-term expectations about the consequences of the spill.

1.3 Analytical Goals

Estimating the short- and longer-term social and economic consequences of the Lake Barre spill–broadly defined to include both direct monetary effects as well as the non-monetary consequences –is the ultimate objective of the study. However, understanding is a prerequisite for measurement or estimation. Thus, a necessary, analytical objective is to understand how the oil spill cleanup industry is organized and how it responds to an oil spill. In our case, our conclusions flow,

to a considerable extent, from the structure and method of operation that has evolved in the Gulf Coast's oil spill cleanup and remediation industry.

The immediate social and economic consequences for the region in which the spill occurred are a mix of things that include not only additional jobs and sales but also non-market effects such as traffic congestion, strains on public services, shortages of commodities or services, and disruptions to the normal patterns of activities or expectations. Preventing detrimental effects to the area's marine resources and productivity over the longer term is the primary concern that shapes the entire spill response and cleanup effort. The success or failure of this effort to do so cannot be established empirically within the time frame of the study, but we have tried to ascertain and characterize the perceptions and expectations of individuals living in the spill area.

2.0 The Spill

2.1 Immediate Consequences of the Rupture of the Pipeline

On the evening of Friday, May 16, 1997, three days before the beginning of Louisiana's brown shrimp season and a week before an annual fishing "rodeo" near the spill site was scheduled, a pipeline operated by Texaco Pipeline ruptured in Lake Barre near Cocodrie, Louisiana, about 60 miles southwest of New Orleans. The spill was detected by a drop in pipeline pressure and was ended ten minutes after it began by stopping the flow in the pipeline. By then an estimated 210,000 gallons, or about 5,000 barrels, had escaped through a 34-inch by two-inch rip in the 16-inch diameter line.

The pipeline that ruptured connected the Eugene Island Pipeline System with the Poseidon Pipeline at Caillou Island; it had been installed in 1963. During normal operations it brings about 170,000 barrels of offshore production from 47 offshore facilities to shore each day. About half of its normal throughput could be diverted to other pipelines. At the time of the rupture, Texaco was laying a new, parallel line about 15 feet from the one that burst, in anticipation of increased offshore production. Initially, it was believed that the construction activity was related to the rupture of the pipeline. Subsequent examination of the ruptured segment of pipeline indicated that rupture resulted from a defect that was much older and unrelated to the current construction.

Texaco accepted responsibility for cleaning up the spill. As it shut the pipeline down, it began to assemble its 100-employee oil spill response team. Saturday morning, by using satellite images, the location of the spill was determined. The spill had created an oil slick on the water covering an area estimated to be seven miles long and two miles wide. Unfortunately, wind from the southeast was pushing the slick into the marsh surrounding Lake Barre (Coffee, 1997).

About half of the 5,000 barrels spilled was ultimately recovered during the cleanup. Reports of the fate and effects of the unrecovered barrels varied. The Coast Guard was said to be pleased with the cleanup effort. Only about a dozen sea birds were reported soiled by oil, they said, and none were taken to rehabilitation centers. The Louisiana Department of Environmental Quality spokesman, Kerry St. Pe, said that the seabirds were not taken to rehabilitation because they flew away. Further, St. Pe said that the effects of spilled oil on the marsh's plant life, larval fin fish, and shrimp surrounding the spill were impossible to determine and that longer term, chronic effects were quite possible. Representatives of the Coalition to Restore Coastal Louisiana said they were favorably impressed by the magnitude of the response but were still concerned about longer term effects and risks.

In a suit filed on behalf of shrimpers and oyster men in the area, it is alleged that the spill resulted in a loss of both the entire brown shrimp and oyster harvests as well as permanent damage to the marsh and oyster beds because of improper oil spill cleanup procedures. Targets of the suit include Texaco and nine companies Texaco hired to carry out the cleanup. Litigation has not begun (Gray, 1997a and 1997b, and The Advocate, 1997).

2.2 Description of the Region in which the Spill Occurred

Figure 2.1 is a map of Louisiana showing the location of Lake Barre. It lies in the middle of the oil and gas production zone that has grown up along the Louisiana coast since the 1950's.

Figure 2.2 is a map of Terrebonne Parish, showing the spill site and the region contiguous to it. The principal city in the parish is Houma, which is about 30 miles from the spill site and accounts for nearly 31 percent of the parish's population. Dulac and Chauvin, the two towns nearest the spill site, have populations of 3,723 and 3,375 according to the 1990 census.

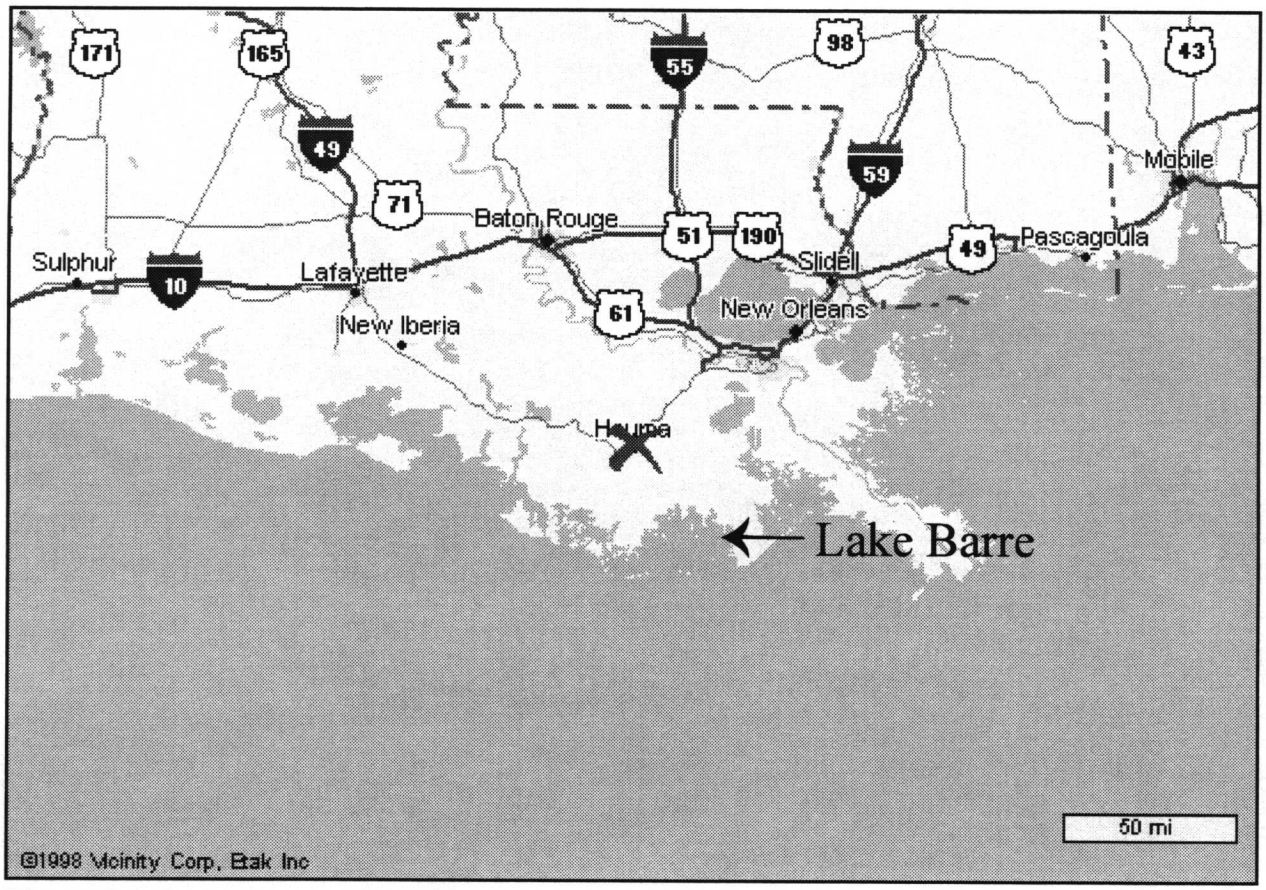

Figure 2.1. Location of Lake Barre.

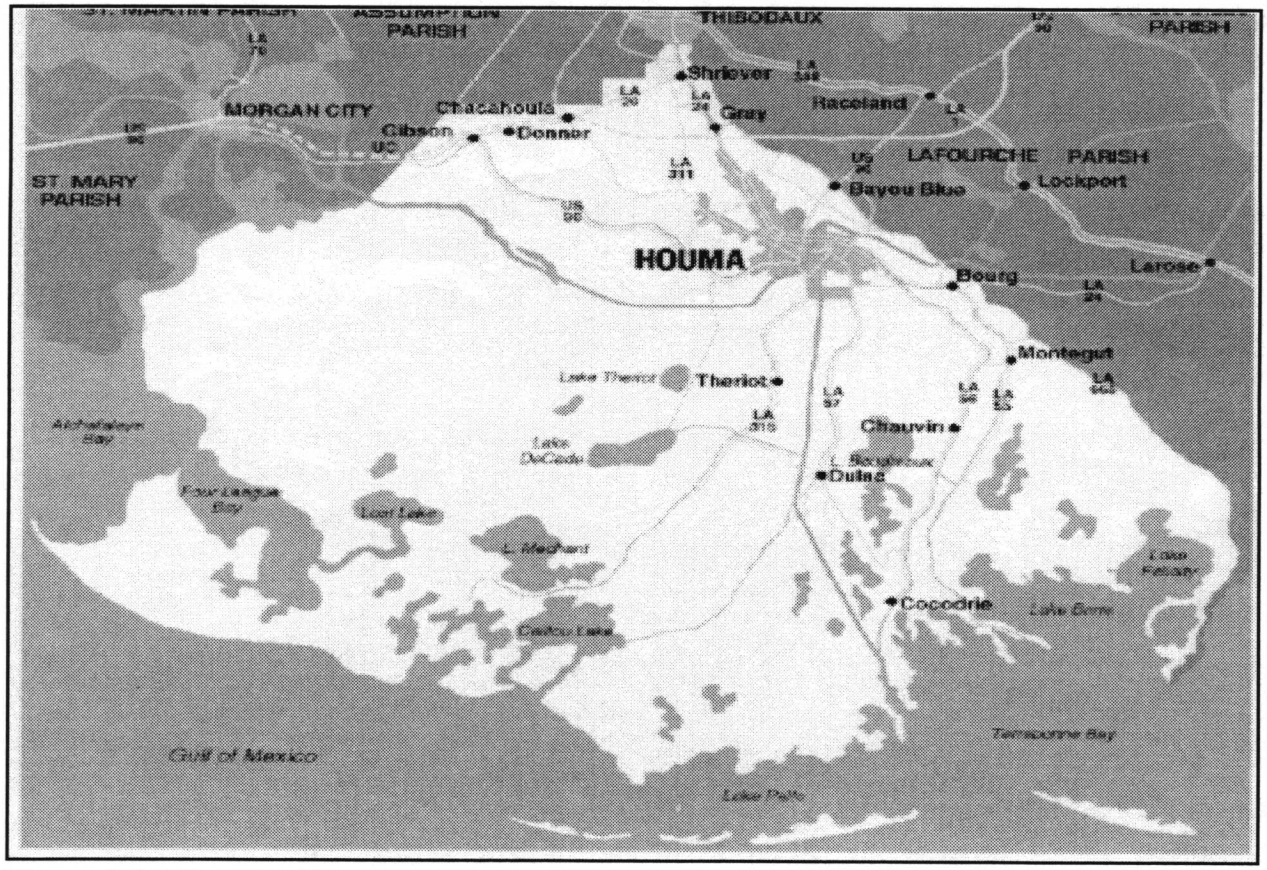

Figure 2.2. Map of spill region.

Selected data on population, income, labor force ,and poverty from the 1990 census are shown in Table 2.1 for Terrebonne Parish and Table 2.2 for adjoining Lafourche Parish. The population counted as rural by the census comprised nearly 24 percent of the total parish population and nearly 35 percent of the population excluding Houma. Thus, there is a rather large rural population compared to the rest of the state. However, the rural population is distributed largely along the principal roads in coastal areas; and, since there are no primary roads in the immediate area of the spill, there were few individuals living close to the cleanup area.

Table 2.1

Socioeconomic Characteristics of Terrebonne Parish (1990)

	Terrebonne Parish	**Houma City**	**Rest of Terrebonne Parish**
Population	96,982	30,495	66,487
Per Capita Income	$9,505	$9,790	$9,374
Aggregate Wage or Salary Income	$700.0 mln	$212.2 mln	$487.8 mln
Civilian Labor Force	38,507	11,853	26,654
Rural Population	23,197	0	23,197
White Population	75,376	21,718	53,658
Black Population	15,878	7,446	8,432
Persons below Poverty Level	23,203	7,908	15,295
Unemployed Persons	3,151	993	2,158

Table 2.2

Socioeconomic Characteristics of Lafourche Parish (1990)

	Lafourche Parish	Thibodaux City	Rest of Lafourche Parish
Population	85,860	14,035	71,825
Per Capita Income	9,250	9,964	9,110
Aggregate Wage or Salary Income	$597.8 mln	$94.1 mln	$503.7 mln
Civilian Labor Force	35,020	5,763	29,257
Rural Population	41,332	0	41,332
White Population	72,669	9,527	63,142
Black Population	10,602	4,442	6,160
Persons below Poverty Level	19,254	4,348	14,906
Unemployed Persons	2,852	529	2,323

Together the parishes form the Houma Metropolitan Statistical Area (MSA). Table 2.3 shows updated data for the two parishes. The Houma MSA has been the most "cyclical" part of Louisiana's economy during the past two decades–growing faster in good times and falling further in bad. The cyclical driver of economic activity in the Houma MSA is the oil and gas sector, however, not the general economy.

Table 2.3

Socioeconomic Characteristics of the Houma MSA by Parish for 1996

	Terrebonne Parish	**Lafourche Parish**
Population – 1996	101,887	87,577
Wages and Salaries – 1996	$1,080,985,000	$615,418,000
Civilian Labor Force – 1996	45,000	39,500
Unemployed Persons – 1996	2,200	1,700
Persons Below Poverty Level –1993	22,818	18,510

Two years after oil prices had taken their final dive in 1985 from the unsustainable levels they reached in the early 1980's, employment in the Houma MSA was 25 percent below its previous, 1981, peak (Scott et al., 1997). In the 1990's, however, the Houma MSA has been the most rapidly growing MSA in the state and, in 1996, surpassed its previous, 1979, peak employment level. The authors of the *Louisiana Economic Outlook* forecast that the Houma MSA will add almost six thousand jobs during the 1998-99 fiscal year. Behind this rapid growth are: 1) the oil and gas exploration and production resurgence in the Gulf, especially in the "deep water Gulf," and 2) very rapid growth in the related shipbuilding industry. The shortage of skilled workers in shipbuilding is so extreme that firms are offering workers from outside the area temporary housing and mimicking the practice of the offshore oil and gas industry with a seven days on/seven days off work schedule (Scott et al., 1997).

3.0 Resources Marshaled to Cleanup the Spill

3.1 People

The number of people involved in the response to the spill measured over the duration of the cleanup effort is illustrated by the employment profile shown in Figure 3.1.1. The figure traces the number working on the spill and cleanup for about a month, from the Saturday following the spill until June 20. A small crew continued to work until July 4, when the cleanup effort was declared "over."

Two aspects of the profile are instructive. Nearly 300 people were at the site almost immediately. Such rapid mobilization is crucial to being able to contain the spill before it damages the surrounding ecosystem and, thereby, minimize the cost of any reclamation or restoration work that might be required.

It is also important to note that the number working at the site declined sharply after about ten days, averaging around 125 for the next two weeks before declining again to average about 25 for the duration of the cleanup.

As is illustrated in Figure 3.1.2, the drop in manpower at the command centers was quicker and sharper, falling from a high of 50 on the initial two days to average about 20 for the next week when it then dropped to a single person. The main command center was at Texaco Pipeline in Houma, and the field command post was established in Cocodrie, Louisiana.

Figures 3.1.3 and 3.1.4 illustrate the division of cleanup workers between the subcontractors hired by Cenac Environmental (who by-and-large came from outside Terrebonne and Lafourche Parishes) and workers employed by Cenac or Texaco Pipeline (many of whom were employed at Texaco Pipeline, located across the street from Cenac in Houma).

Figure 3.1.3 shows the two categories in absolute terms, Figure 3.1.4 in relative terms. Clearly the subcontractors were the surge/slack providers of manpower, while the Cenac/Texaco manpower was relatively stable throughout the cleanup campaign.

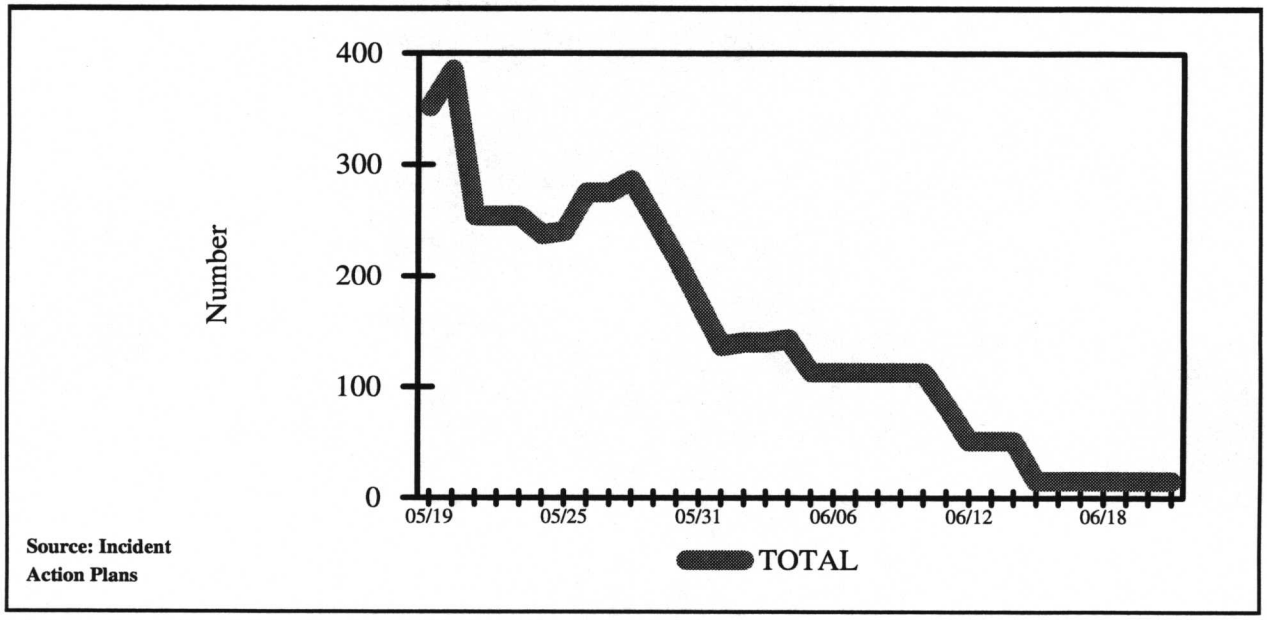

Figure 3.1.1. Employment profile: total manpower working on spill May 18 - June 20, 1997.

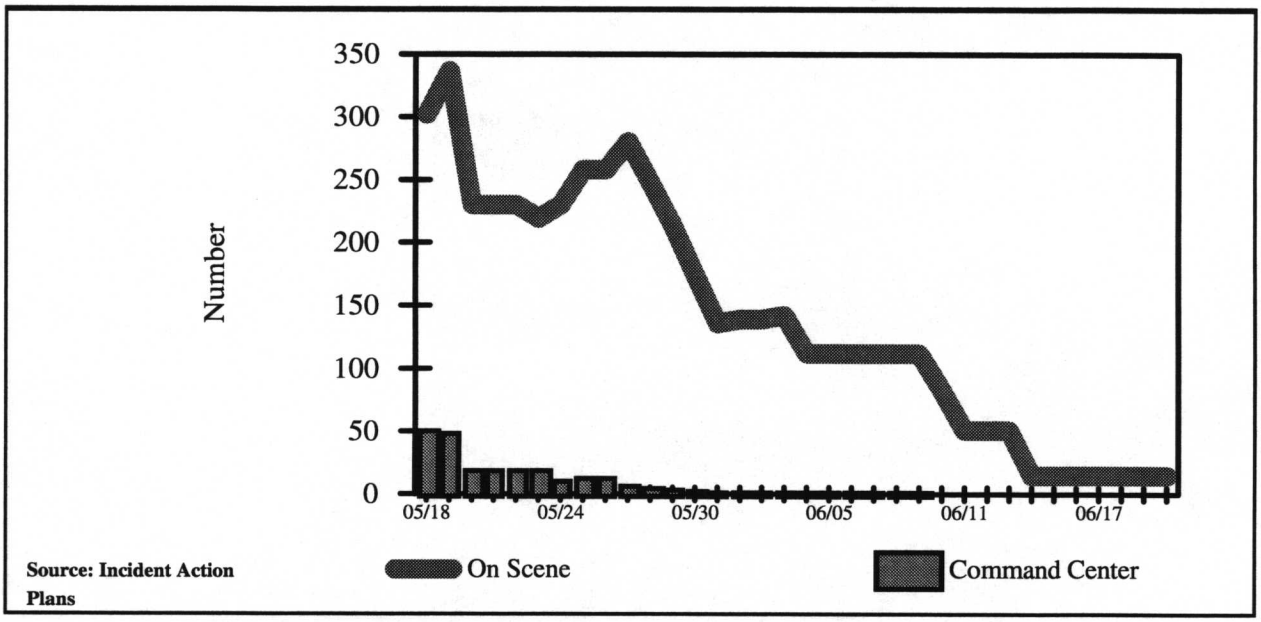

Figure 3.1.2. Employment profile: manpower at the scene and at command center May 18 - June 20, 1997.

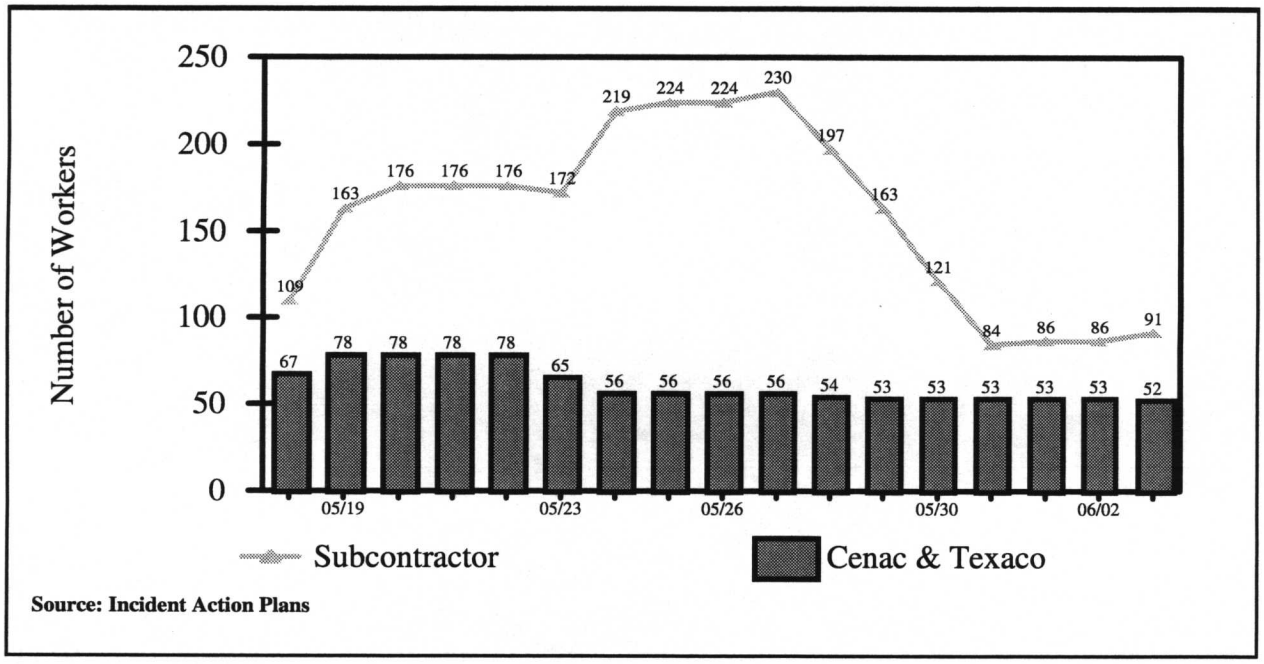

Figure 3.1.3. Employment profile: Cenac & Texaco and other subcontractors May 18 - June 3, 1997.

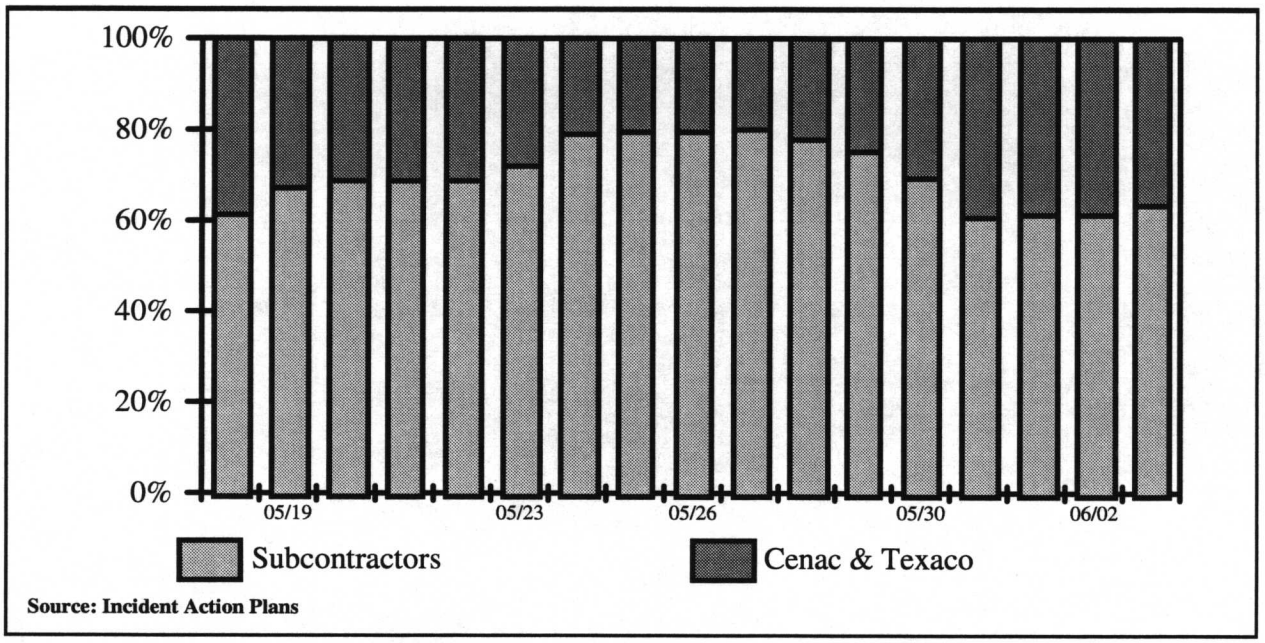

Figure 3.1.4. Employment profile: percentage, Cenac & Texaco and other subcontractors May 18 - June 3, 1997.

3.2 Expenditures

Table 3.2.1 records expenditures by Texaco during the cleanup in six categories by type of recipient. About 75 percent of the $9,821,673 that was expended went to Cenac Environmental, the principal cleanup contractor, who, in turn, paid the subcontractors it brought to the spill. Payments Texaco made to businesses and individuals other than Cenac and its subcontractors, which were about 25 percent of total expenditures, are shown by location when it is possible to do so.

Working from a list of expenditures furnished by Texaco and using directories, phone calls, and web sites, it was possible to subdivide the "other-than-Cenac-and-its-subcontractors" category into five classifications. Four of the classifications were based on location–whether the business receiving the payment was located in one of the three parishes closest to the spill (Terrebonne, Lafourche, and St. Mary) or outside those parishes. The remaining category is "payments to individuals;" it is not subdivided into categories corresponding to the location of the recipient.

We do not have the data that would be required to subdivide the $7,318,776 paid to Cenac and its subcontractors according to location. However, using the employment data shown in Figure 3.1.3 and data gathered from most of the subcontractors as a guide, we offer rough estimates of the disposition of that total as follows.

- About 20 percent of the $7,318,776[1] paid by Texaco to Cenac went to pay for supplies, services, and materials.
- Another $2,283,458 (31 percent) went to Cenac for management, labor, and supervision.
- The remaining $3,571,563 (49 percent) was paid to the subcontractors working under Cenac's supervision.[2]

[1]The dollar amounts are given only to provide a point of reference, not to suggest the estimate is meaningful to the number of digits given.

[2]In making these estimates, it was assumed that Cenac received twice as much per worker for its employees as did its subcontractors, in compensation for its managerial and supervisory services.

Table 3.2.1

Expenditures by Texaco at the Lake Barre Oil Spill by Initial Recipient
(Data were furnished by Texaco; the classification and estimates were by the authors.)

Initial Recipient	Amount	Percent of Total Expenditures
Cenac Environmental and its Subcontractors	$7,318,776	74.53
Businesses in Terrebonne Parish	522,865	5.32
Businesses in Lafourche Parish	88,519	0.90
Businesses in St. Mary Parish	100,628	1.02
Businesses in other areas	1,737,622	17.69
Payments to individuals	53,263	0.54
Totals	$9,821,673	99.9

Table 3.2.2 summarizes the estimates these assumptions yield, in terms of expenditures within the cleanup's impact area, which is broadly defined to include Lafourche and St. Mary Parishes as well as Terrebonne Parish, and outside the impact area.

It is unrealistic to assume that all of the $1,463,755 estimated to have been used by Cenac to purchase services and supplies was spent in the spill area. Hence, in the table we have allocated two-thirds of the expenditure to "outside the spill area" and one-third "inside the spill area." A similar adjustment could be made to the "payments to individuals" category but we have not done so because the total is so small relative to the total–only about one-half of one percent.

Acknowledging the rough and ad hoc nature of the estimates summarized in Table 3.2.2, about 36 percent of the $9.8 million paid by Texaco for the cleanup was spent within the area of the spill, quite broadly defined, and 64 percent was spent outside the impact area. Given the imprecision of the data, a range between a 30-70 division and a 40-60 division would probably include the true, actual ratio.

Table 3.2.2

Estimated Expenditures to Recipients Within and Outside the "Spill Area"

Location Recipient-Disposition	Within Spill Area	Outside Spill Area	Total Expenditures
Cenac-Manpower	$2,271,748		$2,271,748
Cenac-Service and Supplies	487,918	$975,837	1,463,755
Cenac-Subcontractors		3,583,273	3,583,273
Businesses in Terrebonne Parish	522,865		522,865
Businesses in Lafourche Parish	88,519		88,519
Businesses in St. Mary Parish	100,628		100,628
Businesses in other areas		1,737,622	1,737,622
Payments to individuals	53,263		53,263
Totals	$3,524,941	$6,296,732	$9,821,673

The consequences of these expenditures for local or regional economic activity are largely determined by whether new jobs are created or incomes increased in a significant way as a result of the cleanup campaign. The consequences for employment in the spill area were minimal, as evidenced by the fact that:

- Neither Cenac nor any of its subcontractors hired any permanent employees to work on the spill.

- Two Cenac subcontractors did hire contract employees to work as general labor during the spill, but they were not hired in the three-parish, spill-impact area.

- An employee with the Louisiana Department of Labor office in Houma reported that there were no Job Orders filed as a consequence of the Lake Barre spill and that none who registered with the agency during the spill said that they lost their job as a consequence of the spill.

- There may have been additional hires or increased hours worked in the lodging or eating and drinking establishment industries, but no effects of this sort were mentioned by those we interviewed, as is discussed in the next section of the report.

3.3 Equipment

Large amounts of specialized equipment and supplies are required to deal with a major oil spill. Texaco's "Lake Barre Oil Spill Incident–FACT SHEET" lists:

- Approximately 50,000 feet containment boom,
- Approximately 60,000 to 80,000 feet of absorbent boom,
- More than 60 boats,
- Eight to ten air boats,
- More than 20 skimming vessels and vacuum boats,
- Seventeen barges, including crane, deck, and storage barges,
- Three to five helicopters,
- Two fixed wing aircraft,
- Four to ten Terrebonne Parish Sheriff's Office water patrol units.

Only one of the subcontractors indicated any problems acquiring the necessary supplies or equipment during the cleanup and suggested that, as a part of its contingency planning, the state should keep a current directory of suppliers in all parts of the state.

4.0 Residents' Perceptions of the Spill and Cleanup

Since the secondary economic and social data available to gauge the effects of the spill on businesses, communities, and individuals in the area of the spill are limited or nonexistent, a number of individuals that, we hope, are representative of the category from which they were drawn, were interviewed. The interviews were conducted by telephone at the Louisiana Population Data Center, a part of the sociology department of Louisiana State University.

Candidates for interviews who had been identified from directories and conversations with knowledgeable individuals in the area were contacted by phone and asked if they were aware of the spill. If they were, they were told about the study and its objectives and asked if they would be willing to talk about the spill for about 30 minutes. Those who were willing to do so were scheduled for an interview at some future date and time. The disposition of those contacted is shown in Figure 4.1.1.

The figure itself foreshadows the results of the study. Remembering that the individuals contacted were either business operators, civic leaders, or local officials, all of whom might be expected to be better informed than the general populace, it is surprising that twenty percent of those contacted were unaware that a spill had occurred. If the spill had resulted in major economic or social problems or dislocations, it seems doubtful that one out of five members of the economic, political, and social leadership would be unaware that a spill had taken place.

Another seven percent refused to agree to schedule an interview, and 13 percent did not keep appointments made during the initial telephone contacts. Thus, only about 60 percent of those contacted were aware an oil spill had occurred, were willing to be interviewed, and were, in fact, interviewed. This amounted to 27 useful interviews. The 27 were members of separate categories, and the interviewer was guided by a different interview outline for each category. However, there were similar if not identical areas of inquiry for each group. Since there are different numbers of respondents for different questions, percentages are used to report responses to assist in making meaningful comparisons.

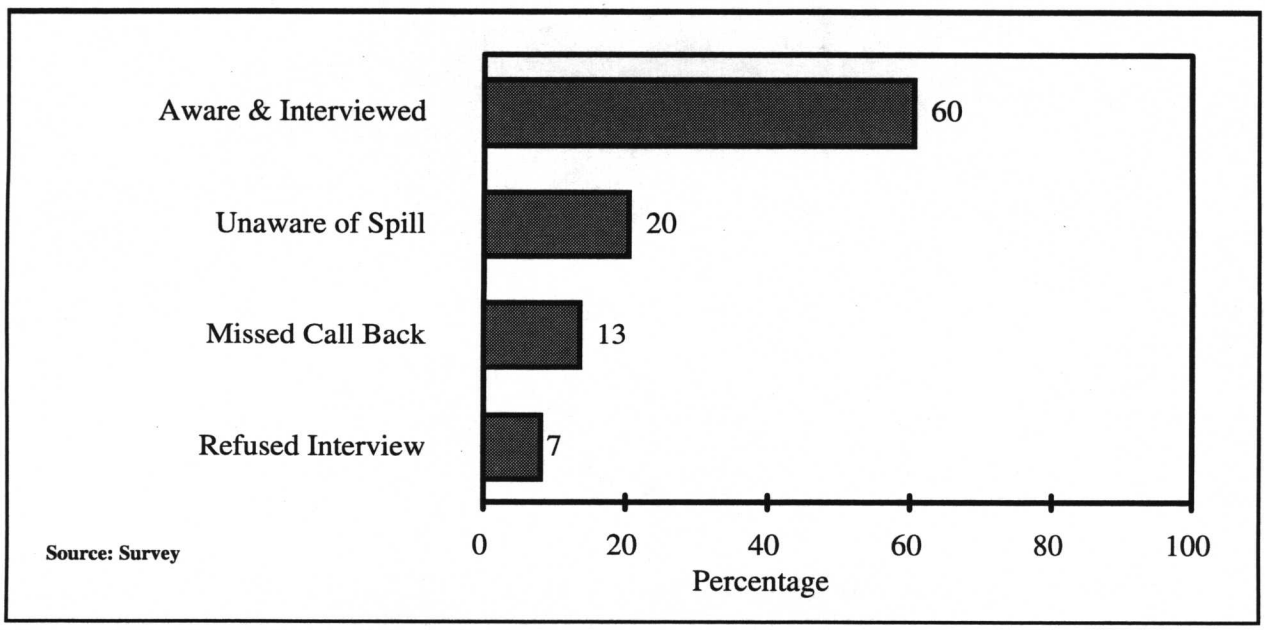

Figure 4.1.1. Disposition of those initially contacted for interviews.

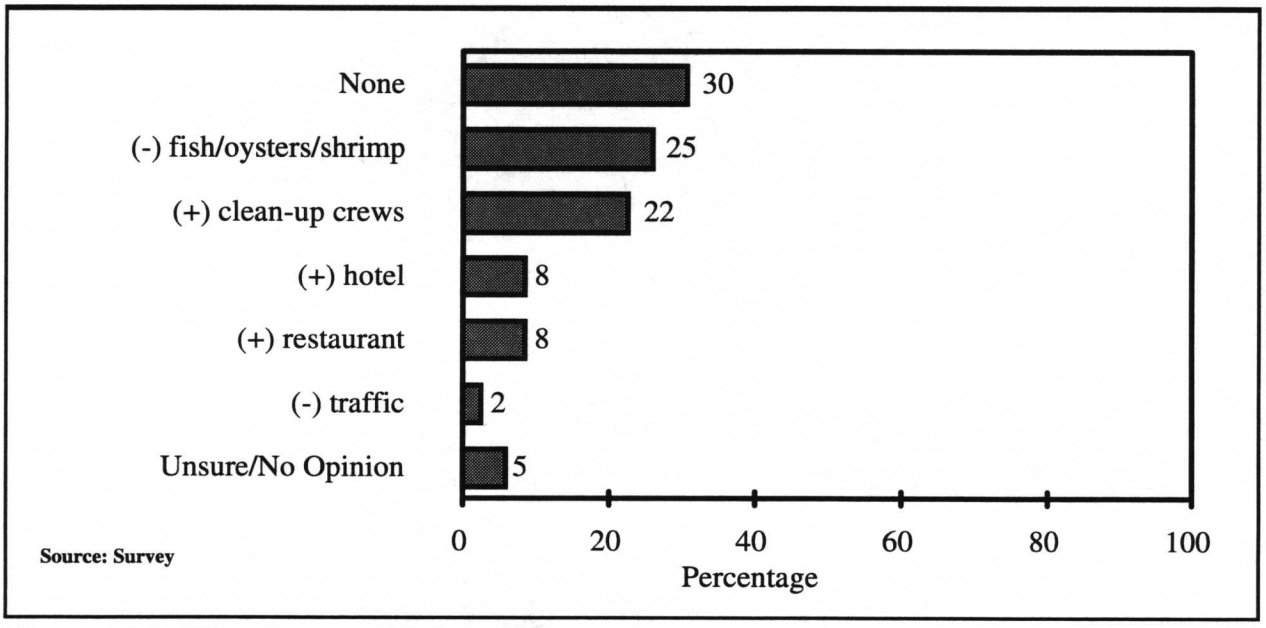

Figure 4.1.2. What impact did the spill have on your community?

Figure 4.1.2 summarizes the opinions and observations of community officials and leaders about the spill's principal impact on their community.

- Thirty percent said the spill did not have any impact on their community.
- Twenty-five percent said they were worried about a potential longer-term, negative effect on fishing, shrimping, and oystering.
- Twenty-two percent said that they believed the spill had a positive effect as a consequence of spending by cleanup crews.
- An additional eight percent mentioned increased business at hotels and another eight percent mentioned restaurants.
- Two percent cited a negative effect on their community because of congestion and other effects of increased traffic.
- Five percent were unsure or had no opinion.

The overall responses by owners and operators of businesses in the spill area to questions about how their own businesses were affected by the spill are summarized in Figure 4.1.3.

- Fifty-seven percent of those who were interviewed said the spill had no impact on their enterprise.
- Eighteen percent believed their business had been affected positively by the cleanup activities associated with the spill,
- As did an additional seven percent operating eating, drinking, or lodging establishments.
- Eleven percent, who were in the fishing or charter boat businesses, said they suffered or were likely to suffer negative consequences because of the spill because marine habitat was likely to be adversely affected and/or recreational fishermen would decrease visits to the area because they perceived that the marine habitat was damaged.
- Seven percent were unsure or said they had no opinion.

Interviewers also asked respondents if they believed there would be longer-term (defined as one year or more) effects on the communities or businesses in the spill area. Their responses are depicted in Figure 4.1.4.

- Forty-one percent either did not respond or said they had no opinion.
- Thirty-seven percent believed there would be no long-term impact from the spill.

- Eighteen percent believed there "might be" such impacts.

- Only four percent replied with an unqualified "yes."

The "maybes" all had environmental or natural resource concerns. Disregarding the "no opinion" and lumping together the "maybes" and the "yeses" still yields an optimistic, no-long-run-effects balance when compared to the "noes," with the former, concerned group totaling 22 percent and the latter, "no-long-run-effects" group accounting for 37 percent of the total.

An alternative way of interpreting the data in Figure 4.1.4 would be to form an "uncertain/noncommital" group by adding the "no response" and the "maybes." This would indicate that a majority of 59 percent were unsure of the consequences of the spill and, when compared to those with definite expectations, would indicate that uncertainty is more descriptive of the respondents' expectations.

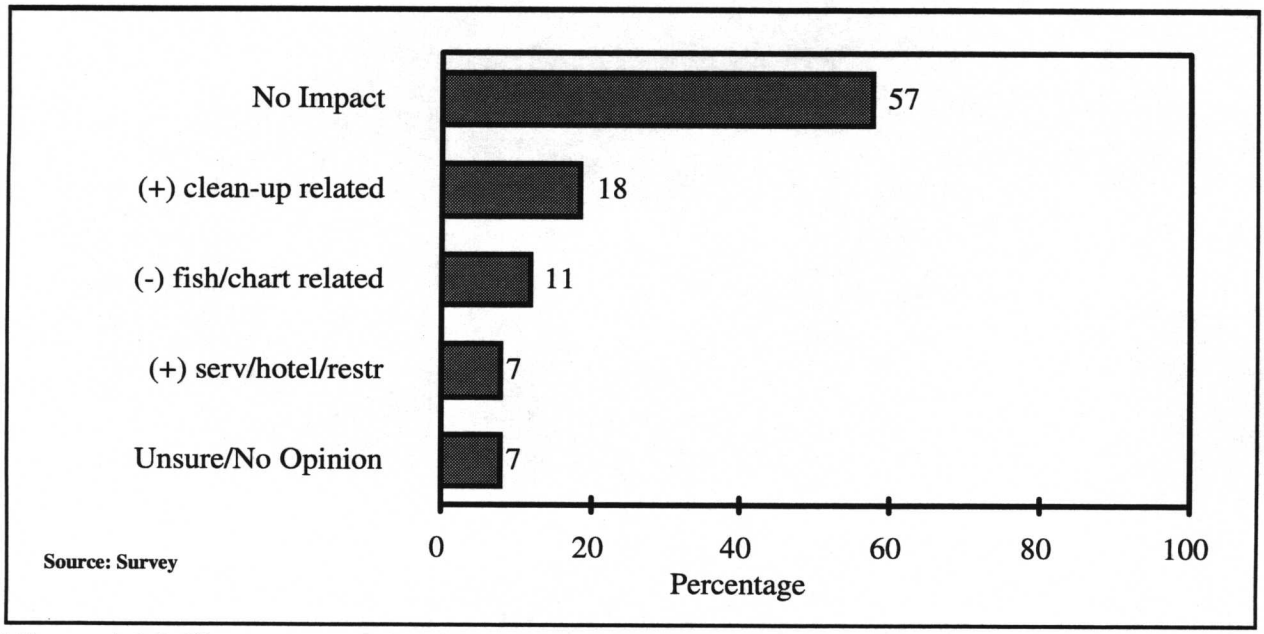

Figure 4.1.3. How was your business affected by the spill?

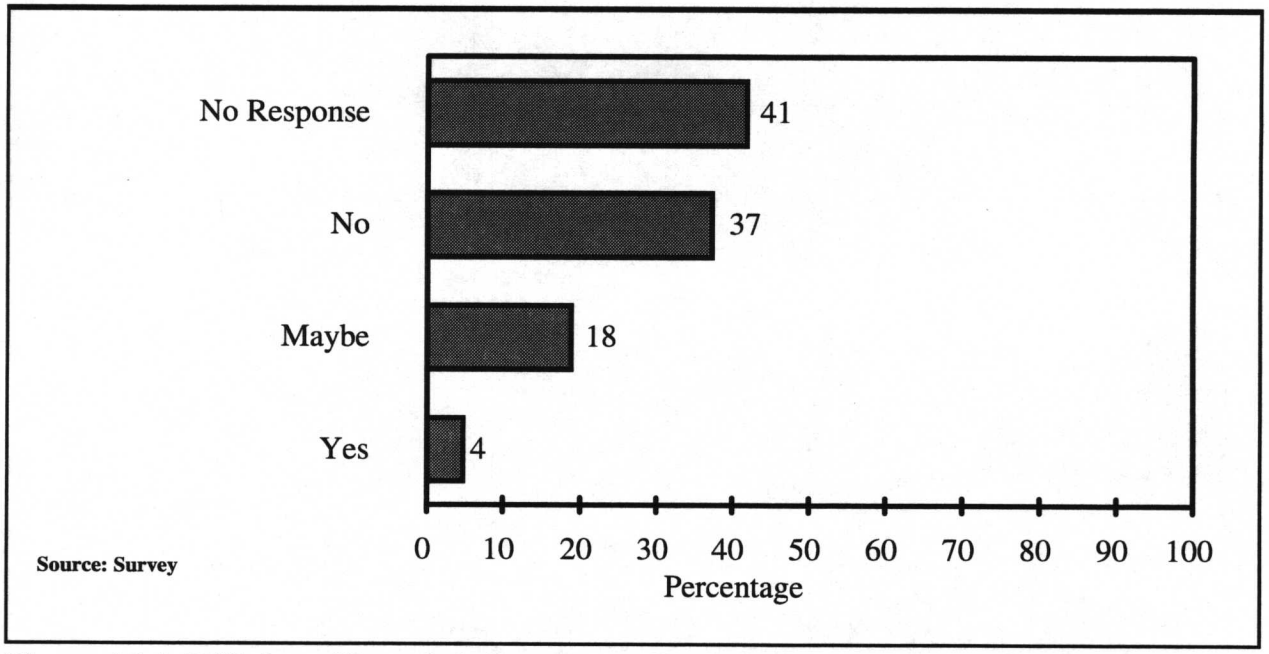

Figure 4.1.4. Will the spill result in long-term effects (lasting more than one year) on your community or business?

Another topic that was included in the interviews was how interviewees learned about the spill and how accurate they believed the information about the spill to be. Figures 4.1.5 and 4.1.6 summarize those responses.

Figure 4.1.5 summarizes how those interviewed learned about the spill.

- Thirty-seven percent said their information came from newspaper, television, or radio reports.
- Fifteen percent were unsure of their source or learned of the spill in some other way.
- The remaining forty-eight percent learned of the spill by either: direct observation (11 percent), or by word-of-mouth (15 percent), or from a business (22 percent).

Figure 4.1.6 summarizes responses about the accuracy of the information they received about the spill.

- Only 15 percent said they believed information about the spill was not accurate.
- Forty-four percent were unsure of the accuracy of the information they received or had no opinion.
- Thus, only 41 percent said they were confident that the information available to them would be proven to be accurate.

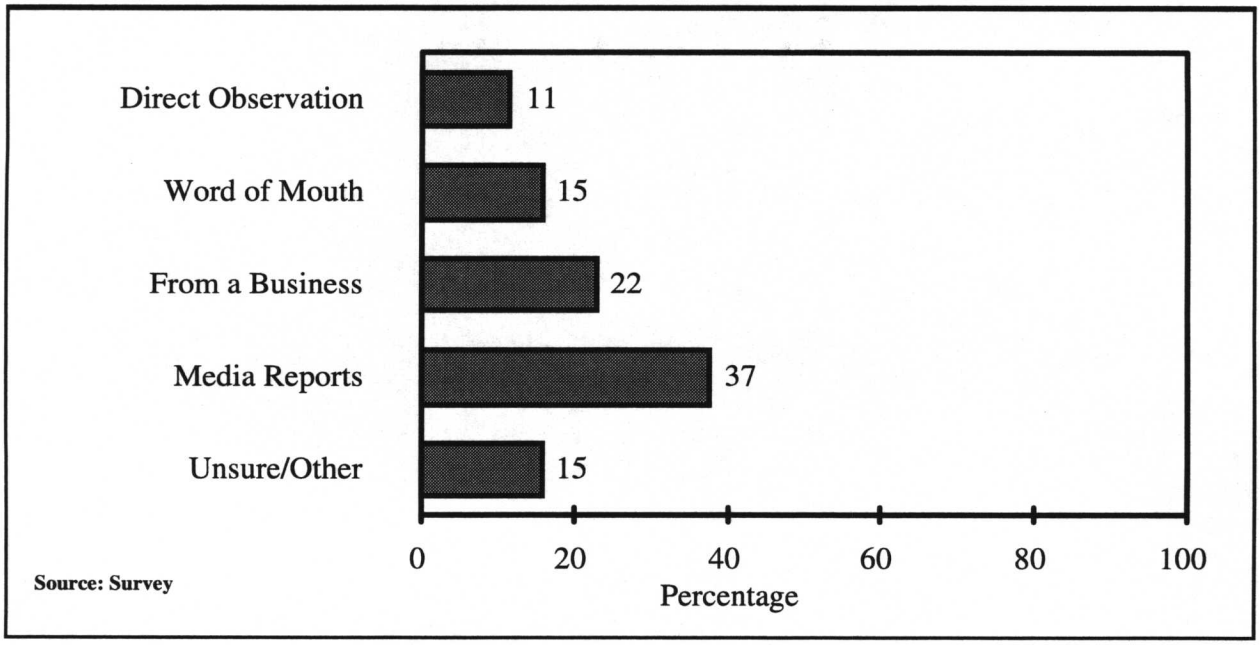

Figure 4.1.5. How did you initially learn that an oil spill occurred?

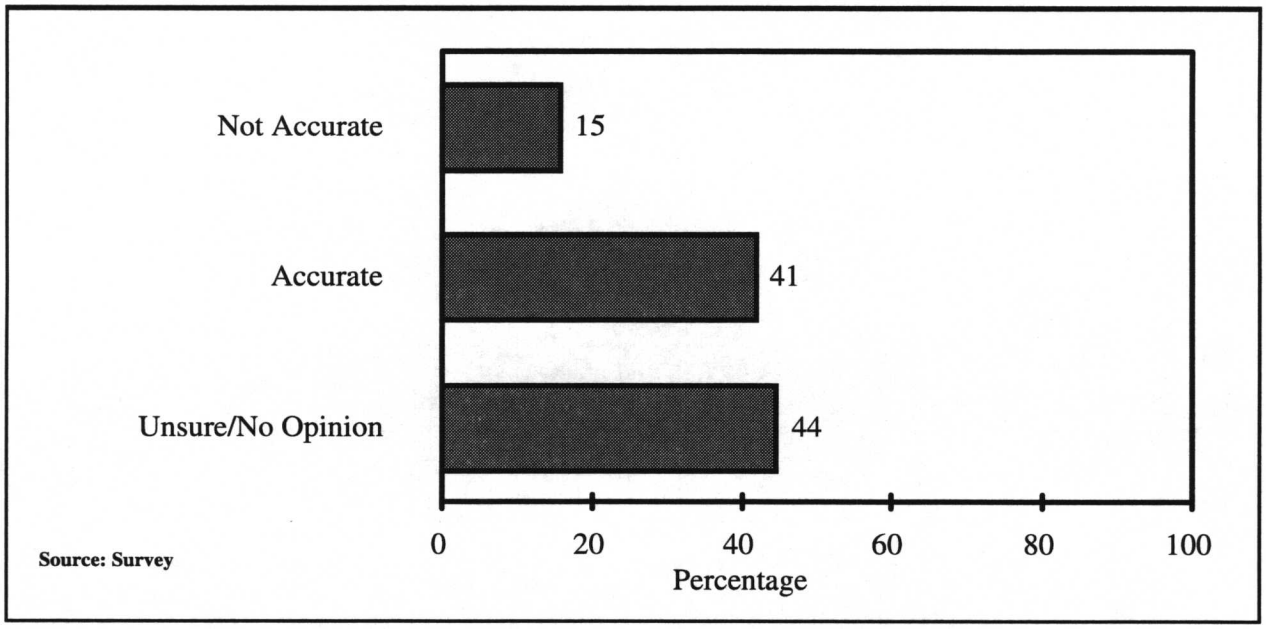

Figure 4.1.6. How accurate do you believe information about the spill was?

A final set of questions concerned the perceived adequacy of the planning for the spill by Texaco and offered "open-ended" opportunities for suggestions for improvements in performance and regulations.

Figure 4.1.7 summarizes responses to a question about the adequacy of the planning for the spill by Texaco, and, by implication, that of planning by the relevant state and federal regulatory agencies. Again there is considerable uncertainty or lack of information or, perhaps, lack of interest evident in the responses.

- Forty-four percent chose not to answer or had no opinion.
- Of those with opinions, however, 48 percent believed that a good job was done.
- Only four percent responded that the planning was not adequate.

The two "open-ended" opportunities for suggestions were: "In hindsight, what could have been done by the oil company to reduce impacts on local communities?" and, "Are there any laws or regulations that you believe should be changed to deal with oil spills more efficiently or equitably?"

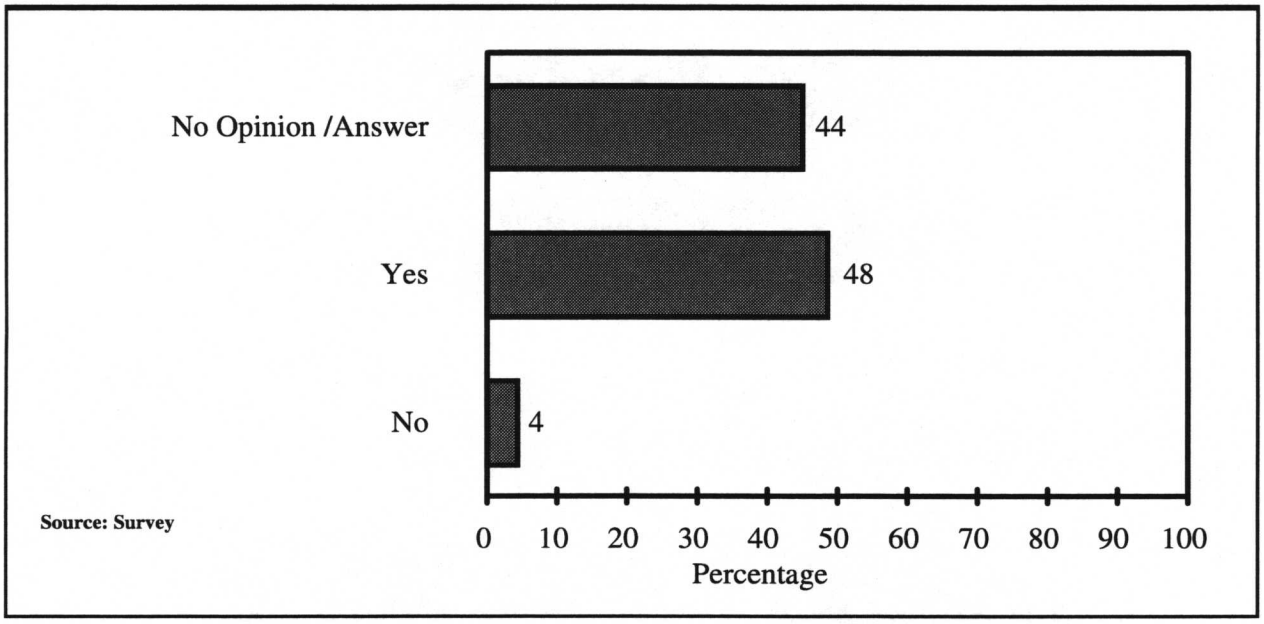

Figure 4.1.7. Did Texaco and the state and federal agencies have adequate plans to deal with the spill?

There were no suggestions about what could have been done that was not done to reduce the impact of the spill on communities. The most frequent "response" was "no answer," which accounted for 63 percent of the responses. However, 33 percent responded "affirmatively" to the effect that nothing could have been done that was not done to minimize such impacts during the cleanup. Four percent responded, logically, that since they believed there were no impacts on communities from the spill nothing could be done to reduce such nonexistent impacts.

There were also few suggestions for improving laws or regulations pertaining to spills and cleanups. One respondent suggested that provisions were needed to notify lease, bottom, or property owners in the area of the spill that a spill had occurred; another said that more warnings about the locations of major pipelines would help. Two respondents said that existing regulations could not be improved, and the remainder did not answer or respond to the question.

5.0 Summary and Conclusions

Responding to natural disasters such as floods, hurricanes, tornados, and earthquakes usually requires large expenditures for construction and repair, which provide a stimulus to the afflicted area. Indeed studies of the response to these natural disasters show that private insurance and public programs tend to over-compensate for the losses so incurred (Kane, 1996, Albala-Bertrand, 1993, and Horowich, 1990). But the response to the rupture of a major oil pipeline, such as has been previously described, does not appear to provide much economic stimulus in either the short or longer run–at least in a typical Gulf Coast setting such as Lake Barre.

However, the response to a major pipeline spill in this setting does not appear to result in much social or economic disruption either. Although oil spill scenarios could be conjectured in which considerable damage would be suffered by physical structures in urban areas, the mitigation of oil spills usually only requires comparatively minor and short-lived construction expenditures. Further, damages are often of the non-market type, where damages, even if substantial in total, are spread so thinly that they are hard even for those directly affected to calculate–e.g., the reduction in future opportunities for recreational fisherman from a potential reduction in larval marine organisms in the spill area. Indeed, it may be that restoration strategies are so uncertain that relying on time and natural processes to mitigate longer term damages is frequently the prudent course.

In the Lake Barre case study, no evidence was found of any additional employment created by the spill in the three parish area defined as the spill area–despite the fact that the principal cleanup contractor, Cenac Environmental, and the responsible party, Texaco Pipeline, were both located in the spill area. Some of the subcontractors hired trained labor on a temporary basis, but none of those employed were residents of the spill area.

Similarly, an analysis of detailed expenditures made by Texaco during the cleanup, suggested that about two-thirds went to business located outside the three parish spill area.

Conversely, little, if any, evidence was found of spill- or cleanup-caused damages or disruptions imposing short-term costs on businesses or individuals in the spill area. Preventing longer term damages that could reduce longer-term benefits from the coastal environment in which the spill took place is the goal that guides the cleanup effort. A significant level of concern about real or perceived longer-term effects on commercial and recreational fishing was evident in those who participated in this study, but no evidence of such effects is known at this time.

There are several reasons why both the negative and potentially positive effects of this oil spill seem to be so limited:

- First, the spill occurred as a result of the rupture of an active pipeline. Even though it was a major pipeline bringing large quantities of oil to shore, the drop in pipeline pressure provided a clear signal of a failure that was promptly responded to by shutting down the flow. It is much easier and quicker to control a spill from a pipeline than, for example, one from a damaged or grounded tanker.

- Second, a plan to deal with oil spills was in place, and procedures to implement the plan were well defined and were engaged in a timely way.

- Third, the spill occurred in open water six or so miles offshore. Although unfavorable winds blew the slick into coastal marshes and waterways, there were few access points to these areas from land. Fishermen working in the area had access to many other areas of equivalent productivity. Oyster leases, however, are fixed geographically, and some of their owners are suing for damages. Until that litigation is completed, it is hard to estimate the magnitude of such damages.

- Fourth, the oil spill response and cleanup industry operates as a cooperative coalition when dealing with major oil spills. Only trained and certified workers can take part in a cleanup, and a major spill requires many more workers than any individual firm could keep as a labor reserve. Thus, the responsible party (Texaco in our case) designates a lead contractor who then subcontracts with similar cleanup firms along the Gulf Coast for labor, equipment, and material at standard day rates. Most of the firms participating in the Lake Barre cleanup had worked together on past spills, sometimes as the lead contractor sometimes as a subcontractor. Although this organization is a natural and efficient one for the cleanup industry, it means that a substantial proportion of the labor required to deal with the spill comes from outside the impacted area.

- Fifth, an analysis of Texaco's expenditures revealed a similar pattern. Our rough estimate is that about two-thirds went to firms outside the impacted region. The largest category of additional spending went to eating and drinking establishments and hotels and motels. Even though these establishments operated at or above capacity during the peak of the cleanup effort, that peak was a relatively short one, lasting about ten days.

This pattern of a short and limited social and economic impact (both positive and negative) was confirmed by the responses during interviews with individuals in the local area.

- Twenty percent of those contacted for interviews were unaware that a spill had occurred. Remembering that the individuals contacted were either owner/operators of businesses, civic leaders, or local officials, it is surprising that twenty percent of those contacted were unaware that a spill had occurred. If the spill had resulted in major economic or social problems or dislocations, it seems doubtful that one out of five members of the economic, political, and social leadership would be unaware that a spill had taken place.

- Of those that were aware of the spill and were interviewed, 30 percent of the community leaders or civic officials did not believe the spill had any impact on their community, and 57 percent of the business owners or operators said the spill had no effect on their businesses.

- Twenty-five percent of the civic leaders were afraid the spill would have a negative impact on their community, and 11 percent of the business owners expected a negative effect on businesses as a consequence of long-run damage to fishing, shrimping, or oystering in the area.

- Twenty-two percent of the civic officials and leaders responded that the spill had a positive impact due to expenditures by cleanup crews, and another 16 percent also thought the spill had a positive impact due to increased restaurant and lodging sales. Twenty-five percent of the business sector respondents said spill-associated spending had increased revenues of their businesses.

- Two percent of the community leaders cited traffic congestion as a negative impact, and five percent were unsure if there were impacts or had no opinion.

Views about possible longer-term impacts of the spill were optimistic, if somewhat uncertain. Forty-one percent of those interviewed had no opinion or did not want to express their opinion about the longer-term effects of the spill. However, 37 percent explicitly stated they believed there would be no long-term effects from the spill. Eighteen percent of those interviewed said there "might be" long-term effects, but only four percent explicitly asserted that there would be long-term consequences from the spill.

To summarize, the oil spill cleanup industry on the Gulf Coast operates more as a cooperative coalition than as a group of competing firms. This structure is a result of the driving imperative of the oil spill cleanup industry–to be able to respond immediately to an unexpected and ill-defined event with hundreds of skilled and experienced workers who need large amounts of specialized equipment to do their jobs. Although this structure is a rational and efficient adaptation to the imperative it reflects, it also limits any positive economic impact in the spill area from the cleanup activities. This conclusion is supported both by the empirical data collected and the interviews conducted during the course of the study.

Negative social and economic consequences of an oil spill also appear to be limited in this case. Short-term effects appear to have been very limited based upon the interviews with community officials and business operators in the spill region. Longer-term effects are difficult to characterize and evaluate so soon after the spill occurred. The preponderance of those interviewed believed there would be no significant negative effects from the spill, but a significant minority said they were worried about longer-term effects even though they were yet to manifest themselves.

6.0 References

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The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.