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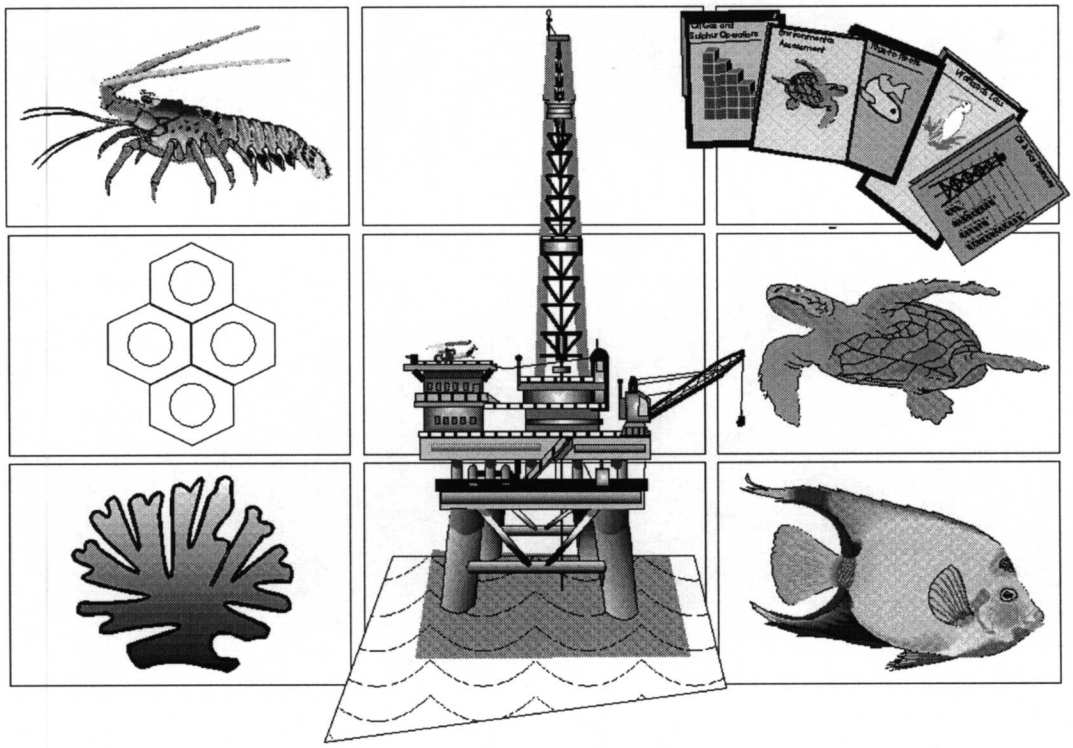
Coastal Marine Institute

Outer Continental Shelf Issues: Central Gulf of Mexico



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Outer Continental Shelf Issues: Central Gulf of Mexico

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ABSTRACT

This report summarizes the research effort and findings of an investigation of the issues associated with Outer Continental Shelf (OCS) oil and gas activities in the Central Gulf of Mexico. Stakeholders assessed for the delineation of the issues associated with OCS oil and gas activities ranged across the offshore oil and gas industry; the offshore support sector; other direct and indirect coastal users; stakeholders that benefited from economic growth in general; concerned citizen groups; and public and governmental organizations. Both positive and negative economic and environmental issues emerged across the three states (Louisiana, Mississippi and Alabama) surveyed. While jobs and economic spinoffs emerged as issues in all regions they were more frequently mentioned in Louisiana. Negative economic impacts also came out as issues across the three states, but were more closely associated with the coastal tourism region of Alabama. There were marked differences in the issues associated with regulating OCS activities with Louisiana respondents maintaining that the activity was too heavily regulated and Mississippi and Alabama respondents maintaining that careful regulation was necessary. There were also marked differences in the extent to which aesthetic considerations emerged as issues. In Louisiana aesthetic considerations did not emerge as an issue, while in Mississippi and Alabama they did.

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CHAPTER I: INTRODUCTION

Although the first overwater drilling for oil occurred from piers into the Pacific at Summerland, California, the coastal wetlands of Louisiana were where the technology and support for offshore exploration for oil and gas evolved. Movement into the marsh began in the late 1920s, and by the late 1930s much of the coastal and nearshore waters of Louisiana, and to a lesser extent Texas, were being explored. Production began in the coastal wetlands in the early 1930s and in the protected waters of coastal estuaries by the middle of the decade. Following the introduction of the drilling barge by the Texas Company (later Texaco), marine drilling technology advanced quickly. By the mid 1940s virtually all inland coastal waters and most of what would be later defined as State Waters (up to 3 miles offshore) were being actively explored and production was underway at one site a mile offshore from Cameron Parish. The first attempt on the Outer Continental Shelf (OCS), the lands "out" beyond State Waters occurred in 1946, and soon the unprotected waters of the Gulf of Mexico were open to exploration and production.

Today the northern Gulf of Mexico is easily the most developed offshore area in the world. There are approximately 3,800 production platforms on the federal waters of the Outer Continental Shelf, with over 18,000 development wells in place linked to these platforms.[1] Production platforms are in place in water depths of over 1,700 feet, and over 100 miles offshore. Very little of the Outer Continental Shelf oil, and none of the gas, is tankered ashore, which means that virtually the entire offshore production system is connected to onshore facilities via a network of thousands of miles of subsurface pipelines. In addition, because offshore development evolved in the Gulf, almost all of the fabrication of offshore facilities is done locally. This is in marked contrast to some of the new offshore regions of the world.[2] The end result of this massive

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[1] In contrast, as of 1988, on the Pacific Outer Continental Shelf there was a total of 21 production platforms and 669 development wells. There is no other production on the remainder of the U.S. Outer Continental Shelf (Gould et al. 1991).

[2] Because offshore platforms must be constructed onshore and then moved offshore, they are inherently mobile and can theoretically be constructed in virtually any coastal region of the world and moved to any other. For example, of the 21 production platforms in place on the Pacific OCS in 1988, nine were constructed in Japan, two in Malaysia, and one in Korea. Even more remote, Mobil considered constructing the platform for the development of the Hibernia field (off the coast of Newfoundland) in Taiwan. Political considerations, not technical considerations, were probably more important in the final decision to construct the platform locally.

development, and of its evolution over almost 50 years, has been to significantly alter the physical, social, economic, and cultural environments of the coastal Gulf of Mexico, particularly in Louisiana. As opposition to offshore development arose in many coastal regions of the United States following the Santa Barbara oil spill in 1969, a series of events led to the need to assess the issues associated with offshore development in the Gulf of Mexico. Chapter II of this report provides a background description of offshore development in the Gulf, and of the events leading to this report. Subsequent chapters provide a description of the methods used in this issue analysis, an outline of the issues as well as differences across locales, and the implications of the research findings.

CHAPTER II: HISTORY OF OFFSHORE DEVELOPMENT

EARLY DEVELOPMENT

The first over-water drilling for oil occurred in 1897 at Summerland, California, from a wooden pier into the Pacific Ocean. The success brought quick emulation, and by 1902 a photograph of the Summerland development "at its peak" shows over forty derricks on piers over the Pacific (Lankford 1971:1367). Although technically the drilling was over water, little modification of existing land based technology was required because of the direct land connection. In 1901 the world's first major oil reservoir, Spindletop, was tapped near Beaumont, Texas. These two seemingly unrelated events were to have far reaching consequences. Spindletop focused the major effort for the production of oil in the eastern United States, where it had originated, and into Texas and the Gulf coast. Technological adaptation to the marine environment continued over a decade later in 1908 with the development of the Caddo Lake field in northwestern Louisiana, and with the development of the Maracaibo field (Venezuela) in 1924, one of the largest in the Western Hemisphere, ultimately producing approximately 4.6 billion barrels of oil (Lankford 1971). Spindletop proved to be a salt dome, and as non-destructive exploratory techniques evolved in the 1920s, numerous salt domes were located by geophysical exploration along the Texas and Louisiana Gulf Coast. Access, however, was a problem since, as Lankford (1971:1377) noted, "these inviting prospects were often situated in very uninviting terrain--marshes, swamps, and the shallow open waters of bays and lakes."

The technological breakthrough that facilitated exploration in the shallow coastal waters and marsh came in 1933 with The Texas Company's (later Texaco) introduction of the submersible drilling barge. The barge could be towed to the drilling site and sunk; while resting on the bottom, the barge provided a stable base for drilling. Once drilling was complete, the barge could be raised and moved to a new location. The Giliasso (as the first barge was named, after the holder of the patent) was built in Pennsylvania, and brought down the Ohio and Mississippi Rivers, to Lake Pelto, Louisiana, where on a state lease on November 17th, 1933 the Lake Pelto No. 10 was spudded (started). The barge was a success; a new era in marine drilling had begun (Williams 1934).

The movement into increasingly isolated locations in the coastal marshes and estuaries led to the institutionalization of two additional innovations necessary for the movement offshore, one technical and one social. The isolated location of wells along the Gulf Coast led to the emergence of extensive pipeline networks and to adaptation to the marine environment. The first real marine application came with a 25 mile stretch of pipeline

crossing Lake Pontchartrain, north of New Orleans, in 1941. The logistics of positioning and assembling a continuous pipeline led to the early technology associated with "lay-barges"[3] that work the Gulf today (Sterrett 1941), and the eventual proliferation of the massive pipeline network in the northern Gulf.

During this same period the necessity for construction and drilling crews to work at isolated locations, where it was impractical to commute daily, led increasingly to the use of living quarters located near the work location, and the division of work into concentrated working periods (e.g., a week at work and a week off). In addition, because the equipment associated with work in these environments was expensive, the ventures were capital intensive and needed to return investment as quickly as possible. These factors led to 24 hour a day operations and the concentrated work scheduling now common offshore (Gramling 1989). This usually involves four complete crews, two crews for each seven day (or 14, 21, etc.) work session that alternate 12 hours on and 12 hours off. By 1941, Nicholson (1941:30) was describing the luxury of the newest and largest of the remote living quarters supplied by Gulf Oil near the mouth of the Mississippi, created from a converted river steamer, as providing "excellent food and sanitation" as well as "[f]ountains supplied with running ice water" and rooms with "reversible window fans." By the mid-1940s, the larger of these living quarters had come to be described as "modern floating hotel[s]" (*Oil Weekly* Staff 1946:44).

MOVEMENT OFFSHORE

In 1938 a joint effort by Superior and Gulf brought in seven producing wells in the Creole field from a platform a mile offshore from Cameron Parish Louisiana in nine feet of water (Logan and Smith 1948). This was the first attempt in the open Gulf, and it used a system very similar to that practiced in Lake Maracaibo, in that the support for drilling (crews, etc.) was primarily from the nearby shore. By the mid-1940s a number of proposals to extend the concept of the drilling barge to open Gulf use began to appear in the trade journals (see Shrewsbury 1945; Tucker 1946a; 1946b). The published proposals envisioned self-contained, reusable drilling devices illustrative of modern submersible drilling barges (Tucker 1946a), drill ships (Tucker 1946b), or even guyed[4] production platforms (Shrewsbury 1945), the latter not being used until the late 1980s. In spite of these visionary proposals, the first attempt on what was later to be defined as the Outer Continental Shelf, and which moved the entire drilling support system offshore, relied on more

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[3] Pipeline laying barges

[4] These are floating platforms attached to the bottom by cables.

traditional technology. In 1946 the Magnolia Petroleum Company constructed a platform in the open Gulf on a tract leased from the state of Louisiana. The site was south of Morgan City, Louisiana, five miles from the nearest land. Drilling crews were rotated back and forth from one of the "floating hotels" anchored behind Eugene Island, ten miles away.

Although the attempt was an economic failure (a dry hole), technologically it was a success in that it demonstrated that exploration in the open Gulf was feasible, and the subsequent two decades that followed Magnolia's first attempt saw the emergence of a full-blown offshore technology capable of working in 500 feet of water and over 60 miles offshore.

FEDERAL OWNERSHIP

The potential for offshore development led to claims by both the states and the Federal Government for offshore lands. The conflicting claims were settled ultimately by the U.S. Supreme Court between 1947 and 1950 in what are known as the Tidelands Cases. This series of decisions established the legal rights of the Federal Government over all of the U.S. offshore lands. In the wake of the Supreme Court decisions, the tidelands controversy became a major issue in the 1952 Presidential election, with Eisenhower supporting the "state's rights" position. In 1953, at the urging of the newly elected Eisenhower administration, Congress passed the Submerged Lands Act, which assigned to the states the title to the offshore lands that were within three miles of the shoreline.[5]

The second piece of relevant legislation that passed in 1953, actually an extension of the first, was the Outer Continental Shelf Lands Act (OCSLA) of 1953 (43 U.S.C. § 1331 *et seq.*). This act authorized the Secretary of Interior to lease the offshore lands beyond the three mile limit, the "Outer Continental Shelf" (OCS), for mineral exploitation (oil, gas, salt, and sulphur) through competitive bidding, and to administer the leases. The Act served as the major legislation guiding policy for federal offshore leasing between 1953 and 1978. Federal leasing on the OCS began off Louisiana in 1954.

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[5] Two current exceptions to this act involve Texas and the west coast of Florida, where the Supreme Court later ruled that the states had held title to three marine leagues (approximately 10.4 miles), as sovereign nations, before they were admitted to the Union.

OFFSHORE TECHNOLOGY

Following Magnolia Petroleum Company's lead, and using the same type of technology, Kerr-McGee brought in the first producing well on the OCS in 1947, 12 miles off the Louisiana coast at an 18 foot depth. This sparked additional interest offshore, and by the middle of 1948, in addition to offshore production by Kerr-McGee and from the Creole field offshore from Cameron, Louisiana, 13 additional locations were in various stages of development off the coasts of Louisiana and Texas. Two additional dry holes had been abandoned, and plans were under way for drilling in an additional 14 locations (Logan and Smith 1948).

The basic problem faced at this point was that the cost of each offshore attempt was expensive, and was all "sunk cost." Thus all was lost in the event of a dry hole. Mobile drilling barges which had reached considerable size by this time could not be used offshore because wave action rendered them unstable during storms. Platforms derived their strength both from the fact that their pilings were driven deeply into the bottom of the sea, and also because waves could pass through the pilings exerting only a fraction of their strength on the structure.

A breakthrough came in 1949 when John Hayward designed an offshore drilling barge. The barge was a 160 by 54 foot compartmentalized barge similar to those used in protected waters. But the drilling platform, machinery, and crew quarters were mounted on a platform 20 feet above the deck of the barge, supported by a lattice work of braced columns or posts (causing vessels of this type to become known as "posted barges"). In practice, the barge was brought to the location and flooded. Resting on the bottom, the barge provided a stable base for the drilling platform. Because wave action could pass through the columns, as with pilings on an offshore platform, the barge was not moved off of its location during storms. All of the previous technological innovations (mobility, transparency to wave action, offshore scheduling of work, and the inclusion of living quarters) came together for the first time in the Bretton Rig 20, to produce the first self contained, reusable, offshore drilling machine. Submersible rigs dominated offshore exploratory drilling for the decade following their introduction, although three alternatives to submersibles (jack-up rigs, drill ships and barges, and semi-submersible rigs) emerged in the 1950s and early 1960s.

By 1966, a little over a decade after the federal offshore leasing program commenced, there were an estimated 150 mobile drilling rigs in operation, most of them in the Gulf (Howe 1966a; 1966b; 1966c). Submersible rigs ceased to be built by the late 1950s. Although jack-ups, drillships and semi-submersibles continued to evolve, the basic designs for off shore drilling rigs were in place by the mid 1960s, and most of the continental shelf in the Gulf, at least out to 500 foot depths (*Offshore* Staff 1966), was open for exploration.

All of the types of mobile drilling rigs described above are used during the exploratory phase of development. Once oil or gas is found by exploratory drilling and the extent of the field delineated by more drilling, a production platform must be put in place. The production platform provides a stable base from which to drill production wells and on which to mount the necessary equipment to control production from the wells. Early production platforms were built in place (i.e., piles were driven into the sea bottom and a deck was constructed on top of them). These platforms also provided mooring for barges to take the crude oil to onshore processing facilities. Both the on site construction of platforms and the transportation of oil by barge began to change by the mid 1950s.

Production offshore in the Gulf underwent a transformation similar to that for exploration in the decade following the first federal lease sale. The most fundamental change came because it was not practical to build production platforms in place in deeper water. Because the pilings could not be effectively braced below the water line after they were driven, sufficient stability to support the weights and vibration involved in offshore drilling could only be accomplished in relatively shallow water. This meant that the entire production platform had to be fabricated on land and set in place offshore. By 1955, one year after the first federal lease sale and six years after the first submersible drilling barge, the first fabrication yard intended primarily for the construction of offshore platforms, the McDermott facility, opened east of Morgan City, Louisiana, on Bayou Boeuf.

The technology for the production and installation of these platforms developed quickly. McDermott installed platforms in 100 feet of water late that same year and in 200 feet of water by 1959 (Clark 1963). Platforms are designed for a specific location and offshore field and are ordered after exploratory drilling and the characteristics of the field are known. The "steel jacket" production platform is the norm in the Gulf. Early platforms were simply rectangular structures consisting of a series of parallel upright columns supporting a deck and connected by a latticework of smaller pipes. As production moved further offshore, the basic design of the jacket (that portion that extends from the sea floor to above the water line) came to resemble a slender truncated pyramid constructed of a latticework of upright columns and braces with the base being wider than the top of the structure to provide increased stability. The size and configuration of the jacket is based on the depth of the water, bottom support condition, and the number of wells and processing equipment required. Whatever the size, the jacket and the deck (the portion of the platform above the water line, with all the production equipment, living quarters, etc.) are constructed separately. After the jacket is barged offshore and secured in place, the deck is brought out and installed. While the description implies a simple operation, steel jacketed platforms have been installed in up to 1,350 feet of water. This

platform (called "Bullwinkle") is 1,615 feet tall[6] and 400 feet across at the base.

ONSHORE SUPPORT

There are a number of factors that shaped the development of the infrastructure supporting offshore development in the Gulf. Because the system for offshore oil and gas production evolved in the Gulf of Mexico, there was no engineering precedent, and the equipment and structures used for offshore exploration and development had to be locally constructed (often from the ground up) to meet local needs. Moreover, because of the rapidity with which the industry moved offshore during the 1950s and early 1960s, design and engineering were in a constant state of flux. The result of these factors was that, unlike areas of the world where offshore production came later and where because of past experience comprehensive planning was at least possible, if not always successful (Manners 1982), the onshore support system in the northern Gulf emerged with little overall planning to guide development or address mitigation.

A second factor shaping the support infrastructure was the nature of the physical environment itself. The deltaic plain of Louisiana from which most of the offshore activity was supported is a gift of the Mississippi River as it has wandered across southern Louisiana during a number of deltaic lobe-building cycles. The nature of the terrain restricted settlement and industrialization to the many scattered natural levees of current or previous waterways. While at times high ground was at a premium, access to the Gulf certainly was not. Anywhere one of these strips of high land met an existing waterway was a potential construction or support site, and these sites sprung up like mushrooms as offshore development moved ahead. The result was that the emerging support, transportation and fabrication sectors were scattered across first southern Louisiana and later Texas. Fabrication yards ranged from the 1,000+ acre sites near Morgan City to operations the size of half an acre without running water or electricity. Staging areas similarly ranged across the Louisiana/Texas coast, and concentrations quickly materialized at Venice, Bayou Lafourche, Morgan City/Berwick, Intracoastal City, and Cameron (Louisiana), and Orange and Port Arthur (Texas). Wherever road or rail met waterways, local docks and staging areas appeared.

Some of these areas, like Morgan City/Berwick and the towns along Bayou Lafourche, were fishing communities before the turn of the century. The towns grew rapidly, often with little comprehensive planning. Existing settlement patterns were altered, transportation networks were extended, and community services were quickly overwhelmed. Morgan City became a textbook

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[6] By contrast, the World Trade Center and Empire State Building are 1,353 feet tall and 1,250 feet tall, respectively.

example of rapid community expansion (Stallings et al. 1977; Gramling 1980; Gramling and Brabant 1986) with housing shortages, inadequate utility networks and social services, and an economy almost totally tied to offshore support (Gramling and Freudenburg 1990).

Other areas like Venice and Intracoastal City had little in the way of indigenous populations in the 1950s, and as a result became commercial settlements with abundant staging areas and company offices but little in the way of a permanent population. Lafayette, centrally located and able to offer more amenities, became a corporate headquarters city for the offshore industry during this period (Gramling 1983).

By the late 1950s an average of 90 platforms a year were being placed offshore in ever-deeper water. This meant that not only were 90 platforms fabricated each year, and that 90 platforms had to be moved offshore and supplied while production drilling was proceeding, but also that each year an additional 90 platforms were added to the growing base of offshore facilities that had to be serviced and maintained. The exploratory drilling phase (through the development drilling and completion phases of offshore activity) are the most labor and resource intensive component of offshore activity. There is a need for labor, drilling mud, casing and drill pipe, fresh water for drilling, food and potable water for human consumption, fuel, and a variety of specialty tools and equipment. It is also during this period that platform construction will take place and pipeline to connect the platform to the existing network will be laid.

Through an analysis of telephone directories, Davis and Place (1983) identified over 3,500 businesses in coastal Louisiana alone which were directly serving the petroleum industry by the early 1970s. This was up from approximately 1,200 businesses in the mid-1950s, a growth rate of over 100 businesses a year. These firms were located on over 28,000 acres of land given over to industrial and commercial uses scattered throughout the coastal zone of the state. If all of this marine activity and the associated support and managerial activity had been concentrated into one port, it would have been by far the busiest commercial port in the world from the late 1950s through the mid 1980s.

OPPOSITION TO OFFSHORE DEVELOPMENT

All of the production on the Outer Continental Shelf between 1947 and 1963 was in the central and western Gulf. In 1959 there were lease sales off the Florida Keys, and in 1963 and 1964 there were sales in the Pacific, off central California and the Washington-Oregon coasts. Exploration in these areas failed to find commercially valuable quantities of oil, and the leases expired (Gould et al. 1991). It was not until 1966 that the first lease sale was held off southern California, a one block drainage sale. The following year when the promising area offshore from Santa Barbara was offered for a wider lease sale,

local opposition to the lease sale emerged. Eventually the sale did go forth in 1968, but a year later in 1969 a well being drilled on Union Oil's Platform A blew out around the casing below the sea floor. The strata below Platform A continued to leak throughout much of 1969, although the worst was over by mid-March. Estimates of the total spill range from one to three million gallons. As a result of the Santa Barbara oil spill, lease sales were suspended in the Pacific, and proposed sales in the Atlantic and off Alaska were postponed. Sales and development in the central and western Gulf off Louisiana and Texas, however, continued. Following the spill, no leases were held outside of the central and western Gulf for another five years, until the 1973/74 OPEC embargo led to calls for further leasing.

The end result of these factors was that the model for OCS development evolved almost entirely in the central and western Gulf of Mexico. In a systematic comparison of the factors that have led to the acceptance of offshore activity in Louisiana and its rejection in California, Freudenburg and Gramling (1993; 1994) note a variety of socioenvironmental factors that led to the respective positions. Included in these are a number of historical, social, and economic factors. In addition, they note a number of biophysical factors that have influenced the respective positions such as the awe-inspiring Pacific coast and the less impressive Gulf; the accessibility of the California coast and the lack of access in Louisiana; the broad continental shelf in the Gulf, which minimizes user conflicts as opposed to the narrow one in California, which maximizes such conflicts; and the numerous waterways and harbors in Louisiana, as opposed to the comparative scarcity of navigable waterways and harbors in California. Thus, the development of OCS activities in the Gulf, in a social, economic, and physical environment where there was little consideration to any potential negative effects of that development meant that many of the issues that would later emerge with respect to the federal OCS program were not addressed, nor even considered. In the Gulf, the Department of Interior and the industry had been developing a close working relationship over two decades, coming in the process to share a perspective that remained virtually unchallenged until the mid-1970s.

The 1973/74 oil embargo again brought the question of all offshore development to the table, as then President Nixon proposed Project Independence as a solution to reliance on foreign oil. The developmental tripod on which Project Independence rested consisted of nuclear energy, the TransAlaskan Pipeline[7] and increased development offshore. The Department of

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[7] The pipeline had been on hold due to challenges to the Environmental Impact Statement and opposition from a variety of environmental groups. Congress circumvented the newly enacted National Environmental Policy Act in order to allow the pipeline to go forth in 1973.

Interior was instructed to approximately triple the acreage offered for leasing and to move into frontier (previously unleased) areas.

Proposed sales off the east and west coasts, and off Alaska and Florida, led to a series of legal and political actions taken by a number of coastal states in an attempt to limit or halt offshore development (see Wilson 1982: Kaplan 1982). In 1978 Congress amended the Outer Continental Shelf Lands Act in order to allow more input from the states. In 1980 the Reagan administration moved into the White House and James Watt became Secretary of Interior. Secretary Watt continued the movement into frontier areas and also expanded the Outer Continental Shelf leasing strategy by offering larger areas for lease during each sale. These decisions resulted in a number of tracts being sold in the eastern Gulf of Mexico off Florida in spite of opposition by the State of Florida. Secretary Watt also combined the various functions of the federal offshore leasing program into one new agency within Interior, creating the Minerals Management Service. In 1982 Congress inserted prohibitions into the Department of Interior's appropriation, forbidding the expenditure of funds for leasing activities for portions of the east and west coast Outer Continental Shelf (Farrow 1990). In effect, this back-door process circumvented the decision-making process within Interior and increasingly shut down the Outer Continental Shelf outside of the western and central Gulf of Mexico to leasing, as the Congressional moratoria became annual events. The moratoria gradually increased in geographic scope, until most of the east and west coasts were closed to offshore leasing.

The issue of development in frontier areas, particularly when opposed by the contiguous state(s), came to a head in 1988 as George Bush became president. There had been only two Outer Continental Shelf sales outside of the Gulf of Mexico in the past five years (in the Beaufort and Chukchi Seas off Alaska), and Congress showed no inclination to relinquish its control over the leasing process. The controversy at that time centered on three proposed sales in California and Florida. In Florida the sale of leases off southwest Florida had been temporarily halted when Governor Bob Martinez first sued and then settled with James Watt's successor, Secretary of Interior Donald Hodel. A compromise allowed a portion of the proposed sale in the eastern Gulf to go forth but postponed sales of leases off southwest Florida. The second half of that sale (116) was again coming up. As noted before, Florida, under a succession of Governors, had opposed development in this area, and this time was no different. The state was continuing to fight exploratory drilling on tracts that had been leased under previous sales, and a number of state and local organizations (particularly in south Florida) had focused their efforts on stopping the sale.

One of the first actions of President George Bush, early in 1989, was to announce that he was postponing the second half of lease sale 116 off Florida and the two sales off California. The

question of whether the sales should go forth was submitted to a cabinet-level Presidential task force, and the National Academy of Sciences was asked to evaluate the adequacy of the available information concerning the potential impacts of the sales.

By late 1989 the National Research Council (the working arm of the National Academy of Sciences) released a report which argued that the available information for informed decision making was inadequate for all three sales (National Research Council 1989). In addition, the report noted that while most of the offshore development was in the Gulf of Mexico, most of the funding to assess the effects of offshore development was being spent elsewhere. In January of the following year the task force presented its findings to the President. While the report offered a number of options, none of them included going ahead as planned.[8] Several weeks later, in a statement released on June 26, 1990, President Bush canceled the three sales and imposed a Presidential moratorium on lease sales in these three areas and on much of the east and west coasts of the U.S. until the year 2000. There were no lease sales outside of the Gulf of Mexico during President Bush's tenure in office.

The 1989 National Research Council report and subsequent ongoing analyses of Minerals Management Service's overall research program (National Research Council 1992; 1993) indicated that a particular weakness in the program was an inadequate assessment of the effects of offshore development in the Gulf on the human environment. Responding to this critique the Minerals Management Service sponsored a workshop in New Orleans in the fall of 1992. From the beginning, the workshop was planned in conjunction with scientists from the Minerals Management Service. The workshop drew on the expertise of some of the best known social scientists in the country, indeed world, in the area of social and economic impacts of natural resource development and coastal, marine, and natural resource policy. These scientists, in cooperation with those from the Minerals Management Service, designed an entire five year social science research agenda for the Minerals Management Service in the Gulf (Gramling and Laska 1993). One of the highly recommended projects was an issue analysis for the Gulf of Mexico. The workshop report (Gramling and Laska 1993:D8) noted:

> If the research program and individual initiatives developed at the Socioeconomic Research Agenda Workshop are going to be truly effective in enhancing the research and policy initiatives of MMS they must be timely and grounded in the perception and realities of stakeholders throughout the Gulf of Mexico region. For this reason, an essential complementary study to the

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[8] The report was never officially made public. However, Congresswoman Barbara Boxer obtained a copy and released it to the press in June of 1990.

preparation of this research agenda is an issues analysis which consults with the stakeholders. This research will serve to reinforce some initiatives and redirect others, and may also result in the identification of additional study requirements.

The current report details the result of that issue analysis for the central (Louisiana, Mississippi, and Alabama) Gulf of Mexico. As can be seen from the synopsis presented in this Chapter, offshore oil and gas development in the United States has had a long and turbulent history. While the technological advances made in offshore exploration and development have now become accepted practice throughout the world, the issues associated with these activities have never been adequately explored even in the United States.

CHAPTER III: METHODOLOGY

FRAMEWORK

The issue analysis recommended by the MMS sponsored workshop (Gramling and Laska 1993:128) consisted of five major components. These components form the basic thrust of the present research and are outlined below:

1. A review of existing information on key stakeholder groups and their concerns. This will involve both a literature review and key informant interviews;

2. The selection of sample communities. Developed out of the previous component, this will use a stratified sampling technique to identify communities to be studied. These will be selected on the basis of such things as proximity to OCS activity, nature of activity, and size of community;

3. The identification of key informants in each of the selected communities. These informants will be identified through means of a "snowballing" technique;

4. Key informant interviews. These interviews will solicit opinions from the informants with respect to their concerns related to OCS activity;

5. Analysis and reporting.

DEFINING STAKEHOLDERS

The concept of stakeholder has undergone considerable modification from its original meaning to the way it is currently used in the social sciences. As the word originated in the English language it was used to designate an individual who literally *held* stakes, but had no direct interest in them. Webster's Third International Unabridged Dictionary defined stakeholder as:

> 1: a person entrusted with the stakes of two or more persons betting against one another and charged with the duty of delivering the stakes to the winner 2: a person entrusted with the custody of property or money that is the subject of litigation or contention between rival claimants in which the holder claims no right or property interest

By the mid 1980s, however, the concept was being used in management literature to mean almost the opposite of this

original definition, referring to individuals or groups that did have a stake in a particular activity or issue. The definition of stakeholders that is perhaps most widely quoted was originally put forth by Freeman (1984:iv) as "groups or individuals who affect or are affected by organizational performance." A more action oriented definition was offered by MacMillian and Jones (1986) as "an individual, a collection of people, or an organization whose support is essential or whose opposition must be negated if a major strategic change is to be successfully implemented" (Starik 1995:208). Thus, there are several elements in the definition of stakeholders that we will use for analysis in this research:

1. Stakeholders have a stake as opposed to the traditional definition of holding a stake.

2. Stakeholders may be individuals, a collection of people, or an organization.

3. Stakeholders may affect an organization or activity[9] and/or be affected by an organization or activity.

4. Stakeholders may have to be taken into account in order to bring about significant change in an organization or activity.

5. In general, stakeholders are defined by their relationship to an organization or activity rather than being geographically defined. However, if a particular enterprise is geographically distributed and the activity in question affects those engaging in that enterprise then it is reasonable to assume that the distributions of particular stakeholders might be concentrated in certain geographic regions.

REVIEW OF EXISTING INFORMATION ON KEY STAKEHOLDER GROUPS

A variety of informal conversations with agency personnel, coastal policy makers, individuals in the oil and gas industry, other coastal users, and our collective experience with coastal issues initially led us to develop a rather detailed outline of stakeholders in the central Gulf of Mexico (see Appendix A). As we began to plan the actual fieldwork, however, it became evident that using the outline as a strict guide for data collection was not a workable idea. As a check list the outline was too complex to be used as a guide to allow us to get referrals from those we

[9] Although the management literature focuses on organizations, we are broadening the definition to include activities, recognizing that most activities that stakeholders would react to are carried on by organizations.

interviewed (i.e., to snowball). It was also our feeling that many of the categories would not produce unique perspectives. We agreed to use the outline as a general guide, but we were primarily interested in making sure that our respondents were representative of the following: the offshore oil and gas industry; the offshore support sector; other direct and indirect coastal users; stakeholders that benefited from economic growth in general; concerned citizen groups; and public and governmental organizations.

THE SELECTION OF SAMPLE COMMUNITIES

Selection of the sample communities was done in May of 1993 in conjunction with MMS representatives. We examined census data at the county and community level, but in the end relied most heavily on our combined knowledge of coastal communities in Louisiana, Mississippi, and Alabama. Initially we selected four Louisiana communities. Cameron, Morgan City and Grand Isle were selected for their location on the coast, and their primarily blue collar association with the offshore oil sector (see Gramling and Brabant 1984; 1986; Gramling and Freudenburg 1990). Grand Isle was also selected for its concentration of other direct and indirect coastal users, primarily concentrated around shrimping and tourism. Lafayette was selected for its white collar association with the offshore oil sector, having long been a regional center for offshore activity (see Gramling and Brabant 1984; 1986; Freudenburg and Gramling 1994). We selected Gulfport, Biloxi and Pascagoula in Mississippi because they represented the overwhelming majority of the coastal Mississippi population, and a wide diversity of coastal uses and occupations. In Alabama we selected Mobile because it was a major port city, Dauphin Island for its other coastal users, and Gulf Shores and Fairhope primarily for their coastal tourism and retirement sites.

Because the key informants constituted a previously unidentified and thus unknown population, a technique known as snowballing was utilized. This technique is specifically appropriate to field research (Babbie 1992). Snowball sampling (cf. Richardson 1988) is a method through which the researcher develops an ever-increasing set of sample observations. One respondent in the sample under study is asked to recommend others for interviewing, and each of the subsequently interviewed participants is asked for further recommendations (Babbie 1992). This is the only feasible type of sampling procedure which will fit the requirements of the project to: 1) identify various stakeholder groups through a referral process and, 2) retain flexibility in the field to identify and sample stakeholder groups as they are "discovered" through the sampling process. This technique, however, tends to interact with the geographic distribution of respondents in two ways. First, since economic, social and kinship ties bridge communities, the referral procedure is not community specific. One respondent may

recommend that it is important to talk to someone in an adjacent community. This led us to other communities that were not on the initial list. In the case of Grand Isle, since both offshore oil and gas activities and shrimping spread up Bayou Lafourche, we were forced to interview individuals from a variety of Bayou Lafourche communities (Cheniere Caminada, Cut Off, Galliano, Golden Meadow, and Leeville). This was common in all of the areas as respondents from Gulf Shores referred us to individuals in Orange Beach and Lafayette respondents referred us to New Iberia and Abbeville. It became obvious that in order both to assure anonymity[10] and also to obtain enough interviews from the referring community, that "community" would have to be defined loosely and the data that came from the community and from referrals to nearby communities would have to be grouped for analysis.

A second way in which the sampling procedure interacted with geographic distribution has to do with the manner in which a determination of completeness is accomplished in a snowball sample. Snowball sampling proceeds until no new categories emerge (Glaser and Strauss 1967). That is, once the researcher hears the same information repeated again and again (in this case, issues over and over with no new issues emerging), the sampling is considered to be complete. Because the issues associated with OCS activities were complex and numerous and varied across locales, sampling was very extensive in some communities, and less than anticipated in others. In short, we sacrificed geographic coverage to get depth. The end result was that we grouped the data for analysis into five categories. The first category (hereafter referred to as coastal Louisiana) contains data primarily from Grand Isle but also containing interviews from Cut Off, Galliano, Golden Meadow, Leeville, Cameron, and Morgan City. The distinguishing characteristic of these interviews is that they were built on referrals from direct or indirect coastal users in Louisiana. These range from shipyard managers to shrimpers. The second group consists of Lafayette and vicinity, primarily Lafayette but with interviews from New Iberia, Abbeville, Broussard, Breaux Bridge, and St. Martinville. These interviews focus on the managerial aspects of the offshore industry, as well as the secondary support industry. They also contain interviews from a number of individuals in positions that were affected by the general economic climate associated with the growth and decline of the offshore sector. The third group consists of respondents from coastal Mississippi. The majority of these interviews are from Biloxi, but include respondents ranging from Pass Christian to Pascagoula. The fourth grouped set of respondents are from Mobile County. The respondents are primarily from Mobile, Bayou LaBatre and Dauphin

[10] For example, we have one respondent in a coastal community that is the only respondent from that community and who has a business that is the only business of that type in the community.

Island. Finally, the respondents from Baldwin County, Alabama, are also grouped. The focus here was on tourism at Gulf Shores/Orange Beach and Fairhope, but a few interviews which resulted from following up referrals ranged as far away as Fort Morgan and Bay Minette.

DATA COLLECTION

Because of the accessibility of Grand Isle, Louisiana, and because the community was a relatively small one, arguably allowing one of the more efficient snowball sampling settings, Grand Isle was chosen as the first site for data collection. Five investigators traveled to Grand Isle in June of 1993. Our strategy was to saturate the island, and to meet over lunch and at the end of each day to discuss our findings and fine tune our inquiries. Grand Isle is a small community. We knew that "newcomers" asking questions would elicit interest and potential informants would have time to think through their responses. Timing and speed were critical in order to reduce contamination of information. We used a modified ethnographic technique to accomplish this.

1. One of the investigators was very familiar with Grand Isle and had been going there since the late 1960s. On the evening before the actual data gathering, we drove around the area with this investigator pointing out important landmarks and the general layout of the Island. This helped other investigators to avoid becoming lost, having to ask directions, and as a result becoming even more visible.

2. We began at exactly the same time so that respondents from key areas had no time to compare notes.

3. One interviewer went immediately to "authority" figures in the community (e.g., mayor and police chief). These individuals were then able to answer questions about the research and became "part of" the endeavor.

This procedure was followed generally throughout the project, particularly in the smaller, relatively discrete communities such as Grand Isle, Louisiana and Fairhope, Alabama. If an informant gave permission, each interview was recorded; if the informant would not allow recording, the investigator recorded field notes immediately following the interview. We quickly learned two things that characterized the remainder of our interviews across the central Gulf. First, almost no one had an overall picture of either the federal leasing program or the subsequent offshore development. Very few people had even heard of Minerals Management Service and very few had any knowledge about how offshore tracts were leased or developed. As a result

it made little sense to attempt to get our respondents to evaluate the overall leasing or development strategy.

The second major finding was that the dominant commercial fishery (shrimping) had recently been in considerable turmoil over the National Marine Fisheries (NMFS) requirement that trawls over 35' in width must have a turtle excluder device (TED) incorporated in each net. In general, once it became known that we were collecting data for a federal agency, it became almost impossible to keep the conversation from drifting to the TEDs controversy. Other than the almost universally mentioned problem with debris snagging nets, this preoccupation with TEDs certainly tested our ability to assess the issues associated with offshore development for this stakeholder group.

In coastal Mississippi another factor similar to the TEDs controversy in Grand Isle, but even more pervasive, made it difficult to focus the interviews on OCS activities. During the period we were in coastal Mississippi (July 1993) there were seven gambling boats in operation, seven more under construction locally, and several additional operations that had announced plans to build. The local economy was buzzing, motel rooms were difficult to find, and local optimism over the economic potential of gambling was high. TEDs were the important issue in coastal Louisiana; the gambling boats were the important issue in coastal Mississippi. In both locales, offshore oil and gas exploration and production paled by comparison.

Data collection continued in the Lafayette, Biloxi, Mobile County, and Baldwin County throughout July and August of 1993. In Baldwin County we used the same technique as on Grand Isle. That is, investigators were present at the same place for a week and were able to discuss their findings at least once a day. A total of 131 interviews were conducted; 36 in coastal Louisiana, 24 in the Lafayette vicinity, 10 in Mississippi, 19 in Mobile County, and 43 in Baldwin County. Interviews ranged in length from less than a minute (a busy beach front store owner on a Saturday morning; a police chief on the way to answer an alarm) to almost two hours (a retired coastal resident who had lived on the coast for his entire life). There was only one refusal for an interview, a gas station owner/operator on Grand Isle. Interviews were conducted in offices, in bars, on docks, under trees, and in a kitchen while the housewife prepared dinner. Interviews were conducted in all coastal counties in Louisiana, Mississippi, and Alabama with the exception of Plaquemines and St. Bernard Parishes.

Appendix B provides a description of all of the respondents listed by region. The appendix also indicates the number of words in each transcribed interview. The number of words was

considered a better indicator of the "length" of the interview than the time it took to record the interview.[11]

METHODOLOGICAL NOTE

The technique developed and used at Grand Isle and Baldwin County is worth noting for future reference. The whole point behind snowball sampling is to fully develop a typology of the phenomenon under investigation, in this case issues associated with OCS development. The data collection is complete when the same categories, or issues, arise over and over, and no new categories are being encountered. The technique we used facilitated both the development of categories and the determination of closure. The medical equivalent of this is the concept of staffing, where a variety of experts examine the patient(s) regularly and share information in order to arrive at a more accurate diagnosis. Our discussions each afternoon after we left the field enabled us to more quickly and accurately diagnose the situation and arrive at a finite set of issues. Likewise, our discussions facilitated closure. Because each investigator knew what issues had arisen, he/she did not have to encounter each issue to be comfortable that it was on the record. By the end of the fourth day at Grand Isle we could not collectively come up with any new issues. This constant updating process allows an individual investigator to follow up leads within a particular stakeholder group, where a unique set of issues may emerge, without worrying that other issues associated with other stakeholder groups will be missed.[12] While we designed the process deliberately, and believe that it worked well, we are not aware of this strategy set forth as a calculated research design anywhere in the sociological literature.

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[11] Random selection of one minute tape segments across a sample of interviews found that the number of words varied from less than 40 to over 200.

[12] For example, one investigator concentrated almost exclusively on commercial fishers while another concentrated on coastal tourism oriented businesses.

CHAPTER IV: DATA ANALYSIS

DELINEATION OF THE ISSUES

The tapes of the interview were transcribed during the fall of 1993 and spring of 1994. The expected problem of inaudible words or phrases was encountered (e.g., one interview was conducted from a dock with an interviewee on a small boat). This problem accounted for only a small fraction of the interviews, and we do not believe affected the results. The interviews were transcribed using WordPerfect 5.1. In order to delineate the issues, each investigator read the interviews he or she had conducted and made notes of the issues that had emerged. These lists were combined into a more generic outline and then each investigator reviewed the outline for completeness. Several issues were mentioned only once by our respondents. For example, one informant noted that the early growth of the offshore sector on Grand Isle and the subsequent in-migration provided greater genetic diversity for a previously isolated human population. Table 1 presents the outline of the issues.

DATA ANALYSIS

Once all of the transcriptions were completed, the individual WordPerfect files were combined into five large regional files corresponding to the five locations discussed above (Lafayette vicinity, coastal Louisiana, coastal Mississippi, Mobile County and Baldwin County). Although we had originally intended to use a software program that allowed boolean searches ("and," "if," and "not" statements) for combinations of words to locate the issues in the transcribed interviews, two considerations (one technical and one conceptual) made this impossible. Technically, the software that we had purchased had a bug in it[13] that for all practical purpose made it impossible to analyze documents over about 15 pages in length. This made it completely useless for searches through the five large documents we had created. Many of the individual interviews were longer than 15 pages meaning that they would have had to be broken up for analysis purposes and recombined for counting of issues. In addition, the macro writing ability of the software, and hence its ability to mark the occurrence of issues in a way that they could be electronically counted, was primitive.

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[13] The software company informed us of this well after the current research was underway.

Table 1

Outline of Issues

I. Positive Economic Impacts
   A. Jobs
   B. Growth of the support sector
   C. General economic spinoffs
   D. The U.S. needs oil
II. Negative Economic Impacts
   A. Discourages tourism
   B. Lowers coastal property values
   C. An accident offshore (oil spill) would have a catastrophic impact on the summer tourist season
   D. The cyclical nature of oil makes it difficult to plan
   E. Debris on the bottom interferes with other users (shrimpers)
   F. Commuters who work offshore take jobs from the area
   G. The cost of living rises during rapid growth
   H. Displaces other economic activities
III. Positive Environmental Impacts
   A. Rigs as reefs (both as they stand and as MMS's rigs to reefs program)
IV. Negative Environmental Impacts
   B. Offshore pollution
   C. Onshore pollution
   D. Damage to wetlands
   E. General environmental concerns
V. Aesthetics
   A. Offshore rigs as visual pollution (out of Place)
   B. Noise (offshore rigs and vessels)
   C. Marine trash (on beaches)
VI. Social
   A. Boom and bust impacts
   B. Overadaptation and alteration of human capital
   C. Impacts on family (7 and 7 scheduling)
VII. Policy
   A. Too many regulations
   B. We must have careful, enforced regulations
   C. Not carefully enough regulated, or cannot be regulated
   D. Offshore development was not properly planned
   E. Offshore safety important
VIII. Navigation
   A. Offshore rigs and vessels are navigation hazards
   B. Offshore rigs and vessels are navigation aids
IX. Others
   A. Oil companies not getting fair publicity
   B. In-migration improved genetic diversity
   C. Career opportunities, upward mobility
   D. Psychological impacts of rigs being out there affects people

Conceptually an even greater problem arose. The array of issues was much more complicated than anticipated and each issue was expressed in a number of different combinations of words and phrases. Even one of the more straightforward issues such as the generation of jobs was expressed a number of ways (e.g., jobs, employment, putting people to work, putting bread on the table, providing for families). Thus, the many ways of saying that OCS activities provided jobs limited the usefulness of searching for words or combinations of words.

Given this, we decided that the best way to assess the occurrence of the issues across the regions was to simply mark the issues as they arose and count them. This was simplified by using WordPerfect's macro and indexing features. A macro was created for each of the issues that would insert a word or phrase characteristic of the issue and then mark the phrase for inclusion in an index. The principal investigator, only, read all of the interviews, one regional file at a time, marking the issues on screen. After completing the file, an index was generated, providing a count of the occurrence of each issue in each of the five regions. An issue was marked and counted at the point at which it emerged in a discussion, not by any one word or phrase that referred to the issue. For example, a particular issue might be mentioned several times as interviewer and respondent exchanged questions and answers focused on a particular activity, event, or series of activities or events. These series of questions and answers exploring an issue would be marked once for that issue. Only if the issue emerged again as part of a new event or series of events (i.e., was reiterated in the transcript) would the issue be marked again in that interview. Since many of the respondents were focused on a particular issue that was important to them, this happened fairly frequently. These "multiple marked" issues (i.e., the same issue was marked more than once in an interview) accounted for approximately one fourth (25.5%) of all issues marked. These percentages were not uniform across the regions surveyed, ranging from over one third (33.6%) in the Lafayette vicinity, to less than one fifth (19.0%) in Baldwin County.[14] Several high visibility issues accounted for a disproportionate number of those that were multiple marked. These were, too many regulations on the oil industry in the Lafayette vicinity, economic spinoffs in the coastal Louisiana sample, and trash on the bottom in the Mississippi and Mobile County (Bayou LaBatre) samples. This latter issue was a common one with coastal shrimpers.

On the other hand, more that one issue might emerge in one exchange and each of these would be marked, but then not marked again unless they emerged out of exploration of new territory.

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[14] The other regions were Mobile County 30.5%, Coastal Mississippi 30.3%, and Coastal Louisiana 21.8%.

For example, the following exchange was marked as "cyclical economy," "economic spinoffs," and "boom/bust impacts":

> My husband was transferred here in 1961. He was with an oil company and they opened an office in Lafayette. He was let go in 1968 or 1969. I don't know. For those first few years up until maybe early seventies everything was kind of on a level. When we moved here in 1961 it was [with] Magnolia Mobile Oil and several of the big companies were moving out of Lafayette and we thought we should buy a house here because it looked like everything was moving out. Fortunately, we did because with the pendulum swing we watched the companies come in and we watched the companies go out. They were going out then and they came back in big time. Probably about the early seventies is when we saw the boom and we saw housing go up fourteen percent a year. It was incredible the way we were seeing things; it was nuts. Of course it continued through the late seventies and early eighties. They were writing articles in the national magazine about Lafayette and the kids and their rolex watches and taking helicopters to get hamburgers. It was total insanity. That was not the way it was but indeed the feeling was that there is no tomorrow. This is going to be it and people were spending money like water. It was not good for the family. We were seeing many divorces, the evils that money can do if you allow money to do that to you. We were seeing that. If I had known how much fun I was having I would have enjoyed it more. I did not know how bad it was going to be; I thought that this was going to be it. But it was not good, really. There was entirely too much and then starting about eighty-one we started seeing it start backwards. And there was a bumper sticker at that time that said "Stay alive until eight-five." Believe [me], it took longer than that to stay alive. Had I known how deep it was going to get and how long it was going to last I probably would have done something different. I am not sure what it would have been. But it was, it has been a real struggle. I think those in real estate and those in the building industry deserve a star in their crown for making it. It is very good again. It is good on a more rational level. We are seeing suitability and maybe a steady go, but not close to what it was back in the late seventies. It was insanity then. So we are not really seeing that. We had seen in the eighties most of the oil companies leave. The Tenneco, the Mobil, the beautiful buildings on Ambassador Caffery have been sitting empty. Now we are seeing a coming back again. There is a big rumor that has been going on for awhile

> that Exxon is going to be coming here from New Orleans. I guess they ask why? They say the number one reason is gambling; they want out of New Orleans. So whether it is true or not we do not know. Usually, we find that when there is this much rumor, there is usually truth. They are denying it now but they are always denying it until they are going to tell their employees what they are doing. But I do know that they are looking in Lafayette. So once again we are seeing an 'in swing.' Conoco had a big move into Lafayette last year. So it is wonderful. I am enjoying this thoroughly after having [to] struggle so much during the eighties.

One caveat is appropriate at this point. Although the issues are counted and analyzed, the establishing of frequencies is not a strength of the snowball sampling technique that was used for data collection. What the snowball approach does best is provide the researcher with a good idea of the spectrum of responses that exists in the study population. Thus, the frequency of responses to a particular issue should be seen as an indicator of the number of times that the researchers encountered an issue, and not necessarily representative of the percentage of the population that would raise that issue. Particularly instructive with this type of data are the extremes, where a particular issue emerges much more commonly in some of the sample regions than in others, or where an issue occurs much less commonly, or was not encountered, in some regions when compared to the others.

IDENTIFICATION OF ISSUES

Table 2 compares the occurrence of issues across the five regions. Because there were different total numbers of issues mentioned in the regions, and different numbers of interviews conducted in the regions, meaningful comparisons cannot be made comparing the incidence of issues across regions with the raw numbers. Table 3 presents the issues across regions standardized by presenting each issue as a percentage of all issues in that region. By percentaging across issues we can compare directly across regions. We can also directly compare the total incidence of an issue, summed across regions, to other issues. This can be done because we are summing across regions and only examining the totals which standardizes for the greater or lessor number of issues within an individual region. Thus to examine the relative importance of an issue we can look at the totals in Table 2. To see how those issues are distributed we must use the percentage distributions in Table 3. These will be discussed across the broad categories of issues, the major headings in Table 2: Outline of Issues, and within these categories across individual issues.

Table 2

Frequency Distribution of Issues Across Regions

		Lafay	C LA	C MS	Mobile	Baldwin	Total
Economic (+)	Jobs	8	23	7	2	4	44
	Support sector	5	3	1			9
	Spinoffs	17	31	2	4	5	59
	Need oil	7	2		3	12	24
							136
Economic (-)	Tourism			3		9	12
	Property values			2		1	3
	Accident			3	1	13	17
	Cyclical	15	25	1			41
	Trash on bottom	1	7	8	15	2	33
	Migration $ & jobs		3		4		7
	Displaces other		1	1	2		4
							117
Environmental (+)	Rigs as reefs	3	4	6	4	26	43
Environmental (-)	Offshore pollution	2	4	4	5	11	26
	Onshore pollution		4	1	3	2	10
	Damage to wetlands		5		2	1	8
	General	2	4	1	5	15	27
							71
Aesthetics	Visual			7	3	23	33
	Noise			2	3	3	8
	Marine trash			3	2	3	8
							49
Social	Boomtown	2	8		1		11
	Overadaptation	9	6		3		18
							29
Policy Regs (-)	Too many regs.	28	15				43
Policy Regs (+)	Careful regs.	2	2	2	6	18	30
	Need more regs.					3	3
							33
Policy other	Planning	11	1				12
	Safety	6					6
							18
Navigation	Hazards		1	1	4	3	9
	Aids			2	1	1	4
							13
Other	Cost of living		1				1
	Family impacts				1		1
	Oil cos. publicity		1				1
	Genetic diversity		1				1
	Career opp.		1				1
							5
Totals		118	155	57	74	156	557

Legend:

Lafay = Lafayette Parish, Louisiana
C LA = Coastal Louisiana
C MS = Coastal Mississippi
Mobile = Mobile County, Alabama
Baldwin = Baldwin County, Alabama

Table 3

Percentage Distribution of Issues Across Each Region

		Lafay	C LA	C MS	Mobile	Bladw
Economic +	Jobs	6.8	15.0	12.3	2.7	2.6
	Support sector	4.2	2.0	1.8	0.0	0.0
	Spinoffs	14.4	20.3	3.5	5.4	3.2
	Need oil	5.9	1.3	0.0	4.1	7.7
Economic -	Tourism	0.0	0.0	5.3	0.0	5.8
	Property values	0.0	0.0	3.5	0.0	0.6
	Accident	0.0	0.0	5.3	1.4	8.4
	Cyclical	12.7	16.3	1.8	0.0	0.0
	Trash on bottom	0.8	4.6	14.0	20.3	1.3
	Migration $ & jobs	0.0	2.0	0.0	5.4	0.0
	Displaces other	0.0	0.7	1.8	2.7	0.0
Environmental +	Rigs as reefs	2.5	2.6	10.5	5.4	16.8
Environmental -	Offshore pollution	1.7	2.6	7.0	6.8	7.1
	Onshore pollution	0.0	2.6	1.8	4.1	1.3
	Damage to wetlands	0.0	3.3	0.0	2.7	0.6
	General	1.7	2.6	1.8	6.8	9.7
Aesthetics	Visual	0.0	0.0	12.3	4.1	14.8
	Noise	0.0	0.0	3.5	4.1	1.9
	Marine trash	0.0	0.0	5.3	2.7	1.9
Social	Boomtown	1.7	5.2	0.0	1.4	0.0
	Overadaptation	7.6	3.9	0.0	4.1	0.0
Policy	Too many regs.	23.7	9.8	0.0	0.0	0.0
	Careful regs.	1.7	1.3	3.5	8.1	11.6
	Need more regs.	0.0	0.0	0.0	0.0	1.9
	Planning	9.3	0.7	0.0	0.0	0.0
	Safety	5.1	0.0	0.0	0.0	0.0
Navigation	Hazards	0.0	0.7	1.8	5.4	1.9
	Aids	0.0	0.0	3.5	1.4	0.6
Other	Cost of living	0.0	0.7	0.0	0.0	0.0
	Family impacts	0.0	0.0	0.0	1.4	0.0
	Oil cos. publicity	0.0	0.7	0.0	0.0	0.0
	Improve genetic pool	0.7	0.0	0.0	0.0	0.0
	Career opportunities	0.7	0.0	0.0	0.0	0.0
Total		100.0	100.0	100.0	100.0	100.0

Legend:

Lafay = Lafayette Parish, Louisiana
C LA = Coastal Louisiana
C MS = Coastal Mississippi
Mobile = Mobile County, Alabama
Baldw = Baldwin County, Alabama

Positive Economic Impacts

Jobs and Economic Spinoffs

Positive economic benefits were by far the most frequent category of issues that emerged. Of the 558 coded issues, 136 or almost a quarter (24.5%) were positive economic benefits (Table 2). If we examine the distribution of the individual issues (jobs, development of the support sector, general economic spinoffs and the U.S. needs oil) across regions (Table 3) the reason for this finding is readily apparent. Respondents in Lafayette and coastal Louisiana are responsible for the bulk of the positive economic impact statements. In fact, 22.3% of all issues that emerged in the Lafayette vicinity and 39% of the issues in the coastal Louisiana sample fell into the category of positive economic impacts, with jobs and general economic spinoffs leading the way. This finding is quite understandable given that jobs and economic spinoffs were created in abundance in coastal Louisiana during the 1950s through the 1970s and early 1980s (see Gramling and Brabant 1986; Gramling and Freudenburg 1990). Jobs and economic spinoffs were particularly important for Grand Isle, a small, relatively isolated, rural community. As one respondent put it:

> It [Grand Isle] had Exxon and Conoco both and then it gradually built itself up. And when that happened, then we had some of our residents, the young boys, started--went to school on the Island and they were able--when they graduated, they were able to go to work for the oil company. And started their life. Now we have people that are retired that used to work for the oil company, that, if it wouldn't have been for them, either you had to become a fisherman or you had to move off the Island.

A store owner on the island, when asked what percentage of his business was directly dependent upon on the offshore sector, spoke eloquently about the spinoffs:

> Forty, 50 percent. I would say 40 percent, you know. If it wasn't for the boat companies and such in the winter months when the tourists are not down here, this store could not function with $650,000.00 worth of inventory at cost in it. You know, there's no way I could sell, even with the interest rate at three percent. I could do a lot better with my money in the bank and collecting three percent than I could depending on just the few Island people that are on the Island here. We're down to probably less than 1500 residents here on the Island now and we're talking

> about seagulls, cats and dogs and maybe a chicken or two throwed in there on that count. You know, when I first moved here in '76, I would imagine that there was probably close to, you know, 2500, 3000 people I would think living here then. I know there was more. You know, you got a lot more buildings on the Island now than -- oh, you know, they probably got twice maybe even three times more buildings on the Island but that's all camp owners and, you know, weekenders and summertime people, not -- not, they're not that many of them down here in the wintertime. If it wasn't for them old boats and, you know, the, you know, the -- I can't say the rigs, you know, the rigs are all governed by caterers and stuff but we do business with one of our -- with one of the caterers that supplies, does a lot of rig business out here. So that kind of scratches straight back to my back.

In Lafayette as well, general recognition of the importance of the spinoffs from the growth in the offshore sector was very evident. One local contractor who had formerly been an oilfield contractor was asked whether he would like to see the boom times come back. He answered:

> Yes I would. I definitely would! I probably wouldn't get into oil business. Preferred it would just help the economy. If the oil business is doing good, the construction business is doing good. More people move into the area, more buildings are being built, highways are getting [built], money is going to the government and highways are being repaired and right now while things are slow, they don't have the money to build; highways are in bad shape.

At least one positive economic impact (jobs) was regularly mentioned in Mississippi also. Here, however, rather than speaking from experience, much of the interest was speculative. As one Mississippi coastal businessman commented:

> I have not heard any negatives about what goes on in Louisiana, as far as the industry. In fact, I would like to see more of it in Mississippi. Personally, I think there are good jobs and [it] adds more diversity to our community.

Need for Oil

Another concentration of comments about positive economic issues were found in Baldwin County. Here the need for oil was noted fairly often, most frequently in connection with the area's tourism industry. As one local businessman noted:

> Oh, sure. The biggest way, the majority of tourism, is by automobile and the price of gasoline greatly effects the tourism industry. I can remember, back in the 70's, when the gas lines were there and the prices were high, tourism was greatly affected that year. So, in that regard, you know, oil and gas has a very strong effect on tourism, and tourism is usually one of the major industries in coastal towns. So, anything we can do to help keep the price of gas and oil to the consumer down, is going to have a ripple effect on the economy, to dry up spending in other areas, and to keep people employed.

Growth of the Support Sector

Finally the growth of the support sector which supplied and serviced the primary offshore sector was also noted, primarily in the Lafayette vicinity. As one local attorney noted:

> This was multiplying over and over. I mean there were so many boats being built that is just one segment and we can multiply that times all of the other drilling rigs and various other rental tool equipment. Everything that you can think of that helps promote the oil industry was available but only in extraordinary and unconscionable prices for the industry.

An independent oil man pointed out the tremendous specialization that a growing support sector allowed:

> In the seventies there were nine full time independent consulting paleontologists. These are the guys that are so specialized that all they do is look through a microscope at fossils to help identify this. The cuttings come out of the well bore when you cannot tell where you are from a stratigraphic point of view [or] any other way...you can rely to some extent on analysis of the fossils that are found within the cutting. That is an incredible narrow specialty that there were nine guys making a handsome living doing that independently as consulting micro-paleontologists.

Negative Economic Impacts

The Cyclical Nature of Oil and Gas Development

Negative economic impacts primarily fell into three categories. First, the cyclical nature of oil and gas development was very evident from the interviews in the Lafayette vicinity and the coastal Louisiana samples, areas that had experienced the boom and bust associated with offshore development. Some of the more poignant stories told revolved around this issue. A Lafayette resident responded to the effects of the cycle:

> It affected me profoundly and it affected everyone I knew profoundly. I was heavily invested in real estate, I had foreclosures. I was involved in a major national law firm with offices in five states that had heavy borrowing in that most principal partners had oil and gas investments that took bankruptcy and it caused everybody else in the firm even if they had a smaller position to have to file bankruptcy so it impacted me personally very much and everybody I knew in any profession, health care professionals, anybody who had any investments felt it. I said the only people that didn't feel it, and I don't think this is true, were those who had absolutely nothing and they came to Lafayette in the early eighties and so they hadn't gotten on any notes because they couldn't afford to invest in anything, so someone who had nothing maybe did O.K. But I don't even believe that because I saw the ripple effect. If you are good for your bills but somebody else doesn't pay you it has a ripple effect.

A coastal Louisiana resident indicated that the effects are still being felt.

> On the oil and gas end of it, I think your common--we workers here--is [sic] feeling a lot of pressure. The oil companies are rearranging their business right now and they're talking about the situation, you might say, because they don't know whether or not you'll be working next week or not. There's a lot of pressure on the personnel and their families right now because of that, you know.

As this respondent noted, one of the background factors that emerged was that the cycles in the industry were not just due to the price of oil, but were also partly due to the fact that some of the majors (oil and gas companies) were changing the way they did business. A number of the interviews, especially in the Lafayette vicinity, noted the artificially inflated economy of the late 1970s. As one respondent commented:

> I had been to functions where the party favors would be Sony TVs or watches that cost a thousand or so dollars. I had been on weekends where two or three private jets would be chartered and ten couples would be taken away at a cost of what maybe, I don't even know, $50,000, $60,000 for a weekend. This is something you don't go around saying. "Oh those starving people, this is just crazy." I think this [is a] complete air of artificiality and its never going to end. I cannot believe people are so stupid. It causes them to loose touch with reality.

With the bust however, a number of our respondents indicated that the majors began to rethink their strategies and change their ways of doing business. A long time Lafayette resident and former owner of an oilfield equipment company put it best:

> So these guys were set up and doing $900,000 a month but they were spending a half a million a month to run the business and a great deal of this was PR work and wining and dining...I know of incidents of [how] certain major oil companies did business, like they were going to get a 15,000 foot string of 2 inch pipe to do a job with. They had a certain guy that had a company that rented that and that is the only guy that they would do business with. This guy would take them on vacations, buy them cowboy boots and booze, and they would stay with him all the time. If they called for that pipe and that guy didn't have it, they still stayed with him and he would sub-rent it from somebody else and then if that person didn't have it he would sub-rent it from somebody else. Everybody had a lock on certain people that they were doing business with and it would cost them a fortune to have that lock, but they were getting all the business. And I know of incidents where ,lets just pick a name, a major oil company would have a string of 2-inch pipe on the job and the actual owner of that pipe would be 5 companies down the line. In other words you would have the major oil company and they would be renting from company A who didn't have the pipe and sub-rented from company B who didn't have the pipe and sub-rented from C who didn't have the pipe and sub-rented from D. D is all the way down the line. I will give you an example. They were renting pipe out then for say $.25 per foot/day. So that is what you would charge this major oil company to rent that pipe. When I was running the company we were fighting like cats and dogs to get $.08 a day. Most of the time we would get $.05 or $.06. We really thought we had hit gold when we got $.07...So the cost of doing business is way down , there is no more of this courting them to get the jobs, in fact,

the major oil companies all have pretty much a rule that they will not give all their business to one company. So they will get three or four and they will rotate jobs. That whole concept of courting them has changed completely. To where they would give all their business to one and you could not get in one then and you would have to sub-rent to them and now the major oil companies will absolutely not give all their business to one. As a matter of fact, they also have a deal where let's say a company does and this is another major change now in the post-oil bust. And that is that you don't just have a casing company and a hammer company and a company does tubing and a company that does torque and a company that has specialty rental tools. You have companies that have it all and they are going more and more to that, so these major oil companies at the present let's say that give the casing job to a company A so they won't give the hammer job to them and then they would give it to somebody else. Those engineers have to be sure that they don't get caught playing favorites. And another big change in oil companies now since the bust is over and we are going back into a good time, that company, that major oil company will come in at anytime and say that they want to audit your books and want to see your salesman's expense report, want to see how much money he is spending on their engineers. Because if he is spending too much they are going to cut you off, they stop you from giving. They just won't tolerate it anymore.

Debris on the Bottom

A very different negative economic impact that emerged in the interviews was debris on the bottom interfering with shrimp trawling. This was one of the common complaints of shrimpers.

A lot of debris. A lot of--a lot of the problem is from contractors, I believe, my personal belief. I think a lot of the problems is from contractors that are on the job contracting with the oil company and they'll finish a job and have stuff on the deck of these barges and it's not secured down good and the weather gets a little bad and they lose it. So we find too much scattered stuff, scattered over too many areas, you know, pipe. We catch five-inch flow lines and they might [be] 200-300 foot long and you get hold of one of them and you got to--if you manage to get it up, you've got to get as much rope on it as you can, tie it off on the stern of the boat and try to drag it to the nearest rig. Well, I know that stuff ain't--the oil company's just not abandoning that stuff, I don't

think. I think it's just stuff that's being lost. You catching all kind of stuff, welding machines--one time I caught a complete rack of CO-2 bottles where there's about fifteen CO-2 bottles on a rack, you know, I caught the whole rack of them. I've caught garbage bins that come off of the rig where the trash had been burned in them and it was the whole garbage bin. It'd be as big as this area right here, full of trash.

Interestingly, trash on the bottom was more commonly mentioned among shrimpers in Mobile County (Bayou LaBatre) than in coastal Louisiana and Mississippi. In retrospect this is possibly due to the fact that the State of Alabama has an artificial reef program that allows the dumping of automobiles and other debris south of the mouth of Mobile Bay. While these are supposedly restricted to certain designated areas, the local shrimpers claim that dumping outside of those areas occurs frequently. As one shrimper acknowledged:

Well, I hate to just say the oil field, because like I said, you've got sports fishermen out there dumping sail boats, airplanes. Anything they can get their hands on for fishing reefs. Like I say, those sports fishermen, they'll go out there and dump stuff. And, they won't even tell nobody. They'll go out there at night and do this, you know.

In addition, large tankers anchor off Mobile Bay to lighter [unload from a larger tanker to a smaller one] on to smaller vessels. The anchors dig in and create furrows and large lumps of mud, both of which can damage nets. The following interview with two Alabama shrimpers highlights both problems:

A.1. That's what I'm telling you. They don't abide by the law. I mean, half the stuff they take out there wouldn't pass anyway, because you're not suppose to have any fuel in the tanks, and they're suppose to be clean. No motors. None of that junk. They've dumped cars out there with the gas tanks still in them, and all, you know. They've caught all kind of junk out there. Airplanes, you know.

Q. That mud, when those tankers anchor, when they drag up that mud. What kind of mud, what is that? What does that do to the net?

A.1. Yes. It bogs up. The net will bog up.

A.2. When you hit that hole [the net is] like a big old dredge, or something. It just scoops that mud up. And, that net can only hold so much pressure, so that mud just lays it right open.

Offshore Accidents and Tourism

In addition to the cyclical nature of the economy, and debris on the bottom, the possibility of an offshore accident, particularly one that would affect the tourist industry, emerged as an issue in Baldwin County. As one Baldwin County businessman noted, not only is the county heavily dependent on tourism, but there is a very limited season, which makes them more vulnerable in the case of an accident.

> Secondly, the concerns of spill overs or an accident occurring. Because the whole livelihood for this area is the beach. We don't have one factory down here. You know, we don't have any industry here, whatsoever. We are not high-tech. All tourism, in fact, for the city of Orange Beach, about 86% of the revenues for the city are generated by the vacationers, the tourist, and all that. And only 14% is generated by the advalorem tax. So, that's a substantial amount, and I wouldn't be that surprised if Gulf Shores isn't the same. But, if 86% of their funding coming from the tourism, that should there be an accident, should there be a spill, should there be that. It would have a devastating effect on the businesses themselves, and the economy of the entire city. To me, an offshore spill or an accident of any type would be just as devastating as if a hurricane came through from a business standpoint. Not necessarily the rebuilding but from a business stand point. But, when you're looking at it from a business man, you're looking at someone's restaurant. You're looking at--the people down here have to make their money between, within a four month period.
>
> Q. What four months would that be?
>
> A. That would be basically, June, July, August, and September. Say from May 15th to September 13th. Well, it sounds kind of like, June to July, and August, Memorial Day to Labor Day.

Other Negative Economic Impacts

Also mentioned as negative impacts were the potential decline in property values, migration of money and jobs away from local residents, increases in the cost of living affecting those on fixed incomes and the displacement of other economic activities by those associated with offshore development. The most commonly mentioned of these was the migration of money and jobs out of the area, and this was most common in the Mobile County sample. As one Chamber of Commerce representative put it:

> I don't mean to sound critical I just think it's an opportunity missed that shouldn't be missed. And there's somebody in there that ought to say well if anything can be purchased locally that we're not purchasing locally we need to take a hard look at that I'm not saying purchase it locally I'm saying give that real consideration purely for myself it's motive that you're going [to] get so many more people. Very few people in this community have any idea of the magnitude of that thing out there. And I guess that's by design I don't guess they want too much said about it but it's unbelievable . And all the platform pipeline that [had] been put in and the workers going out [and] back. Of course that comes in the middle of the night in a big barge from Louisiana. That's all put down out there and so these people don't know anything about it.

The potential for affecting property values was brought out in the Mississippi and Baldwin County samples and was primarily associated with tourism. The president of a Gulf dependent business was quite explicit about what he saw as potential impacts:

> Socioeconomic impact from oil and gas activity introduced in this area would be a tragedy. I really think that it would totally ruin the tourism industry down here. You could forget...
>
> Q. What would happen?
>
> A. What would happen is, I think our tourists would go to west Florida. I think that's what would happen. I think people would come here strictly maybe to go to the casinos, but they wouldn't come here to sit on the beach. A lot of the property values by residents that live on the beach, of course, would be affected. A lot of the hotels with the views of the waters would be affected by it.

Positive Environmental Impacts

In all of the samples, but particularly in Baldwin County where a large charter boat fishery has developed, fishing around the rigs emerged as a positive environmental issue. The rigs as reefs for fishing (primarily while they are standing) received everything from lukewarm endorsement like a restaurant owner who said, "We've been out in our boat a couple of times, and tied on to a couple of them and fished. They do bring in some fish," to vigorous endorsement. As one charter boat captain explained to an investigator's query:

Q. Is that an issue in this area? I mean, people talk about that a lot about offshore drilling?

A. That round table over there talks about it quite often, because that's where all the charter boats come here every morning.

Q. I'd like to get in a conversation with those guys.

A. You can come here and talk to them guy's, and they'll damn sure tell you straight out the way it is.

Q. What time do they get here about?

A. It varies. Usually, the mornings that they are all here, it's usually mornings when it's rough. You can't go fishing. And, they're all here seven or eight o'clock in the morning. Sit down, and you'll have 20 charter boat captains in here. And, you bring up that issue right there, and golly, you'll have a whole bunch of people at one time. They'll let you know their feelings real, real quick on that issue. I mean, they, but hey, I'm not a tourist, I'm not the one--I don't come down from northern half and look at an oil rig or whatever. But, it's this issue right here is kind of like--it's just an issue. You're going to have; you're going to have both sides of the fences. And, well, we are dealing with 70 charter boat captains down here versus 7,000 tourists down here. And, I think we get buried because of-we're looking to help it and we're looking out for our benefit. But, you can go out to any one of these oil rigs, any one of our five or six oil rigs off of Mobile right now. The fishing is just fabulous.

Q. Yes.

A. The states spends these thousands and thousands and thousands of dollars to put reefs out here in our Gulf. And, heck, this could be, this is a way that they have somebody else pay for the reef and it's the best dang reef you can get.

Another captain in another interview was just as adamant:

As far as I'm concerned, the more rigs they stick in that Gulf out there, the better off we are. Louisiana, they have a bunch of oil rigs. They have never really had any problems. Our big industry over here is fishing, and right now a lot of the fishing that we're doing, we're having to go to Louisiana. An oil rig is the very best possible fishing reef you can get.

Interestingly, fewer comments than might be expected on the enhanced fishing around rigs came from the Lafayette vicinity and coastal Louisiana. It is quite possible that the offshore rigs as fishing spots are so taken for granted in Louisiana that they are rarely perceived as an issue.

Negative Environmental Impacts

Offshore Pollution

The issue of offshore pollution, usually various types of discharges or dumping, was evident in all of the samples outside of Louisiana. These ranged from relatively minor concerns mention by one small beach front shop owner in Baldwin County:

> You know, there's always a chance of something happening--polluting our coast. We've got some beautiful beaches right now. You know, white sandy beaches. And, I wouldn't, and I've never been to Texas, but I just hear of these type of things have made the beaches in Texas not as pretty as they probably were.

to major opposition from another:

> See, we've worked offshore. We know what is thrown overboard. We know it. I've seen them throw Tide [a laundry detergent] into the diesel tanks on the boats, and make it look like soapy water, if there is any water in the tank. I've seen them do this. You know, hundreds of gallons of diesel oil just dumped. I've seen them toss everything you can think of over the side-totally. If there were some way of policing it. Yes, I'd say there is no way it could hurt anything. I really don't think it hurts anything. We worked on a job in New Jersey for XXX Oil, and we know what a BOP is. Are you familiar with the...
>
> Q. Yes.
>
> A. A BOP is what they call a... A large hydraulic unit that sits on the ocean floor. And, should anything happen, this thing hydraulically crunches up the dual pipe lines. It effectively closes it, and shears it, and it all falls. Whatever is in-between falls to the ocean floor. Which, that is not bad, but I don't think there is much chance of oil or gas escaping into the Gulf or into the sea water... All the trash that goes with the work force, and the people on the rigs--and, it's not policed. Believed me, I know for a fact. Nine years offshore. I worked two years off the coast of New Jersey, off the coast of

> Cape May, New Jersey. XXX oil was probably one of the better ones. I worked XXX rigs; and, they were one of the worst. XXX and XXX, they'll throw anything. They don't care. You know, I've seen them drain the generators, and dump the oil right into the water. So, I'm against it.

Onshore Pollution

Onshore pollution was the biggest concern in coastal Louisiana, and several respondents noted that the past record was not a good one, but that recently things seemed better. A shipyard superintendent recalled to one interviewer:

> Everybody is cutting out the fat and getting -- trying to do things the right way. Whereas when industry -- when sales were up and things were flowing, you could pump oil into this bayou and I've seen it. Pump oil into this bayou and nobody gave a damn. Right now, if you -- if something over -- the rain like today, one of our biggest concerns is with this rain. If we had any oil on the ground it probably flowed into the bayou. Man, we're looking at some serious fines.

A local businessman reinforced this impression:

> When we first -- well, years ago we used to walk the beach, we would have to come in and have a can of gasoline or oil because our feet were covered with tar and up to our ankles. I mean the whole beach was covered all the time. But now, the beach is absolutely beautiful. We don't have the tar and the oil and all that but also Louisiana is in a terrible shape.

Damage to Wetlands

Coastal Louisiana was also the area where the most concern over damage to the coastal marsh was evidenced. At least part of this is quite possibly because Louisiana has almost 40% of the coastal wetlands in the continental United States and quite simply has extensive coastal wetlands to damage. However, a number of coastal residents spoke nostalgically about the loss of the coastal marsh, and one resident of Grand Isle who was born on the island and had lived there for 72 years left little doubt that wetland loss and oil activities, at least the early ones, were connected:

> I have a high esteem for the oil companies, but they did to the best of my knowledge, by their cutting into the marshlands, building pipelines, they have destroyed us. Not only the intrusion of salt water into the marshes but it killed the vegetation that the wildlife

needed. It caused a terrific erosion. I can show you some spots back there. Did quite a bit of fishing. Some places back there where they came through islands with the pipeline canal and they dammed it at both ends to prevent erosion. Well, somehow or another with storms and they broke on each side of the dam and they made cuts and eroded. They had to come take the dams out. It was hazardous to navigation. The Island is gone.

General Environmental Concerns

Environmental concerns that did not specifically fit into the other three categories were labeled as general environmental concerns. Often the informants expressed that the effects of a proposed action were unknown, and that the prudent thing to do in such a case is not to go forward. One attorney who was present during an interview of a public official put it this way:

> We have many unknowns. The Gulf is a big place and it is getting polluted. We don't want to run the risks of the unknowns...especially around the mouth of the bay. We have shrimping and a lot of sports fishing in the bay and around the coastal waters not just around the rigs. So there are a lot of unknowns to the pollution. The map from Mobile Bay is unlike any anywhere along the gulf coast. It is not like Louisiana and the Mississippi River. All we have is the one mouth for that ecosystem, there is a big spawning area there. Most of these species start running September and they will run your red fish and speckled trout. But another species like that will go outside the bay and spawn.

Aesthetics

Visual

The primary aesthetic concern was visual, and the primary area of concern was Baldwin County. This issue proved to be a broad one ranging from impacts on tourism:

> It did not take long for people to return after Hurricane Frederick. It does not take people long to get over floods. People have short term memories. But a rig is something that stands here year after year. If it came this year and it was gone in 1994 it did its job and came and left. That is a short term impact and people don't see the rig when they come back. It is gone they forget about but if a rig stays there and stays there the effect is continual and the effect is going to be continual.

to personal dislike:

> I don't like it. I don't like it at all. It just takes away from the prettiness. You know, I mean, right now you can go down to Fort Morgan, and sit there, there's a Marina down there, all the way on the end. And, we always went there to eat. And, look out there and you could see Dauphin Island, you know, and it was pretty. And, now you look out there and you see these rigs.

to warnings:

> They don't live here. Most of them are just rented, or just in and out. And, they don't want anything sitting out there distracting the view or even the possibility of a spill. Just wait. They are going to hit your ass with both barrels if you start that shit.

and philosophical musing:

> Q: As an [identifying title], why is an oil rig ugly?
>
> A: I think because it's in the middle of a natural phenomenon like water or wetland.
>
> Q: It doesn't belong there?
>
> A: No, and it's an anomaly, and its a fairly stark anomaly; there are no soft edges to an oil rig.

Noise

While noise was mentioned far less than visual impacts, the director of a coastal foundation noted that noise reinforced the presence of a rig and also in his mind potentially affected tourism.

> It is right there you can hear it at night. Everything else is, it doesn't lend it self to a resort type situation. The aesthetics of it I think were the main problem...I think you have to look at area by area. In that situation I don't think they needed a well a mile or whatever offshore. It would not have done them any good for the tourism. So I think in that case that was not good.

Marine Trash

Also mentioned far less than the visual aesthetic issue was that of marine trash, which was most evident in the Mississippi sample, and not an issue with any of our Louisiana respondents. One coastal tourism oriented business person was quite adamant concerning this issue while describing the annual "beachsweep."

> This is volunteers who volunteer to clean up the beaches and the island. XXX usually sends out a crew. XXX usually sends men out to the island, and they donate money. And all of that is good, I mean they should, but the figures show that there is an awful lot of marine debris coming off the boats that are out there. And we ask people to participate in the boater's and fisherman's pledge, and I say this to my groups. Especially my high school groups that are coming out to Ship Island. I ask them to be aware and not throw trash and everything like that off. We do our best to bring it to people's attention that there should not be anything thrown off the beaches. They are able to pile up tons and tons of trash, in spite of the fact that we have beach cleaning machines there all the time. Each year on this thing, they bring in tons and tons of trash, both from the island and from the local beaches, and then from the bays and along in there. I personally have worked in the Bay of St. Louis. Just on one little bit of land, and I can't tell you how much trash, particularly styrofoam. I guess they think they can throw styrofoam cups and it won't matter. But the styrofoam, it lasts forever. Plastic is getting better, because it is becoming more biodegradable. I think they are working on plastics. We do find plastics are beginning to deteriorate more so than they used to, but you still have an awful lot of them. And you have so much styrofoam. And you have so many things that effect the fish, like wads of fishing lines, things like that, all of which are a danger to our sea life.

Social Impacts

Overadaptation

The most common issue to emerge as a social impact was that associated with how individuals adapt to economic booms. In a number of the interviews, particularly in the Lafayette vicinity and coastal Louisiana samples, the issue of adapting perhaps too finely to a set of economic activities associated with the offshore sector was voiced. This issue, one that Gramling and Freudenburg (1992) call overadaptation, manifested itself in a variety of ways.

1. As individuals changed occupations and/or went into highly specialized occupations:

I remember the time where, a couple of years before, where young men in high school, 18 or 19 years old, would leave high school and go to work offshore, because they could make considerable money, you know, more money than the people--the teachers were making at that time. And, consequently, we lost a lot of teachers, and a lot of people from the educational system, who went to work within the oil system.

So with an impact assistance program we also need to look into training programs because when you have the boom-bust cycle what happens to the welders and everybody with these highly specialized jobs and you cannot use them for other industries in the area. The unemployment rate remains high.

2. As businesses made economic decisions:

And there is a lot of companies that didn't see it coming and went out there and purchased a lot of materials and when they looked again the bottom had dropped out and they had more debt that they wanted to have at that point in time. So they had to file bankruptcy.

3. As banks increased the supply of money:

The banks are supplying...with oil field equipment and went from one hundred cent on a dollar to maybe two and three cent on a dollar. Drilling rigs, some that have never drilled one foot of hole. You could not give them away. You could not get [or] give them to someone to haul them to a location to store. So the banks' security even the public bank in Dallas who had a lot of security in the form of reserves in producing oil wells. The loan made based on thirty dollar a barrel of oil now is ten dollars a barrel.

A guy with a third grade education had a friend that worked let's say for Texaco could make a deal with a purchasing agent to make an airplane available to him, cowboy boots, a gun, a rifle, hunting trips, you name it. They take it out of the gifts to keep the boat work. So a 30 day guy could go into a bank...borrow three million dollars to build a supply boat. Somebody in some company is telling the bank no problem we will keep the boat [working]...the bank had a contract and so forth. They were on their own binge trying to make

> 13 or 14 percent on their money. They would let the guy that really did not know anything about operating a boat in a business sense that is ... physically operate...buy the supply boat. This was multiplying over and over. I mean there were so many boats being built. That is just one segment and we can multiply that times all of the other drilling rigs and various other rental tool equipment.

The issue that emerges is that individuals, corporations, and financial institutions made decisions that, almost certainly, appeared rational and adaptive under a particular set of economic conditions. Once those conditions changed, however, the skills, supplies, equipment and contracts were no longer as beneficial as they were originally. In some cases they became liabilities.

Boomtown Impacts

A number of individuals, primarily in the coastal Louisiana sample, commented on the boom/bust cycle associated with offshore development. Several of these specifically noted the increased crime rates associated with boom development, and the impacts on local infrastructure that has long been noted in the boom literature.

A Grand Isle Businessman noted:

> Well, you know -- you know, like I told you I've been here, you know, 17 years and I've seen it change, you know, immensely here on the Island, you know, with the oil business, the ups and downs in it, you know. I got here when, you know, they couldn't hire enough people to get out there in the -- you know, it was riffraff and all that, you know, you know, the '82 slump and everything. I think they cleaned a lot of excess, you know, all these contractors and such, they got all their stuff together and basically, you know, you got a lot higher quality of what I see in the store here coming in the store, shopping with me is the cooks and the boat captains and such and they're -- I think they're a higher quality now.

A Lafayette resident commented on both trends:

> The grade school population went up, as high school flattened out, because there's young people on their way up coming through from two to six years--maybe ten. We had three times as many unmarried males.
>
> Q. How old were they?

A. Eighteen to fifty-five. They came down here to hide on the offshore rigs, these criminal, psychos, dope, marital problems, and such things as that.

While a coastal port director was primarily aware of the impacts on coastal infrastructure:

...a great example that I like to use is, in the mid-80s, we -- oil and gas -- offshore oil and gas uses a tremendous amount of freshwater, okay, which is unavailable except for the Parish water supply. So actually during peak drilling in the early -- in -- let's see, when -- back, we had a little spread again back in about '89-'90. We were using at Port Fouchon, 25 percent of the water usage of the entire Parish. You know, this is a tremendous population that nobody sees but they are a user of goods and services that need to be provided to them. So they were using 25 percent of the water for the entire Parish for drilling purposes and we were barging water down because the water district could not supply the quantities needed with the water system, so they, when they added, invested and made considerable improvements and sold bonds and done things to improve their water systems with plans to recoup their investment and then the oil companies leave the Gulf, okay, and then there's water for everybody, too much water, you know.

Q. Too much.

A. It felt like it did like today, it's raining on you. So it's very difficult on coastal communities to be expected to provide these services and no guarantee, you know. They just leave it to the new frontier and Russia and Nigeria or wherever because there are less environmental regulations and they can make more profits and then you're stuck here holding the bag for the services that you hoped they would be utilizing. So that has had an impact, that type of infrastructure impact. Another one is, you know, is our highways and roads. They -- oil and gas by nature of this area, everything travels by truck and by road. You know, we don't have rails, don't have any air -- airport that's capable and not that it would be utilized for that material but things travel by truck and it's a tremendous -- these roads here were built in, you know, they originally were built for my mom and somebody's else mom to go visit on Sunday afternoons with a horse and buggy, not for 18-wheelers of pipe, okay? And we -- the foundations here are certainly -- not that necessary to carry this weight, then our roads fall apart and they're built right on the edges of the

bayou, as you noticed, and so we have a tremendous problem with our highway system caused by the port, you know, oil and gas are the major contributors in that. And, hopefully -- this port is very active in spending a considerable effort in trying to make -- call the realization of the need by the Federal Highway Administration and others to look at these areas and it's been identified that Port Fouchon services and this is identified not by the Port, by the Corps of Engineers identified the port as servicing 58 percent of all of the oil and gas activity in this services in the central Gulf of Mexico which is significant. And here we are driving on a road on the edge of Bayou Lafourche to service 58 percent of this, you know, which brings in billions of dollars to the federal government and we're on a shoe string road and that's just ridiculous and I just can't believe -- and not only that, that this road handles -- just this area south of Golden Meadow there's only one road, no other road. There's only one highway. Here you have two and then there's a four lane partially constructed from here on to Golden Meadow, but south of Golden Meadow there's only one highway, okay, and that one highway handles 58 percent of all the offshore oil service activity. It handles 20 percent of the nation's seafood -- excuse me, of the State's seafood production, it's been used in this area. This is the only highway between the State's two most productive estuary systems, the Barataria system and the Terrebonne system. You have an oil spill or some catastrophe where you need quick reaction, this is the only highway to get there, you know, hurricane evacuations, you know, it's the only highway. How important can -- does a highway have to be before it gets upgraded to have a four lane or an alternate access, you know. I think somehow we've -- and we're working it trying to cause a realization with these facts and make people -- and we're moving to improve the highway system but oil and gas is a major player in it and is part of it.

Policy

Offshore Regulations

The issues associated with offshore regulations provided the clearest delineation between the samples. In the Lafayette vicinity sample "too many regulations on the oil companies" was the single most often mentioned issue, comprising almost a quarter (23.7%) of the issues mentioned. This was also a significant portion (9.9%) of the issues in the coastal Louisiana sample. Not one single person in the remaining three samples brought this up as an issue. In contrast, the policy issue that

emerged in the other three samples was that there needed to be careful regulation of the offshore activities, a position that was notably rare in Louisiana. In Louisiana the regulations were frequently blamed for driving the major oil companies out of the Gulf:

> But now your major companies have moved overseas and I'm seeing constant...they have to move. And that is the environment they are creating, what they think may be a good clean environment. But it aggravated the cost of drilling a well to the point where the natives won't tolerate it anymore, not that they are mad at the environmentalists. They just can't economically pay the price to drill a well when you have to pay these environmental costs to clean up the mess or protect from contaminating the area that they are drilling.
>
> I believe it was one of the presidents of one of the major oil companies who approximately a year and half ago basically said at the meeting of the American Petroleum Institute we are not wanted here anymore, therefore we are leaving. They have, all the majors have just reduced budgets and shifted their emphasis overseas. They see it easier to do business in Russia and places as hostile as that than it is in the United States. So we are basically told, I personally did not like that statement. We [are] told more and more that as business people whether it is oil and gas or other business people that we are not wanted here. You tell us that by increased regulations and increased taxes and these things.

In contrast, particularly in Baldwin County, the careful administration of appropriate regulations is frequently mentioned as a necessary condition if offshore activities are to continue.

> I am rather concerned with the coastline Gulf Shores and Dauphin Island area and [to] make sure that they are not being polluted. As long as you have enough control and safeguards I don't have a problem with them.
>
> I think we need to use our resources within our country, but I think we need to ensure that there are safeguards that are in place. I think they need to be, perhaps, and I am not an expert in this field, so, off the cuff, as a layman, you know, looking at it, regulations as to how close to land, drill sites, and gas lines that type of thing should be laid. There's, I am the first person in the world to say don't tax, but, perhaps taxing those rigs, and the money being dedicated into some type of escrow fund to use in

cleanups if something should happen, but, I mean I'm certainly not an expert in that so I wouldn't know.

Planning

Lack of planning or "improper planning" was one of the broadest issues, and criticisms of everything from state policy, to MMS's leasing and inspection policy, to the way the major oil companies have treated communities, emerged. Often the assertion that an activity was not properly planned meant that the respondent disagreed with the policy, and hence the implementation of that policy. Comments directed at MMS were aimed primarily at the leasing policy or the bonding policy. Several individuals commented directly on these issues:

> I think MMS would be significantly ahead to reduce the front end bids on that thing and take a higher or some type of adjustable royalty where maybe a company could pay a lesser royalty until it has recovered the cost of drilling and then maybe they get something in the range of thirty-five or forty percent rather than the eighth or the quarter that they get now.

> We know that [the] federal government has a lot of concern about are these people going to be properly financially sound and technically confident? Will they be around when abandonment time comes? The bonding issue is getting a lot of discussion. We certainly understand federal agencies concern about that. Our concern, from the majors point of view, steps are often taken in anticipation of problems with a small segment of the industry and they put [a] broad brush approach on that hits everyone. It assumes that everyone is going to be equally guilty and it is often not the most cost effective way to go about. There are better mechanisms out there.

Safety

While offshore safety did emerge as an issue, it was only noted in the Lafayette sample, and primarily by individuals whose jobs were associated with safety issues.

Navigation

Navigation issues were confined almost entirely to the Mississippi and Mobile and Baldwin county samples, with both potential navigation hazards and aids being noted. In fact, in Baldwin county two long time sailors came down on opposite sides of the issue:

One aspect that I run into in my own sailing is that, I feel there is some interference with navigation with having the structures out there, but then that has to be traded off with, well I guess we need the oil and gas.

It seems like they're doing a good job. I mean all these oil rigs everything. It's a good place to fish. When these crazy sailors get out there there's somewhere to tie up and somebody to help them and go get them.

Other Issues

Five other issues were mentioned by only one respondent. These are:

1. Cost of living. One coastal Louisiana resident noted that during the boom the rise in the cost of living affected the purchasing power of those on fixed incomes, primarily retired persons.

2. Family impacts. A Mobile County resident commented on the potential impacts on families of the concentrated work scheduling associated with offshore employment.

3. Genetic diversity. One long time resident of Grand Isle speculated that the in-migration to Grand Isle as oil and gas were first being discovered in the coastal marshes provided much needed genetic diversity to a previously isolated population.

4. Career opportunities/upward social mobility. A Morgan City resident noted specifically that the infiltration of the oil industry into the coastal Louisiana economy provided a means for upward social mobility that did not exist before.

5. Oil companies received bad publicity. One coastal Louisiana resident thought that the oil companies had received bad publicity, primarily concerning pollution.

DISTRIBUTION OF MAJOR ISSUES

If we discontinue further analysis on the issue of whether or not the offshore development was properly planned (this was a broad issue important in only one sample, and often aimed at a particular policy with which the respondent disagreed), safety (again an issue in only one sample), whether or not rigs are navigation aids or hazards (a minimal issue in all samples), and the five issues that only emerged in one interview, then we can collapse the categories into the main remaining issues: positive

economic impacts, negative economic impacts, positive environmental impacts (rigs as reefs) negative environmental impacts, aesthetics, social impacts, overregulation, and the need for careful regulation. Table 4 presents the major issue categories, and Figure 1 graphs their distribution. There are four obvious aspects of the distribution of issues across the samples. First, in the Lafayette and coastal Louisiana sample the issues associated with positive economic benefits far outweigh any other issues, while positive economic benefits are much less in evidence in the other samples. Second, negative economic issues outweigh positive ones outside of Louisiana. Third, issues of aesthetics arise *only* outside of the two Louisiana samples. Where they do arise as issues they are as prevalent as positive economic issues. Fourth, with respect to regulations, an almost polar opposite in the frequency of whether or not offshore activity is over-regulated or needs careful regulation occurs between the two Louisiana samples and the remaining three samples. In the Louisiana sample there is little mention of the need for regulations, and in the remaining three samples there are *no* mentions of over-regulation.

Table 4

Percentage Distribution Main Issues[15]

	Lafay	C LA	C MS	Mobile	Baldwin
Economic (+)	31.4	39.1	17.5	12.2	13.5
Economic (-)	13.6	24.5	31.6	29.7	16.1
Environmental (+)	2.5	2.6	10.5	5.4	16.8
Environmental (-)	3.4	11.3	10.5	20.3	18.7
Aesthetics	0.0	0.0	21.1	10.8	18.7
Social	9.3	9.3	0.0	6.8	0.0
Too many regs.	23.7	9.9	0.0	0.0	0.0
Need regs.	1.7	1.3	3.5	8.1	13.5
Total	85.6	98.0	94.7	93.2	97.4

Legend:

Lafay = Lafayette Parish, Louisiana
C LA = Coastal Louisiana
C MS = Coastal Mississippi
Mobile = Mobile County, Alabama
Baldwin = Baldwin County, Alabama

[15] This is an extremely limited database in terms of the type of statistical analysis that can be performed. First, we are dealing with nominal data necessitating non-parametric statistics. Second, there are only five cases (the samples). Third, many of the cells (even when collapsed contain fewer than five responses, which precludes the use of Chi Square. Finally, the five cases do not have the same count in either their number of interviews or in the total count of issues. There was no statistical test we could find where we could test for statistical significance for differences between samples without violating at lease one of the assumptions of the statistic. There is obviously conceptually significant differences in the distribution of at least some of the issues.

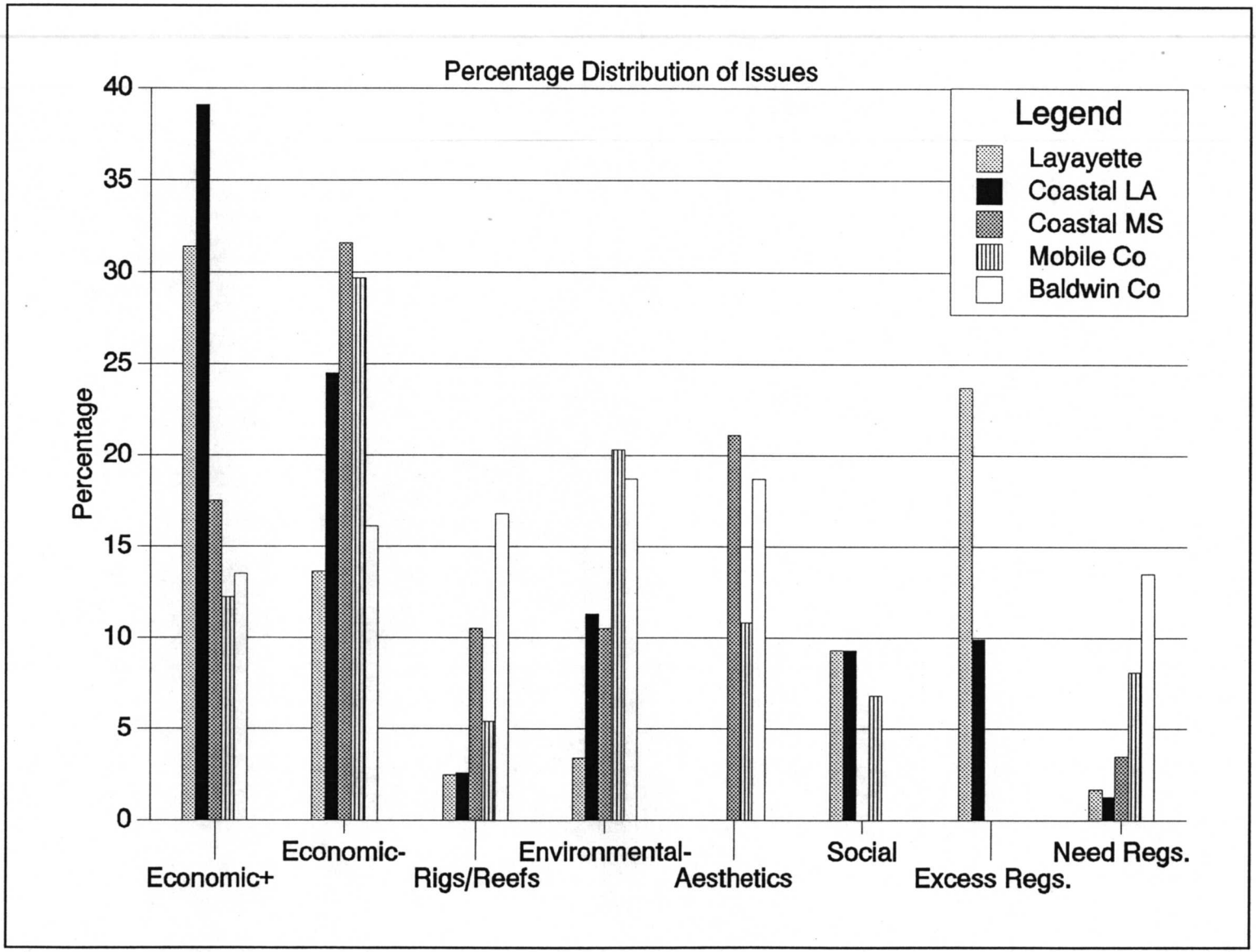

Figure 1. Major Issues Across the Region

CHAPTER V: CONCLUSIONS AND IMPLICATIONS

THE ISSUES

The identification of issues related to OCS oil and gas exploration and production and the distribution of these issues across geographical areas present a number of implications for future research or policy making. Before discussing these implications, however, an interesting void in the cognitive schema of individuals across the samples needs to be considered. This void, perhaps the most pervasive finding of this research, was evidenced again and again in our inability to get our informants to evaluate OCS activities in general and MMS specifically. The only individuals who know what MMS is, what MMS does, and how OCS activities are undertaken are those in businesses directly connected with the OCS leasing and development process. These individuals are almost universally in the Lafayette vicinity sample and are limited to those who have a direct financial stake in OCS activities. The implication of this is that the issues that arise with respect to OCS activities, both in favor or opposed, have little connection to the general public's knowledge of those activities. The further implication is that in order to connect these issues to policy making or further research, the assumptions behind them must be made explicit. That is, people's positions on the issues, selection of those that are important to them, and the general overall impression concerning OCS activities, with few exceptions, are based on <u>assumptions</u> about the nature and consequences of OCS activities, not <u>knowledge</u> about the activities. These assumptions may or may not be based on past experience. When assumptions are based on past experience, people making those assumptions believe that what happened in the past will happen again. The importance of this point will become more evident as some of the other implications are discussed below.

Economic Implications

Perhaps the most fundamental implication of our findings is that OCS activities are widely believed to be connected to positive economic benefits. The noted economic benefits of OCS activities in the past and the assumed benefits that would accrue from OCS activities in the future was an issue that was present in all the samples. These benefits were connected either to the generation of jobs, general economic spinoffs, or because oil was necessary for modern industrial society. It was quite clear, in the two Louisiana samples, that the assumption that increased OCS activity would result in the generation of jobs and general economic spinoffs was based on past experience. Often informants expressed their desire for future benefits in terms of things being like they

used to be. However, a number of our informants brought this assumption into question, pointing out that the major players in the offshore industry had changed the way they did business. They pointed out that jobs were almost universally bid out now, that the majors switched jobs between companies, and that "meaner and leaner" was the prevailing philosophy in the industry.

In the Mississippi, Mobile County, and Baldwin County samples it was evident that the assumption that jobs and economic spinoffs would flow from OCS activities was not based on experience but on a traditional logic that held that industrial activity in general brought jobs. Given the flexible structure of the offshore industry and support sector that allows them to operate out of virtually any port, the entrenchment of the industry in southern Louisiana, and the flexibility of the concentrated work scheduling offshore that allows individuals from Louisiana to work all over the world (Gramling and Brabant 1986; Gramling 1989; Gramling and Freudenburg 1990), the accuracy of this conventional wisdom remains to be seen. In short, whether coastal Louisiana's economy in the 1970s is a good model for predicting what might happen with increased future OCS activities in an area, including coastal Louisiana, is unknown.

The assumption that oil is necessary for the modern industrial society was also noted in all but the Mississippi sample. Even some of the strongest opponents of OCS activity in Baldwin County noted that the tourism that drove the economy of the county was dependent primarily upon individuals who traveled to the area in their own automobiles thereby using gasoline and other petroleum products in the process.

A second major economic implication of the findings is that just as positive economic benefits are widely believed to be associated with OCS activities, so too are negative economic impacts widely believed to be associated with OCS activities. These fall into three basic categories, two of which are user conflicts. Perhaps the broadest user conflict is between the "amenity" utilization of the coast and coastal waters (i.e., for recreation, tourism and retirement sites) and the "consumptive" use of the coast and coastal waters (i.e., for offshore oil and gas production). Louisiana's economy has a long history of offshore oil and gas development while Mississippi and Alabama have more recently, but with increasing emphasis, focused on tourism. Whether or not one activity precludes the other is not clear (see Gramling and Freudenburg 1994). What is clear is that a number of those individuals most closely associated with coastal tourism in Mississippi and Alabama believe that coastal tourism would be, or potentially could be, negatively impacted by offshore oil or gas activity.

The primary potentially negative impacts noted by our informants centered around the apprehension that some type of offshore accident could foul the beaches and that the tourists would find the presence of offshore rigs offensive. The latter of these rests on an assumption that is untested, although certainly a number of individuals told us that they found the rigs offensive.

For some, this is related solely to aesthetic considerations voiced by a number of informants outside of Louisiana. The word "viewshed," for example, was used by several informants who were associated with coastal tourism to refer to a concept of an ocean view unhampered by the sight of oil rigs.

The fear of fouled beaches rests on the assumption that one could happen. Such an event is less likely given the probability that the nearshore petroleum resources off Alabama are natural gas. However, there are always some fluids associated with the recovery of gas, and an increase of large vessel traffic and increased probability of some type of diesel spill due to a collision is possible. In short while the probability of such an event is quite small, it cannot be completely ruled out and the chance that the beaches could be fouled, even a remote chance, is a concern for individuals in Alabama and Mississippi.

The other user conflict that emerged from conversations with our informants is the question of debris on the bottom interfering with trawling activities. The assumption here is that OCS activities result in some of the debris that shrimpers maintain that they encounter. It appears that there are a number of sources of debris or obstacles on the bottom (including the Alabama reef program and anchor scars from tankers). It should also be understood that these other sources of debris do not result in reimbursement for damaged or lost nets. This lack of reimbursement potential from other sources provides shrimpers with an incentive to blame offshore oil and gas activities for damages. Nevertheless, it seems reasonable to assume, that at least some of the debris encountered by shrimpers is due to activity associated with OCS activities.

Among those interviewed in Louisiana, the primary negative economic impact was associated with the cyclical nature of offshore development. This was linked with the boomtown impacts, and overadaptation at the individual and corporate level. As a result of what they perceived to be the unpredictable nature of offshore development, some of our Louisiana informants stated that they would not become directly involved with offshore activities should they increase in the future. The assumption here is that the extent of offshore activities either cannot or will not be controlled (see Gramling and Brabant 1986; Gramling and Freudenburg 1990).

Environmental Implications

From a positive perspective, offshore rigs are perceived almost universally as good places to fish. This issue was most evident among party boat captains and commercial fishermen in the Baldwin County sample, but it was evident in all the samples. The assumption here was a simple one and in many cases was based on past experience, that there were more fish around the reefs because the reefs provided structure. The biological question of whether the rigs produce fish, or simply attract them, did not arise.

Just as the positive environmental impacts of OCS activities were present in all of our samples, so too were the perceptions that OCS activities could have, or do have, negative environmental impacts. These were most common in Baldwin County and least common in the Lafayette vicinity sample. As a general category this was the third most common issue noted. Perceived environmental impacts (or the probability of impacts) ranged from pollution on and offshore, to damage to the coastal wetlands, to general unspecified negative environmental impacts.

The obvious assumption here is that the various activities associated with OCS development can and do have impacts on the physical environment and that the impact is negative. This issue was second most common in the coastal Louisiana sample where people have the most direct and longest experience with OCS activities. Although this "concern" is fairly common, the way in which the impact is perceived varies. Some of our informants see environmental damage as an acceptable trade off for the positive economic impacts. With respect to damage to the wetlands, however, respondents felt that at least some of the damage was due to earlier inland oil and gas activities.

Aesthetic Implications

Although one woman in coastal Louisiana noted that she liked to look out at night and see the rig lights because they meant people were working, no other positive aesthetic considerations emerged out of our interviews. The aesthetics of OCS activities provided one of the most clear cut divisions between the Louisiana samples and the other samples. With the above exception, there was no mention of aesthetic issues in either of the Louisiana samples. All of the aesthetic issues were mentioned in the other samples. While noise and marine trash were mentioned, "seeing the rigs" emerged as the primary form of negative aesthetic impact. Whether it was called visual pollution, damage to the viewshed, or something else, a number of our informants outside of Louisiana stated that they found the presence of the rigs aesthetically offensive. These evaluations ranged from ugly to inappropriate. The assumption here is obvious enough that it hardly needs to be stated. Perhaps the old adage that beauty (or lack thereof) is in the eye of the beholder is appropriate.

Social Implications

The boomtown impacts of OCS development in the 1960s and 1970s are well documented (Stallings et al. 1977; Gramling 1980; Gramling and Brabant 1984; 1986; Gramling and Freudenburg 1990; 1992; Brabant 1993a; 1993b; Freudenburg and Gramling 1994) and these were noted by informants primarily in the Lafayette vicinity and coastal Louisiana samples. The assumption here is that OCS development did have a variety of impacts associated with rapid community growth, and the available evidence supports this perspective.

Overadaptation emerged as an issue more frequently than did the boomtown impacts. Whether it was individuals who adapted by acquiring esoteric skills, companies that filled too small a niche, or financial institutions that overspecialized, a number of our informants had personal experiences or told stories about others that revealed a "fine tuned" activity in response to some aspect of OCS activity. This activity later became obsolete as the price of oil fell in the 1980s.

When individuals related personal experience, failure was usually attributed to a lack of farsightedness (e.g., "I thought it would go on forever"). Greed, however, was the most common explanation given for the foibles of others when relating examples of overadaptation. In both instances, the assumption that economic success leads to a more narrow focus on the activity related to that success. This narrowing of focus, in turn, results in loss of flexibility and the closing of options. This suggests that the social impacts of OCS development are particularly amenable to mitigation by policy alternatives since the rate of OCS leasing, and hence the potential for development is directly controlled by MMS and not by individuals.

Policy Implications

The policy implications of the findings provide the other very clear cut division between the Louisiana samples and the Mississippi and Alabama samples. In Louisiana our informants told us that OCS activities were too heavily regulated, and that this regulation was driving the major oil companies overseas. In Mississippi and Alabama our informants told us that OCS activities needed to be carefully regulated, and in a number of cases careful regulation was advanced as a prerequisite for offshore development. These perspectives rest on two very different sets of assumptions: 1) that regulations are so burdensome that the world's largest corporations cannot do business, and 2) that without careful regulation these corporations cannot be trusted. This belief that the regulations are actually driving the majors out of the Gulf is apparently a commonly held belief in Louisiana for it appeared again and again among the Louisiana samples. Whether the regulations are actually driving the major oil companies out of the Gulf or not, it was widely believed that they are and this was related to us again and again across both the Louisiana samples. It was never mentioned by any of our respondents outside of Louisiana. Likewise, whether or not careful regulation is necessary to prevent problems, this is widely believed outside of Louisiana, and rarely mentioned in the two Louisiana samples.

THE STAKEHOLDERS

Although this research was primarily designed to assess the issues associated with offshore, and to the extent possible OCS oil and gas activities, and the methods and analysis were focused accordingly, several stakeholder groups and characteristics of stakeholder groups became apparent as a result of the research. In terms of characteristics of stakeholders our original definition is instructive. As the reader will remember the original definition contained five elements:

1. Stakeholders have a stake as opposed to the traditional definition of holding a stake.

2. Stakeholders may be individuals, a collection of people, or an organization.

3. Stakeholders may affect an organization or activity[16] and/or be affected by an organization or activity.

4. Stakeholders may have to be taken into account in order to bring about significant change in an organization or activity.

5. In general stakeholders are defined by their relationship to an organization or activity rather than being geographically defined. However, if a particular enterprise is geographically distributed and the activity in question affects those engaging in that enterprise then it is reasonable to assume that the distributions of particular stakeholders might be concentrated in certain geographic regions.

Of those that had a stake in offshore activities, and thus met our first criteria, they overwhelming fell into the category of "a collection of people" under our second category. That is, there did not appear to be any individuals that were by themselves powerful enough to affect offshore activities, or be uniquely affected by offshore activities. Neither were there any organizations that were focused on affecting offshore activities or that were uniquely affected by offshore activities. There were a number of individuals who perceived that they had been, or potentially could be, affected by offshore activities (discussed below).

Looking at the third element of our definition, almost unanimously our informants saw offshore activities as affecting them. Virtually no one indicated that they had affected offshore

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[16] Although the management literature focuses on organizations, we are broadening the definition to include activities, recognizing that most activities that stakeholders would react to are carried on by organizations.

activities, or felt that they could potentially affect offshore activities. Whether or not these stakeholders would have to be taken into account in order to bring about significant change (# 4), is a question for the future, although some fairly significant modification of offshore practices did occur before development in Mobile Bay was allowed to proceed.

Finally, looking at the fifth element, some of our stakeholders (such as those who benefitted from past offshore activity and those engaged in coastal tourism) were concentrated geographically, while others (such as shrimpers) were not.

Direct Benefactors

The first and perhaps most easily identified stakeholder group is composed of those individuals who benefited economically, or believe they would benefit economically, either directly from offshore activities or spinoffs associated with those activities. These individuals tend to be concentrated in the Lafayette vicinity and coastal Louisiana where offshore activities have historically been concentrated, although informants who felt that they would benefit from increased activity offshore were found in all of the other regions. In terms of issues, jobs and economic spinoffs were the major issues for this group, along with a belief that the current regulatory structure of OCS development was onerous and constituted an undue burden on the oil companies. The other major issue that characterized this group of people was that many of them saw offshore development as potentially cyclical and problematic for sustained economic growth. In spite of that most of them would like to see a reemergence of offshore development.

Coastal Tourism

In contrast, those who saw their economic future as being directly or indirectly associated with coastal tourism felt most threatened by offshore development. Members of this group were most likely to emphasize the aesthetic value of the coast, the potential for an offshore accident or offshore pollution, and the need for careful regulations if offshore development was to go forth. These first two groups were the most mutually exclusive.

Environmental Concerns

The third recognizable group was comprised of individuals who expressed concerns about the environment associated with offshore activities. This was not a mutually exclusive group, and many individuals who saw their futures either in offshore activities or in coastal tourism also expressed concerns about the past or potential future impacts of coastal and offshore activities on the environment. While this group was less represented in our Lafayette vicinity sample, they were spread across the other samples. Because this group was not mutually exclusive (i.e., individuals who felt that they had a stake in the environment might

also have a stake in future offshore activity or in coastal tourism) it is probably worth adding a sixth element to our definition concerning stakeholders.

6. An individual may be a member of more than one stakeholder group with regards to a specific organization or activity.

With this element we are recognizing that stakeholders may constitute a complex mix of interests rather than having clear cut competing stakes.

Single Issue Groups

There were two groups whose orientation toward offshore activities were primarily focused on a single issue. The first was offshore fishermen who saw the rigs as reefs. The strongest interest here was from charter boat captains who were universally in favor of offshore platforms to serve as artificial reefs. The second was coastal shrimpers who were most notable for their concern about trash on the bottom. Both of these groups were spread across the survey area, although the most concern about bottom trash was evidenced among Bayou LaBatre shrimpers and the most interest in rigs as reefs was evident among the Baldwin County charter boat captains.

SUMMARY

Using a snowball sampling frame 131 residents of coastal Louisiana, Mississippi and Alabama were interviewed and the transcribed interviews were analyzed to assess the issues associated with offshore oil and gas activities in the central Gulf of Mexico. Neither the issues that emerged, nor the stakeholder groups that were associated with those issues were uniform across the central Gulf. Several general trends can be seen although exceptions to these are also evident. In general, in Louisiana, where offshore activities have been ongoing for almost five decades, respondents generally focused on the issues of jobs and economic spinoffs and felt that the current offshore regulatory structure was burdensome and too restrictive. In contrast in Mississippi and Alabama, where coastal tourism was more important, the issues of potential aesthetic and environmental impacts were more evident, and respondents overwhelmingly agreed that careful regulation of the offshore industry was necessary if offshore development was to go forward. A fair amount of environmental concern associated with a number of specific issues was evident in all the sample areas except the Lafayette vicinity sample, and both individuals who expressed support for and opposition to offshore development expressed environmental concerns. This led to the conclusion that, at least in this case, stakeholders could not be characterized by neat mutually exclusive sets of issues, but had more complex mixes of stakes associated with the potential impacts of offshore development. Two groups (offshore fishermen, including

commercial fishermen and shrimpers) focused on single issues (rigs as reefs and trash on the bottom respectively), and these groups were spread geographically across the survey regions.

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APPENDIX A

Initial Stakeholder Outline

I. Offshore Owner/Operators
    A. Large oil corporations (Exxon, Connoco, Gulf, etc.)
    A. Independents

II. Offshore Operators
    A. Drilling Companies
    B. Transportation Companies
        1. vessels
        2. helicopters
    B. Offshore surveys

III. Environmental (environmental organizations)

IV. Offshore Supply
    A. Mud companies (Baroid, etc.)
    B. Tubing (drill pipe and casing)
    C. Catering
    C. Crews
    E. Training

V. Manufacturing
    A. Metal Fabrication (rigs LA)
    B. Ship and boat building (LA and MS)

VI. Support
    A. Rental tools
    B. Legal Services (contracting)
    C. Financial (banks, CPAs, etc.)
    D. Insurance

VII. Alternative Direct Coastal Users
    A. Commercial fishing
    B. Beach orientated recreation (Gulf Shores, Dauphin Island)
    C. Recreational boating (Fairhope)
    D. Recreational fishing (Grand Isle, Dauphin Island, Fairhope)
    E. Real Estate (Gulf Shores)
    F. Shipping

VIII. Alternative Indirect Coastal Users
    A. Specialty shops, antique shops (Gulf Shores)
    B. Coastal tourism infrastructure, bars, casinos, etc. (Gulf Shores, Gulf Port).

IX. Those Affected by General Economic Activity (mostly LA), variations within this category, race, sex, etc.
    A. Wholesale
    B. Welding Supply
    C. Beer distributors
    D. Retail
    E. Various stores, etc.
    F. Service
    G. Real Estate
    H. Education
    I. Medical
    J. Training
    K. Legal (personal injury)

X. Public and Governmental Organizations
    A. Administrators and Politicians
    B. Social Control
    C. Social Service

XI. Non-Governmental Organizations
    A. Arts
    B. Unions

XII. Media

APPENDIX B

Descriptions of Respondents[17]

Baldwin County

1. administrator higher education 4,658
2. another barber and customer 1,454
3. barber in a coastal community 1,484
4. beach front novelty shop owner 587
5. beach front shop owner 896
6. bicycle shop owner 393
7. boat rental owner 393
8. chamber of commerce representative 3,981
9. chamber of commerce executive, coastal community 3,810
10. chamber of commerce representative 2,117
11. charter boat captain and a fisherman 1,742
12. charter boat captains and fishermen 2,572
13. charter boat captain 2,473
14. chief of police 157
15. coastal business man 4,192
16. coastal planner 3,623
17. commodore of a yacht club in a coastal community 1,579
18. couple who own a small beach front business 1,027
19. director, coastal foundation 2,517
20. editor, newspaper 1,419
21. engineer for a paper mill 795
22. field notes 194
23. financial support social worker 1,515
24. general manager 708
25. general manager 1,317
26. local official coastal community 3,502
27. local beach community business owner 904
28. marine repair shop owner 892
29. marine repair yard owner 303
30. president chamber of commerce coastal community 1,428
31. public official accompanied by a lawyer 2,201
32. public official 1,174
33. real estate agent 2,171
34. real estate agent 1,260
35. reporter, coastal newspaper 91
36. restaurant owner 290

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[17] The number following the description of the respondent refers to the number of words in the transcript of the interview. The number of words was felt to be a better measure of the amount of content of the interview than the length of time the interview took to record. Comparison of different interviews and segments of interviews reveled that number of words per minute ranged from slightly over 100 to over 200.

37. restaurant owners 570
38. retired coastal resident 247
39. sail boat rental stall owner 685
40. semi-retired charter boat captain 1,007
41. small shop owner on the beach 412
42. small business owner gulf side 118
43. state official 2,219

Mobile County

1. coastal biologist 2,926
2. economic development type, Mobile county 564
3. individual with long time association with shipping 3,089
4. local marine oriented business man 1,946
5. local attorney 889
6. local official 645
7. member Alabama state oil and gas board 125
8. net shop owner, and manager of a shrimp fleet 4,363
9. owners of a boat repair shop, Bayou LaBatre 3,300
10. president, environmental organization, and state wildlife official 8,154
11. official with Mobile bar pilot's association 66
12. professional with federal agency 2,180
13. repair shop owner and two shrimpers bayou LaBatre 654
14. retired merchant seamen's association of Mobile official 66
15. school principal 96
16. several shrimpers in Alabama 3,145
17. shrimper 1,152
18. snapper fisherman 263
19. state official, marine management 3,571

Coastal Mississippi

1. manager Gulf dependent business 4,033
2. president, Gulf dependent business 7,156
3. local official, port commission 3,924
4. local business man 1,529
5. local seafood dealer 3,376
6. two government coastal resource management types 7,304
7. former local official and current Biloxi business man 2,287
8. two local coastal oriented businessmen 2,453
9. shrimper Biloxi 11,404
10. casino manager 2,963

Coastal Louisiana

1. businessman coastal community 2,944
2. coastal shrimper 3,604
3. coastal business man 1,157
4. coastal shrimper 5,452
5. federal employee 1,769
6. federal employee 3,572

7. four shrimpers 520
8. gas station owner 134
9. coast guard medic 4,727
10. local businessman 5,080
11. local minister 3,634
12. local resident who engages in shrimp maraculture 4,956
13. local resident 3,429
14. local official 4,170
15. local priest 1,594
16. local businessman 1,666
17. local businessman 3,115
18. local geologist 4,262
19. coastal businessman 3,290
20. coastal automobile dealer 2,157
21. observation town hall meeting 1,262
22. offshore worker 1,666
23. oilfield equipment and construction business man 3,983
24. port official 5,095
25. retired barber 6,125
26. retired Conoco worker 12,801
27. shipyard superintendent 7,740
28. shrimp dock owner 1,248
29. social service provider 2,703
30. store owner 3,940
31. three locals at shrimp dock 250
32. three local oil field businessmen 4,068
33. two retired coastal residents 2,564
34. two local businessmen 2,863
35. two shrimpers 286
36. two shrimpers 253

Lafayette Vicinity

1. attorney who frequently works with oil companies 332
2. director community correctional center 2,419
3. former oil field rental company owner 1,670
4. geologist 5,432
5. independent oil man 4,280
6. independent oil man 7,019
7. law enforcement official 1,292
8. local attorney 2,115
9. local business man and lawyer 11,220
10. local attorney with oilfield connections 5,372
11. local real estate agent 2,092
12. oil company safety supervisor 4,578
13. owner of a health club 6,358
14. owner offshore catering 2,132
15. owners of an oil field service company 6,624
16. president oil field service company 2,632
17. president exploration company 3,508
18. public official 1,725
19. region manager, oil company 6,428

20. sales manager, properties 2,818
21. state official involved in coastal management 2,186
22. telephone interview former owner of oilfield service 432
23. vice president energy corporation phone interview 1,722

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 **Royalty Management Program** 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.