

GOALS FOR TEXAS

in the Coastal Zone and the Sea

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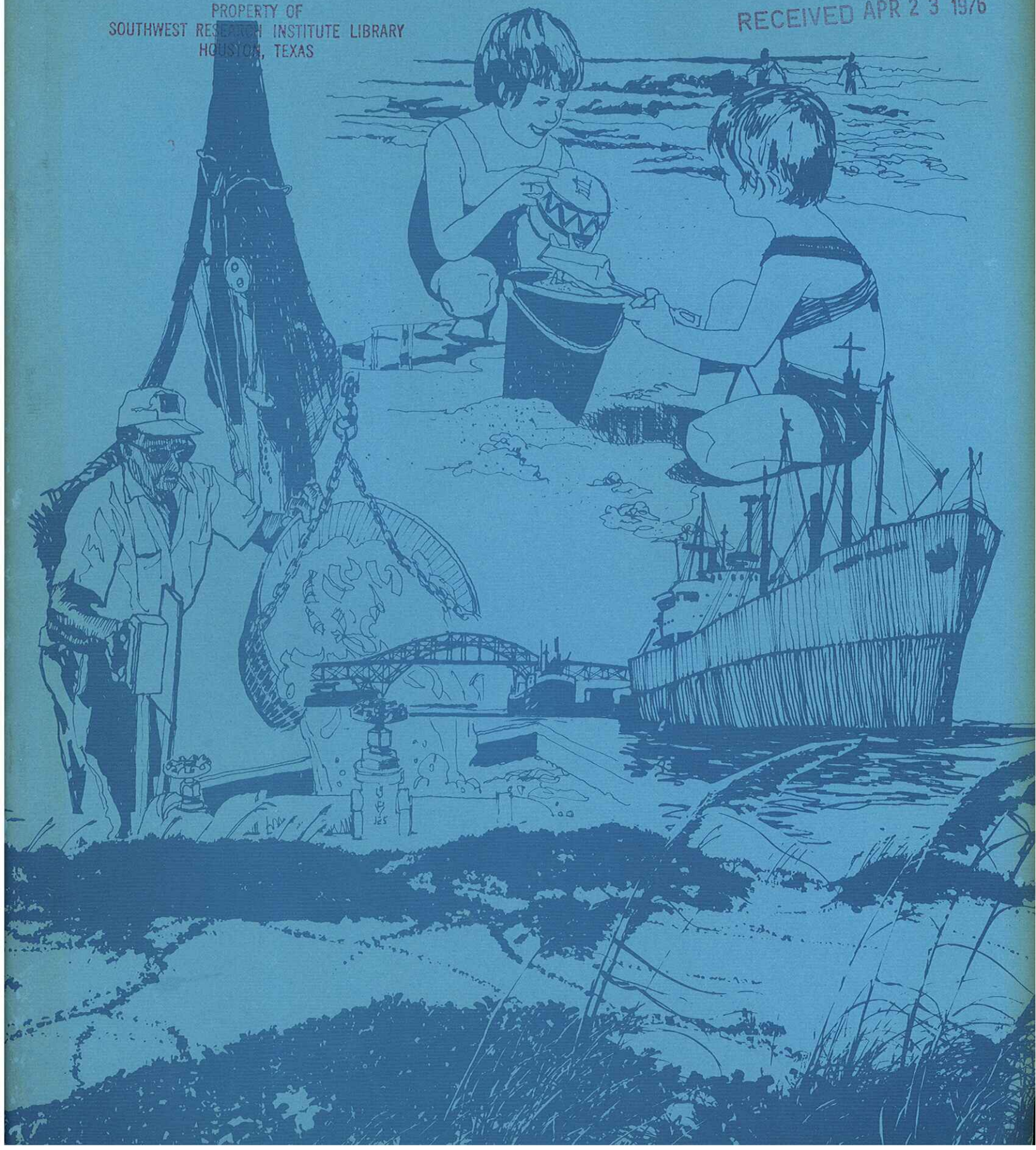


TABLE OF CONTENTS

Letter of Transmittal	iii
Introduction	1
Conference Findings: Texas' Interests and Goals	3
Recommendations and Conclusions	6
Review of the Conference	8
Appendix: Conference Participants	16

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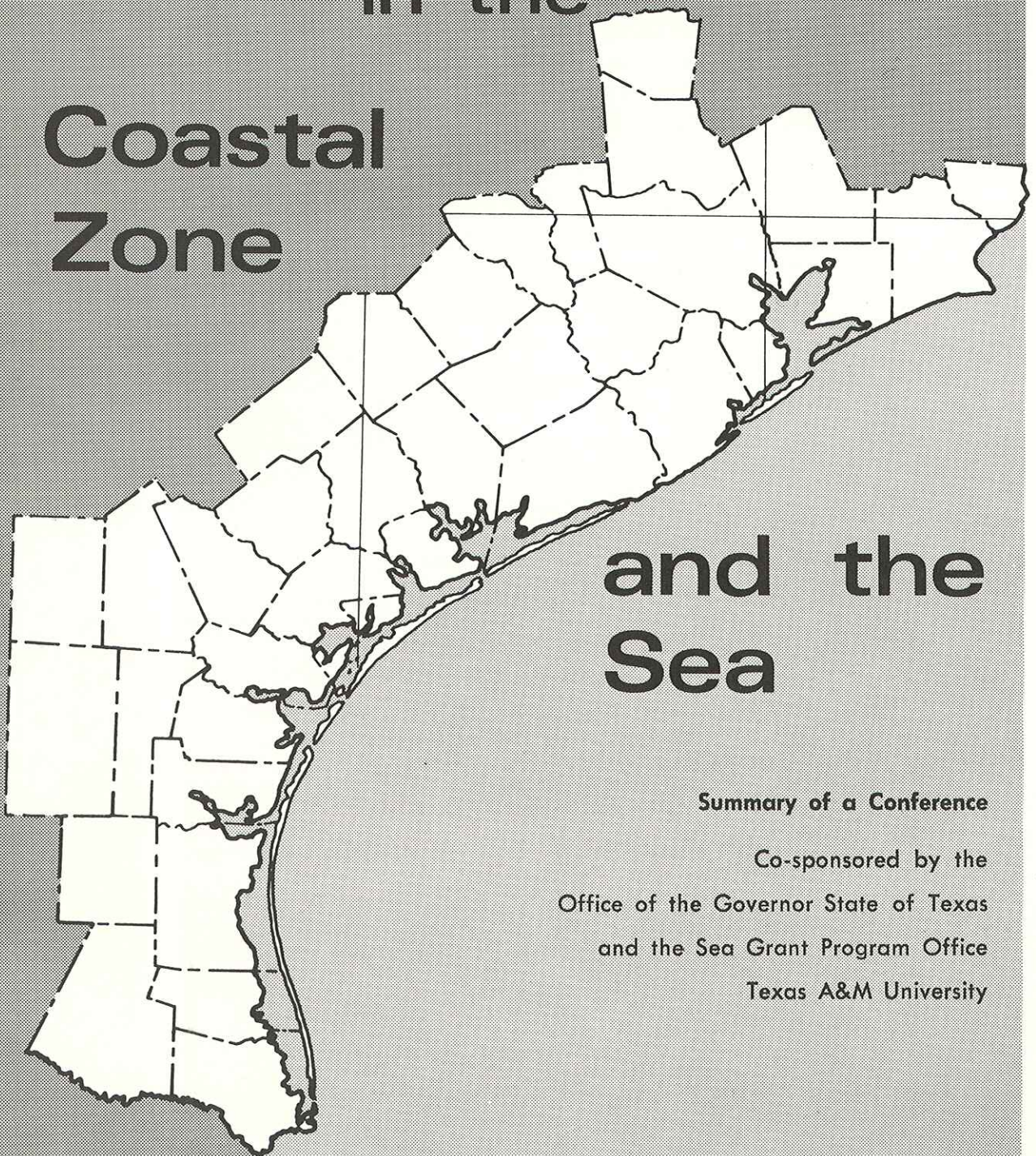
Opposite: The state's coastal zone, as defined by the Coastal Resources Management Program, includes 36 coastal and inland counties and submerged lands out 10.35 miles in the Gulf of Mexico.

GOALS FOR TEXAS

in the

**Coastal
Zone**

**and the
Sea**



Summary of a Conference

Co-sponsored by the
Office of the Governor State of Texas
and the Sea Grant Program Office
Texas A&M University

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1970 Committee Meeting Dates

April 27 (Austin)
May 11 (Austin)
May 25 (Houston)

July 16 (Austin)
August 31 (Houston)
September 11 (Houston)

October 8 (Austin)
November 25 (Austin)



January 1971

Dear Governor Smith:

It is with pleasure that we transmit to you this report, "Goals for Texas in the Coastal Zone and the Sea," prepared by your Advisory Committee on Marine Resources. The report is based on personal experience of committee members, presentations made at the Conference in Houston, September 10 and 11, 1970, and background information assembled through the Sea Grant Program Office at Texas A&M University. We believe that the report reflects the best thinking of hundreds of key leaders in the State of Texas on coastal and marine affairs.

The Committee emphasizes the opportunities in the marine field that are among the most pressing and important topics to be considered by the State of Texas. The State now has momentum for considering coastal and marine opportunities and it is important that this momentum continue. We wish to stress the importance of a citizens' advisory group to continue the work that has begun.

This has been an exciting assignment and the committee members join me in the appreciation for having had an opportunity to serve in this effort. It is our hope that specific action programs will follow.

Respectfully submitted,

A handwritten signature in dark ink, reading "Dan S. Petty". The signature is stylized with a large, sweeping "D" and a long, horizontal stroke extending to the right.

DAN S. PETTY
Chairman, Governor's Advisory
Committee on Marine Resources

The Honorable Preston Smith
Governor of Texas
Austin, Texas

"Recognizing the importance of wisely utilizing and conserving the resources of the ocean, I have announced my intention to make Texas the leading state in coastal and marine affairs."

—Governor Preston Smith



Introduction

Texas entered the decade of the 70's with a firm intention to lead the nation in marine resource development. In state government, both the executive and legislative branches launched broad programs to explore the many aspects of the state's involvement in the coastal region and its abundant resources. Legislative study committees carried out a series of hearings involving an unprecedented number of witnesses knowledgeable in the problems and programs in the state's 33,290 square mile coastal inland strip and the adjacent state-owned submerged lands out to the 10.35-mile limit. The Office of the Governor began a Coastal Resources Management Program to formulate detailed plans for effective use of the coastal zone. A concerted effort to coordinate research, education and advisory services in the state's marine resources development entered its second year under the auspices of the national Sea Grant Program. And, for the first time in Texas' history, a major conference for state coastal zone development was called by the Governor.

Early in the year, Governor Preston Smith named a 20-man advisory committee to plan the state's first major marine resource conference, to be co-sponsored by the Office of the Governor and the Texas A&M University Sea Grant Program. He charged the Committee with the responsibility to plan and organize the program content of the conference, identify participants, and summarize its results. In his letter to the Committee, the Governor said, "Recognizing the importance of wisely utilizing and conserving the resources of the ocean, I have announced my intention to make Texas the leading state in coastal and marine affairs."

At the organizational meeting on April 27, 1970, the Governor named Dan S. Petty, Division of Planning Coordination, Office of the Governor, Chairman of the group. The goal of the conference, as outlined by the Committee, was "to define Texas' interests, responsibilities, and problems in the coastal and marine resources field and to recommend goals and possible action programs."

Working with the Texas A&M University Sea Grant Program, the Committee made plans for the two-day conference which was held in Houston September 10-11, 1970. The Committee sought to de-

velop a conference which would bring together conservationists, industrialists, academicians, and representatives from all levels of government. The conference was appropriately named "Goals for Texas in the Coastal Zone and the Sea."

While the committee worked to plan a program which would serve as a common forum to exchange ideas and to recommend actions for improvement, a series of small, single-purpose workshops were being conducted by the Sea Grant Program with specific user groups. These workshops provided useful background data for the committee and the conference participants. In six workshops, more than 250 persons were involved in formulating possible research needs and in assessing governmental mechanisms for coordinating and simplifying work in the coastal zone. Workshop summaries and study reports were combined in a comprehensive review of the state's marine community. Topics covered in the "Texas Marine Resources" series included marine-related industries, educational programs, recreation and tourism, law and administration, ports and waterways, fisheries and seafood processing, and an overview of coastal activities.

The Advisory Committee met five times to plan the details of the Conference. Five broad topics were to form the nucleus of the meeting—coastal zone development; natural resources—fisheries; natural resources—minerals; science, engineering, education; and coastal zone management. Keynote speakers and panel discussion participants were chosen for each session. One plenary session and two luncheon sessions were organized with Governor Smith serving as the featured speaker for the first day's luncheon. A copy of the program and a list of participants are contained in the appendix to this report.

Personal letters of invitation to attend the conference were extended by the Governor. The letter pointed out, "Our state government must provide the leadership and coordination necessary for the orderly development and conservation of the resources of the coastal and marine environment."

When the meeting convened in Houston, September 10-11, 1970, 317 persons were in attendance, including one U.S. Congressman and 17 members of the State Legislature.



Conference Findings: Texas Interests and Goals

There were no formal votes taken or resolutions passed at the Conference. Nevertheless, certain themes appeared again and again and these viewpoints represent a consensus. From among the background materials supplied, the comments made by the speakers and views expressed by discussants, the Committee has identified the following as the major findings of the Conference. These findings are interrelated and in some instances may appear to overlap. The Committee, however, believes that each represents a point of view worthy of separate identification.

(1) The coastal zone is a valuable asset and perhaps one of the most valuable of the State of Texas.

A rapidly growing industrial complex finds the coastal zone ideal for its diverse activities. These activities create an economic nucleus for the thriving coastal region. In the Houston-Galveston area alone, almost 500 industries manufacture goods and provide services which are dependent upon a close association with the sea. Oil companies have extended their search for oil to the State's submerged lands.

Located along the 470-mile Texas coastline are 11 major deep-water ports which handle about one-seventh of the total U.S. port tonnage. The estimated value of cargo to be handled at Texas deep-draft ports in 1970 is \$1.4 billion. Shallowdraft ports are expected to handle approximately another \$150 million in cargo. Few Texans realize that their State accounts for an important portion of the United States fishery output. Texas landings comprise 34 percent of the total landings of the shrimp in the states bordering the Gulf of Mexico. In 1969, more than 4,000 com-

mercial fishermen landed 147 million pounds of finfish and shellfish valued at approximately \$50 million at dockside. Fishery processing and distribution firms account for another \$150 million in direct sales. Extensive beaches, an unusual configuration of bays, estuaries, and islands, a climate favorable to leisure use, and attractive fishing contribute to an increased coastal role in recreation. Expenditures for recreation are in the neighborhood of \$200 million annually, and recreational demand is increasing at a greater rate than the population growth.

A total evaluation of coastal assets has not been made and, therefore, an immediate goal for the State should be to undertake a full and complete evaluation of its coastal and marine resources.

(2) The importance of Texas as a maritime state is not well understood by most people.

Certain critical aspects of the coastal resource are just coming to be recognized and understood by the experts so it is not surprising that the general public does not appreciate the nature of coastal resources. The need for public awareness about the coastal region, its magnitude, its resources and the segments of the economy which depend upon these resources extends to the entire State. Young people are seeking guidance in order to decide whether or not they should enter the marine field and they have difficulty obtaining a true picture of its potential. The summary view of the Conference is that the public needs to know more about everything going on with respect to the coastal zone, its problems, its opportunities and its importance to the State.

A definite goal for Texas should be to improve the public's awareness and understanding of the State's activities and potentials related to the coastal zone and the sea.

(3) It is generally agreed that our coastal zone is being developed, needs to be developed, and that it will continue to be developed.

It is the consensus that interest in the coast is increasing rapidly. The cautionary words heard again and again, however, are that this development should be for **all** the people of Texas and under some form of control and regulation. The coast of Texas is important to the nation's energy demands and to marine transportation. Shore access is needed by many industries for many reasons. The trend is toward increased competition for the use of air, water, and land in the coastal region. The growing lure of the sea, the advancing industrial, commercial and residential growth, recreational demands and the migrating population into the coastal region all generate pressures which bear upon the need for action in the coastal region. These trends taken together make it necessary that Texas give immediate attention to the developmental needs of this important area. There is general belief that the burgeoning coastal population is putting pressure on orderly development.

A specific goal should be the orderly and balanced development of the coastal resources on behalf of all the citizens of Texas.

(4) The coastal region's delicate environment is being degraded and it must be protected if it is to be enjoyed and if Texans are to realize the

fullest benefit from our coastal and marine resources.

A policy of sensible and protective concern for the environment is mandatory. Emphasis on environmental factors seems to focus upon the estuaries, bays and marine waters and the importance of these waters for maintaining an ocean fish population and for providing recreation to the coastal user. Experts indicate that 70 percent of the Gulf fish population is spawned on the Texas coast. Just as man is attracted to the land side of the coastal region, so marine life is attracted to the seaward side.

A goal for Texas must be to attain full understanding of the coastal marine environment and to initiate or to adapt procedures which will maintain or enhance the quality of this environment.

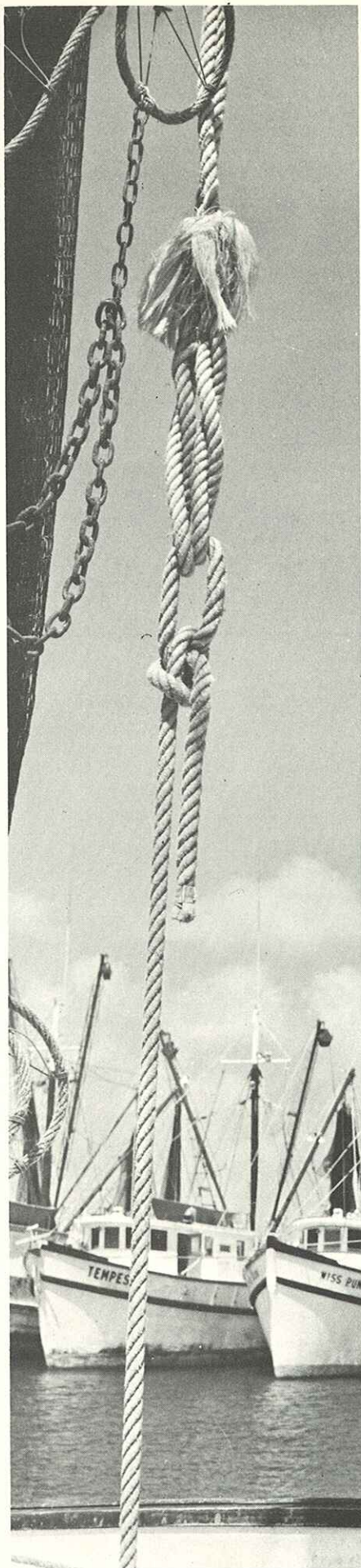
(5) It is possible to have coastal development and environmental quality.

The consensus is that we do not face an either/or situation. Industrialists and others expressed a conviction that we can have continued economic development and maintain an acceptable natural environment while doing so. To achieve development, however, while still protecting the environment, will be both difficult and costly.

An overall goal for Texas should be an orderly development for optimum multiple use of coastal resources as well as protection and conservation of these resources and their beauties.

(6) The present structure of State laws, regulations and governmental management for the coastal region is not adequate.

There is general agreement that marine resource users have difficulty identifying appropriate State agencies with which to deal, that there are overlapping jurisdictions and that there are many gaps in the management structure. Definitions of coastal zone boundaries are needed. There is need for the development of a favorable overall climate that will not only encourage private investment, but also insure optimum use while maintaining environmental quality. Commensurate with this general consensus on the lack of a management system or an ordered set of laws and regulations, there is a diversity of opinion as to how the



matter should be tackled. The finding of the Conference is that things are not right the way they are, but there is no clear set of procedures and regulations that everyone is willing to adopt to correct the situation.

A specific goal should be the continued review of laws, regulations and management structures for the coastal region in order that improvements can be made in a timely and effective manner.

(7) The appropriate focus for action and management with respect to the coastal zone is at the State, regional and local levels.

Both federal and state governments must work toward the orderly development of coastal areas while assuring maintenance of an environment whose quality standards are consistent with public needs—both current and future. It is clear that the primary governmental role rests with the State of Texas and its political subdivisions. The federal role is one of assisting the State of Texas but the State must take the responsibility to develop and maintain a planning and coordinating capability for promoting the orderly balanced development of coastal and inland counties. A new focus in state government is needed to coordinate activities, represent the interests of the state, and assure the implementation of effective programs in this valuable region.

A Texas goal should be the creation of a new structure in the State offices to provide for comprehensive consideration of the State's interests in the coastal zone.

(8) Facts and objective analyses of our current situation and of the future potential in the coastal zone with respect to the coastal zone, its development and its protection, are needed.

The coastal zone is a region with many interfaces and is most amenable to a multidisciplinary and multi-institutional approach. The solutions to problems will require a broad approach backed up by improved data gathering; improved coordination of data gathering; an analysis of the data needs which require a gathering system; the improvement of facilities for data gathering; analysis and special studies and a broader use of both science and technology for management purposes. Governmental agencies, universities and industry

should participate jointly in meeting these data and analysis needs.

A goal should be the provision for adequate programs to provide facts and analyses of the many sets of data generated from work in the State's coastal zone.

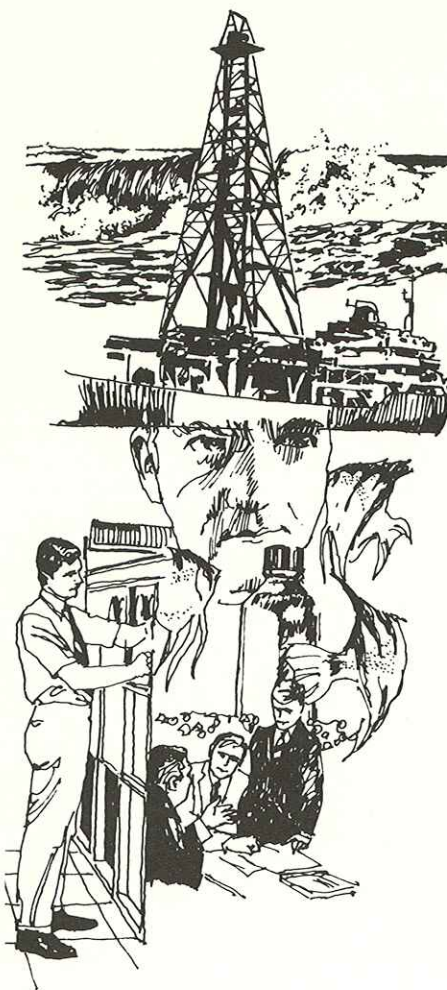
(9) Dynamic state leadership is needed for the coastal region and its resources.

At the federal level there is a large amount of activity directed toward the coastal zone. A new agency, known as the National Oceanic and Atmospheric Agency, has come into being. The Sea Grant College Program and other federal programs are growing rapidly. The Environmental Protection Agency has been created by the federal government. Legislation before Congress deals with coastal zone management and coastal zone laboratories. Interested coastal states have formed the Coastal States Organization for discussion and action on common coastal problems. Texas has shown leadership through the moratorium on sale of submerged lands, the Coastal Resources Management Program of the Natural Resources Council in the Governor's Office, the legislative study of beach areas and the House Interim Committee on Oceanography. State leadership must be more comprehensive and definitive, however, if Texas is to maintain progress commensurate with that at the federal level and in other states.

The State's goal should be to assume a leadership position within the State and among the coastal states for planning and organizing to achieve the best use of coastal resources and for reaching the most favorable relationships with the federal government and with other coastal states.

(10) Among the marine resource industries, the fishing sector is in need of State governmental concern and stimulation.

The fishing industry finds itself faced with strong institutional barriers, with competition on the high seas from other states and nations, with poor coordination of legal regulations among states, and with inadequate use of technology. There is a consensus that the fishing industry does not have the internal capability to develop and grow. Strong recommendations come from many in the fishing and



seafood processing industries for the State to mount a program that will sustain these industries through the current transition period. In the minds of some, this includes the creation of institutions to stimulate research and technological advances for the benefit of the fishing industry.

In view of the importance of the fishing industry to the State of Texas, a goal should be the adoption of a state program to assist the industry in overcoming current institutional and regulatory barriers and to infuse new technological advances into the industry.

(11) Users of the coastal zone should have a voice in the establishment of regulations and procedures that apply to the coastal zone.

Interests represented in the coastal zone cover an exceedingly wide spectrum, so the establishment of viable procedures and regulations is not a simple matter. Although general guidelines might come from the national level and focused management from the State level, local interests and groups should be in a position to exercise a strong voice in the decision-making process for coastal matters. In some instances, such as with port authorities, there may be no single state voice to speak for the group at the state level. The general consensus is that the procedures for establishing regulations and developmental guidelines should include opportunities for public hearings so that all interested groups may make their positions known.

A goal for Texas should be the creation of decision-making procedures with respect to coastal zone problems which will enable users in the coastal zone to express their opinions before decisions are made and to have their views known in a public forum.

(12) Texas has many capabilities to develop its coastal zone opportunities.

Federal units such as the NASA Manned Spacecraft Center and the National Marine Fisheries Service Laboratory are located in the Texas Coastal zone. Public institutions of Texas also have marine resources capabilities. The University of Texas at Austin has recently announced a \$3 million expansion program for its Marine Science Institute at Port Aransas. The University of Houston has begun work on coastal laboratory facilities at Camp Wallace. Texas A&M University has begun construction of a multi-million-dollar Moody Marine Institute, located on the University's Mitchell Campus, Pelican Island. Several state agencies have laboratories and facilities in the coastal region. Industries of Texas have both research and operating units familiar with offshore and coastal environments.

The State's goal should be to take advantage of existing Texas institutions — educational, governmental and industrial—in order to avoid duplication of facilities or efforts and to meet the challenge of coastal zone opportunities with minimum delay.

Recommendations and Conclusions

The Committee has considered the Conference findings and suggests a course of action for the State.

Authority for the Coastal Zone.

The Committee is convinced that the State's goals, responsibilities and problems in the coastal zone and the sea require creation of a new governmental entity. It is the collective judgment of the Committee that the existing structure of state government is inadequate to achieve the State's goals, meet its responsibilities, and solve its problems. The Committee, therefore, recommends the creation of a new state authority to deal with state interests and goals in the coastal region.

The new authority should have responsibility and authority to:

(a) carry out or commission research programs, including generation, analysis and dissemination of data;

(b) plan for development of, use of, and protection of the coastal zone;

(c) coordinate the efforts of the various State and local agencies whose mission involves the coastal zone;

(d) provide a state focus for coordinating activities with federal agencies and other states;

(e) recommend guidelines for matters of State concern, as distinguished from local concern, to be applied by the authority until specific direction is given by the Legislature;

(f) review proposals from other State, federal and local agencies that deal with the coastal zone environment, coastal zone resources, and coastal zone management;

(g) represent and implement the

interest of the state in the coastal zone;

(h) determine the primary interest of the state in any conflicts among uses of the coastal zone.

The activities of the authority will be focused in the coastal zone and will represent the entire spectrum of the State's interest. Readjustment of lines of authority and spheres of influence will undoubtedly require study by the Attorney General.

The authority for the coastal zone should be funded by the state at a level appropriate to carry out the responsibilities and activities cited here and should be staffed by professional personnel knowledgeable in marine resource activities.

Finally, an *ad hoc* task force should be created to detail and describe the functions of the recommended authority and to specify how it would interact with other agencies having interests in the coastal zone.

Interim Steps.

Until such a new agency is established, the State's momentum in the consideration of coastal zone problems should be maintained and accelerated. In order to sustain this momentum, it is recommended that the Governor:

(a) Appoint an Interim Commission on Marine Resources, made up of private citizens to continue the work of this Advisory Committee and supply an interim focus for State action;

(b) Take all appropriate actions within the powers of his Office to bring about coordination and consultations with all varied interests in preserving, protecting, and developing the coastal region of Texas;

(c) Continue the Coastal Resources Management Program with all due speed and take steps to in-

volve the maximum numbers of citizens of the State in this Program;

(d) Proceed to establish the Environmental Defense Fund as outlined by the Governor at the Conference on Goals for Texas in the Coastal Zone and the Sea;

(e) Through the Interagency Natural Resources Council, develop a clarification of State agency roles and responsibilities with respect to the coastal region;

(f) Take steps to increase public ownership of the Texas coastline, particularly the barrier islands;

(g) Provide for a study of existing laws and regulations which apply to the Coastal Zone through the Coastal Resources Management Program;

(h) Give appropriate recognition to policy positions concerning coastal and environmental matters as enunciated by the National Governor's Conference and the National Legislative Conference.

Public Awareness.

Every opportunity should be taken to improve public awareness of the State's coastal resources and their potential for the State. The Committee recommends to the Governor that:

(a) State educational appropriations be allocated wherever possible for the purpose of increasing this awareness;

(b) State agencies involved in coastal zone activities increase their programs which contribute to the dissemination of information about the coastal region, its problems and its potential;

(c) State support be given to the establishment of a Sea Grant College in Texas under the Sea Grant College and Program Act of 1966.

Research Support.

Analyses and research must proceed on the nature of the coastal envi-



ronment, the alternatives available for development, and the factors which are critical in decision making processes. Data are in short supply and too often opinions and emotions substitute for objective analysis. The Committee recommends to the Governor an increase in State effort to overcome these deficiencies. Specifically, we suggest that the Governor:

(a) Recommend adequate appropriations to the State Legislature for those State agencies and public universities engaged in coastal zone studies, analysis and data collection for the purpose of increasing the State level of effort in the fields;

(b) Recommend the allocation of State appropriations for matching funds to permit agencies or public universities of the State to capture available federal funds wherein

matching is required for marine studies and research;

(c) Initiate through the Interagency Natural Resources Council an analysis of critical data needs in the coastal region and of critical research studies and questions needed in order that State agency responsibilities can be discharged more adequately.

Intergovernmental Affairs.

The State must maintain an awareness of and a familiarity with federal programs and proposed Congressional action related to marine resources, and avail itself of any effective measures used by other states for dealing with marine resource opportunities. Therefore, the Governor's office, the Interagency Natural Resources Council, or appropriate state agencies should:

(a) Examine the pending legislation by Congress for coastal zone

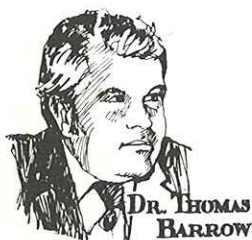
management and coastal zone laboratories and develop positions for the State of Texas with respect to the terms of this legislation;

(b) Become active in the Coastal States Organization and utilize the communication opportunities through the Organization to establish working relationships with other maritime states;

(c) Develop working relationships with the new National Oceanic and Atmospheric Agency, particularly with respect to the new units;

(d) Develop working relationships with the new Environmental Quality Council and the new Environmental Protection Agency so that the State will be aware of and can use effectively the studies and programs of these groups as, for example, the study on Ocean Dumping recently released by the Environmental Quality Council.

Review of the Conference



General Chairmen for the Conference were Dr. Thomas D. Barrow, president of Humble Oil and Refining Company, and Dr. John C. Calhoun, Jr., Vice President for Programs, Texas A&M University. More than 300 persons, primarily from Texas, attended.

FEATURED SPEAKERS

Governor Preston Smith headed a list of distinguished conference speakers including Dr. Chas. F. Jones, vice chairman of the board of Humble Oil and Refining Company; Robert B. Abel, director of the National Sea Grant Program; and Leon Jaworski, president-elect of the American Bar Association.

In a luncheon address, Governor Smith spoke of the State's involvement in an environmental analysis of coastal resources development and problems, using the coastal zone as a laboratory for developing techniques, methods, and inter-governmental relationships.

Specifically Governor Smith indicated that he would propose an Environmental Defense Fund to the 62nd Legislature which convenes in 1971.

"As we see it," he said, "this fund would pay the expenses of oil spill and other environmental clean-up activities only when the source of the spill cannot be determined." Governor Smith also charged the Conference Advisory Committee to "develop and recommend a workable program of action to implement the goals for Texas in the coastal zone and the sea."

Four major principles to guide the future management and development of the Texas land-sea interface were recommended by Dr. Jones.

The principles he outlined are:

- ▶ A framework which encourages private investment to continue development of resources.
- ▶ A governmental atmosphere emphasizing proper use of the coastal zones as encouraged by proper regulation.
- ▶ Optimum multiple use of the coastal zones.
- ▶ Protection of the natural environment.

Noting growing concern in several states about the manner in which coastal zones are governed, he stated that "the respective coastal states should be the focal points for managing coastal zones activities."

He proposed that a regional or "water-shed" approach rather than a national master plan be used but he also recognized the need to review state plans at the national level.

The history and major accomplishments of the National Sea Grant Program were reviewed by Mr. Abel.

The National Sea Grant Program was created by Congress in 1966. Two years later the first Sea Grant awards were made. By September 1970, 77 institutions, governmental agencies, and industries have been supported by the program in 27 states, including the Virgin Islands and the District of Columbia. Sea Grant funding for fiscal years 1968-70 was more than \$20 million. Because the funds for programs and projects are matched with state or institutional funds, Sea Grant is oriented toward the solution of local problems. Its services are practical and its approach is often innovative.

Mr. Abel explained that the Sea Grant Program has three important thrusts—education, research, and advisory services. He pointed out that the Sea Grant Program in Texas is the second largest in the nation.

Mr. Jaworski, luncheon speaker for the second day of the conference, told of state and local involvement in the coastal zone. "Any administrative machinery which may be established to deal with coastal affairs must be able to work with interrelated environments such as river basins, bays, lagoons, estuaries and open sea," he said.

He pointed out some of the legal problems centered in the State's coastal area including boundary problems, beach access, navigation fairways, port facilities, and pollution.

"A detailed study should be made to determine exactly which state agencies have coastal zone jurisdiction, their source of legislative or constitutional authority, and their activities and functions," he said.

He emphasized that reorganization of state agencies should not be undertaken until such a study has been completed.

Although each keynote speaker presented views in his own way, some common elements can be noted.

Broad Goals.

Coastal resources should be developed but environmental protection measures must also be taken. As Governor Smith expressed it, an overall goal should be "an orderly development of coastal resources as well as protection and conservation of these resources and their beauties." Dr. Jones' view was that we can have continued economic development with attendant prosperity and individual well-being and maintain an acceptable natural environment while doing so. Mr. Abel expressed the same thoughts by noting that the dividing line between a problem and an opportunity is narrow. He stated that we ought to place our emphasis upon the opportunities to enhance the coastal region, citing estuarine rehabilitation as an example. Mr. Jaworski remarked that the coastal environment is "highly diversified and complicated, and frequently is affected by events in areas far removed from the coastline." He pointed out that harmful substances dumped into a river 300 miles inland can have adverse effects upon the estuary into which the river empties.

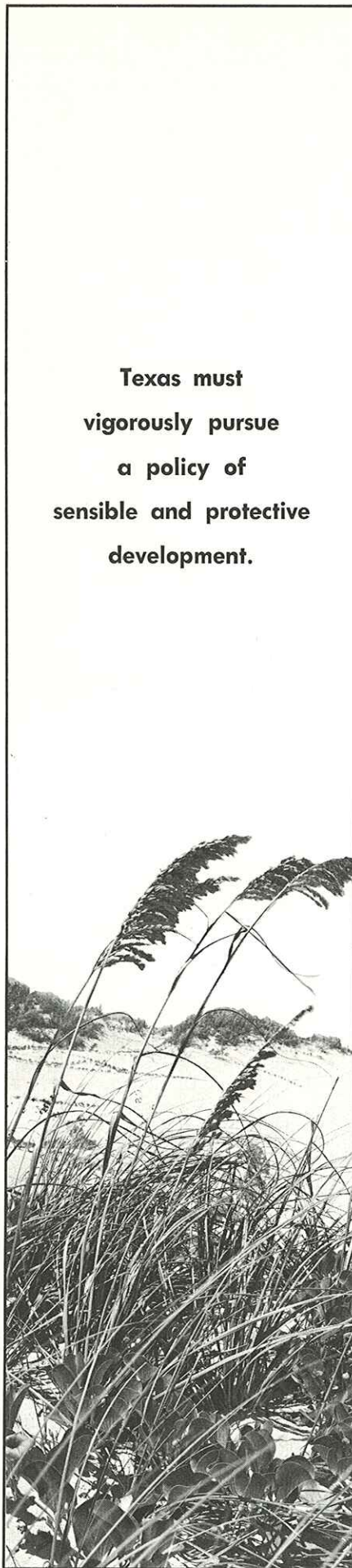
Coastal Trends.

There was general agreement that interest in the coast was accelerating and that development was inevitable. Coastal assets mean ultimate and inescapable development along industrial and developmental lines. The importance of the coast to Texas, particularly to the nation's energy demands was also noted. Industry needs shore access to the coastal zone and its waters for many reasons.

The Coastal Zone Environment.

"We must vigorously pursue a policy of sensible and protective development," Governor Smith told the group. His remarks were reiterated by all speakers. He pointed out that 70 percent of the Gulf fish population is spawned on the Texas coast. In Dr. Jones' words, "there are no problems in the coastal zone of greater importance than those of

**Texas must
vigorously pursue
a policy of
sensible and protective
development.**



the estuaries, bays and marine waters." All speakers recognized the importance of the coastal zone as an environment to be enjoyed and protected.

A State Problem.

The speakers were agreed that the appropriate focus for action and management is at the state level rather than at the federal level. Certain steps need to be taken before firm plans are developed.

THE PANEL SESSIONS

Five panel sessions were conducted to cover the broad topics of Coastal Zone Development; Natural Resources—Fisheries; Natural Resources—Minerals; Science, Engineering, Education; and Coastal Zone Management.

In each session, keynote speakers presented concepts, problems and possible steps to be taken for the resolution of conflicts. Panelists then responded to their ideas. Session chairmen, keynoters and panelists are listed in the appendix to this report. The following summaries were compiled by the Session Chairmen for inclusion here.

COASTAL ZONE DEVELOPMENT (M. Harvey Weil, Chairman)

Panelists painted a picture of conflict and confusion in the state's coastal zone. They pointed out that the coastal zone boundary between continental and marine environments is the locus of very rapid environmental change. The population of the coastal zone is growing rapidly and industry continues to concentrate here. The resultant concentration of people and industry will accentuate the problems of waste disposal and intensify competition for land and water use. Conflicts between users will continue to increase in number and severity. Users with grievances will turn to state and federal agencies and to the courts for redress.

As expressed by one speaker, "The 1970's will constitute a 'new ball game' for coastal development. Developers must recognize and respect the very real constraints of the environment and society's new standards for environmental quality." Another said, "An appropriate balance between purely economic considerations (including resource use and physical output) and considerations of impact on environment needs to be considered and worked out."

The advantage of deep water transportation and proximity to developing nations and markets is a major one. Panelists agreed that high priority should be given to ways and means of developing a higher participation rate in international trade by business and industry. The need for adequate accommodations for larger ships putting into Texas ports was also presented. None of the existing ports can accommodate tankers having a capacity greater than 80,000 tons, and yet, within fifteen years, it is expected that the majority of the world's bulk cargo will be transported in tankers larger than 80,000 tons.

The panel also presented a plea for conservation of coastal areas. Suggestions for improvement pertained to the General Land Office, pipeline inventories, unitization of offshore oil leases, and dredging. One recommendation asked for the establishment of a State Population Office to study and control population growth of the coastal strip. Another suggestion called for state acquisition of the state's barrier islands. To achieve these ends, zoning along the whole shoreline of the state was suggested. Based on a natural resources study, zoning should determine the use priorities for coastal areas. Any plan for utilization of coastal environments should call for acquiring or setting aside without further alterations as much of the shoreline nursery areas as now remain. Strict regulations over filling and bulkheading should be included. It was pointed out that industry can live within these boundaries but that biological productivity cannot live without them.

It was the consensus of the panel that development along the state's coastal zone would continue. Panelists agreed that this area of the state presents very special environmental problems. The pressures of growing population and industrialization on the sensitive coastal environment require a new economic framework for development—a framework involving higher planning costs and more lead time, higher capital costs, and the possibility of higher operating costs. The economic system will adjust to provide for equitable distribution of these costs between developer, operator, and consumer—but not immediately and not without a difficult transition period. To accomplish the goals set out by the Governor's Advisory Committee and the con-

ference, new planning procedures on the part of private industry, new data generating programs, new analytical capabilities, new inspection, supervisory and regulatory procedures, and new legal land-use control policies on the part of state and local government must be established.

NATURAL RESOURCES—FISHERIES (John A. Mehos, Chairman)

The Fisheries Session reflected two aspects of the fishing industry of the United States. On one hand, facts and statistics were presented to support the position that the fishing industry is important to the economy of the Nation and to its future food requirements. National sales amount to \$3 billion annually and employment reaches 220,000 persons. Texas sales are \$220 million and employment exceeds 15,000.

**Texas Fishermen
land 34% of the
Gulf of Mexico's
shrimp catch
in spite of the
problems which plague
the industry.**

On the other hand, it was pointed out that world fisheries have become highly competitive and many nations such as Japan, Russia, and Norway are doing a far better job at getting the fish on the high seas than is the U.S. In addition to the obvious economic disadvantages of losing such a race, the world is also faced with imminent depletion or at least diminution of the ocean fisheries resources. It is imperative that the U.S. lead other nations in negotiating bilateral and multilateral compacts for the proper management of the resources. Furthermore, continued deterioration of our position could very well lose for our nation a very important food resource at a time when food may be critical for survival. With population increasing rapidly, and with affluent nations consuming more and more protein products, the crisis may be reached sooner than some scientists predict.

A definite fisheries resource program, stronger fisheries direction and an adequate budget at the Federal level are needed if we are to compete successfully. The industry has endorsed the Stratton Commission Report and more recently the formation of the National Oceanic and Atmospheric Agency. Because these undoubtedly will lead in the direction of regional laboratories and regional zones, it is necessary that the states prepare themselves with an adequate program and budget. The State of Texas must be prepared to take a leadership position in this respect.

The fishing resource is a self-renewable one provided there is proper management. According to the Stratton Commission Report, "Fisheries remain the largest economic harvest of the ocean," and "the value of the world catch is \$10 billion, one and one-half times all other marine resources."

The State of Texas is in an excellent position to expand its fishing industry because its long coastline borders on the Gulf of Mexico, one of the most prolific bodies of water in the world. It has extensive estuarine nursery grounds and an unusually wide, shallow continental shelf providing vast trawling areas. Presently, the Gulf of Mexico is producing nearly one-third of the dollar-value of the U.S. landings, represented mainly by shrimp and menhaden. Shrimp leads all other species in dollar-value nationally, worth more than twice as much as its nearest competitor, salmon.

The potential in the Gulf of Mexico in latent fish stocks is predicted by scientists at somewhere between ten and fourteen times the current catch. Add to this the fascinating possibilities of production of additional bait fish and food fish by mariculture and there should be no doubt that the State is in an excellent position to capitalize on this potential, provided a marine resource program is developed and carried out promptly and effectively. Such a program must be designed especially to assess the size and characteristics of fish stocks in the Gulf and to develop suitable processing methods and marketing outlets.

The panel discussed many problem areas in which the State of Texas can help a very important industry regain its former status and exploit new potentials. These are outlined briefly as follows:

1. Environmental Degradation:
Competing and conflicting interests must cooperate to work out equitable uses of estuarine areas.

2. Public Education:
The public must be informed of the nutritious qualities of seafood and their proper preparation and handling.

3. Premature or misleading publication about bacterial or other contamination:
Often cases of alleged pollution of seafoods are publicized erroneously, and State assistance is needed to insure adequate study of each incident before release to the media.

4. Product development, market research and market expansion:
Ways and means to find uses and outlets for unutilized species of fish are needed.

5. Basic research and gear development:
Basic research is needed to assess the size and stocks of available species and to learn more about them for proper management. New and more efficient harvesting methods are needed.

6. Advisory Services:
Practical applications or demonstration of research and development should be brought directly to the industry through activities such as the Advisory Services work begun by the Sea Grant Program.

7. Fishery Jurisdiction:
Considerable support is needed now and in the future to direct world opinion to the adoption of a twelve-mile territorial sea for coastal nations.

8. Clarification of the "Gray" Zone:
When the United States extended its fishery jurisdiction from 9 to 12 nautical miles, nothing was said about fishing regulations within the three-mile strip. The state should call upon Congress to apply whatever state rules prevail within the nine-mile zone.

9. Compacts with Neighboring States:
The State of Texas should seek to achieve additional compacts with neighboring states such as Louisiana and Mexico for the proper conservation and management of common resources.

10. Management of the Resource:
An effective management program is required to maintain the maxi-

mum sustainable yield on a continuing basis. The program should include: regulations made on the basis of scientific and economic factors; proper enforcement of the regulations; continuing basic research to acquire the necessary data to make and enforce effective regulations; oceanographic data on the Gulf and on the atmosphere furnished on a regular basis to managers and to the fleet; maintenance of the nursery grounds quality; removal by the State of institutional barriers and restrictions not based on biological data or economic needs; and common understanding by commercial and sports fishing interests of each other and of the effective principles of resource management.

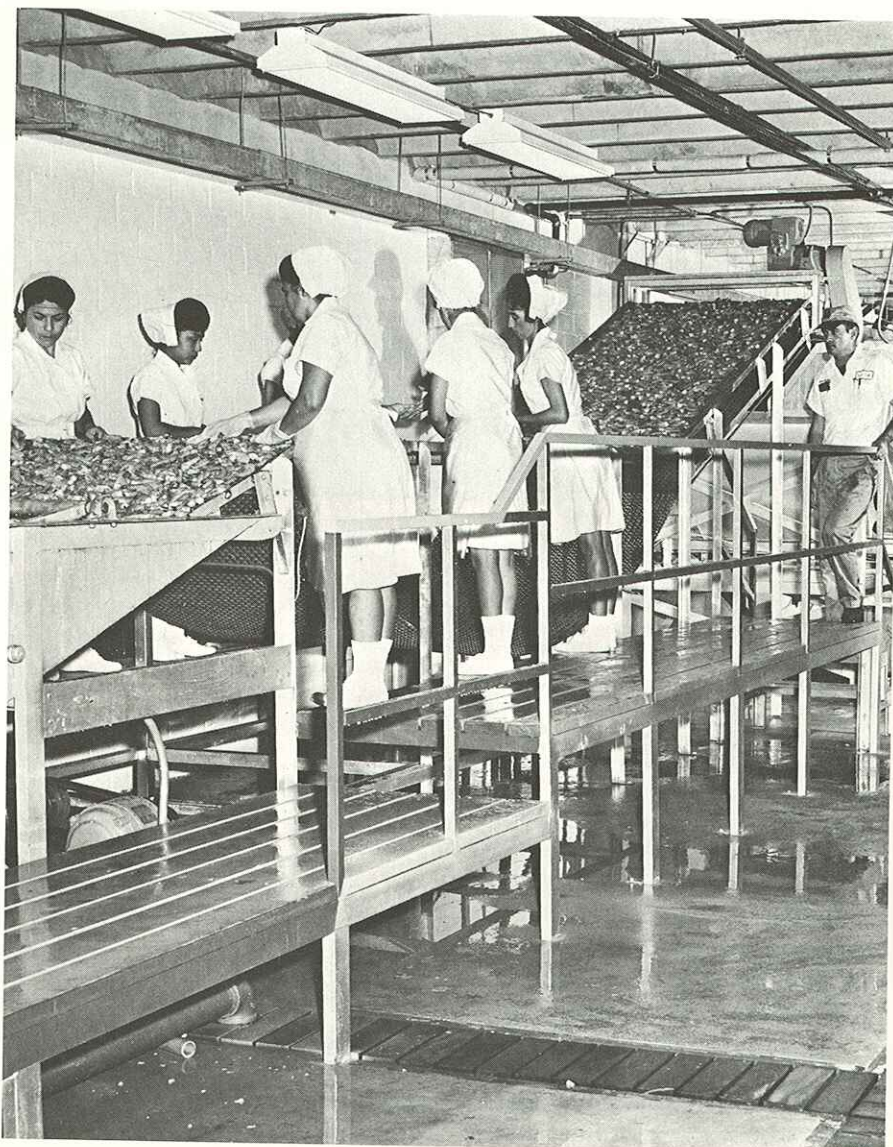
11. Insurance:
The fleet needs advisory services to help the owners understand the terms of the policies issued, help them adopt hurricane procedures, introduce safety standards and bet-

ter equipment, and offer training that will result in better performance by the fishermen and a lower accident rate.

12. Bootlegging and thievery:
There is need to strengthen the existing laws and to bring about more effective enforcement by educating law enforcement officers, state attorneys, the judiciary, and the public.

13. Manpower:
The State must help to attract people to the industry and to train them in repair and maintenance of the vessels and their equipment.

These problems areas were described in considerable detail by the panel. The fishing industry recommends that the government of our State prepare and implement as quickly as possible an effective program for the development of all marine resources, including the vast fish resources of the Gulf of Mexico.





NATURAL RESOURCES—MINERALS
(Frank B. Conselman, Chairman)

The State of Texas can further the development of the coastal zone and the sea by providing a mature, reasoned and benevolent climate for continued mineral resource production, within the framework of optimum multiple use of **all** the resources of the region, in a cooperative and responsible manner compatible with the overall public interest.

To achieve this we must establish a unity of purpose and eliminate mistrust of co-users. Communication among the various interested groups is the surest way to minimize misunderstandings. The Conference on Goals for Texas in

the Coastal Zone and the Sea marks a beginning.

The State of Texas is the proper authority to sponsor and administer the necessary cooperative arrangements for coastal and offshore use. It should establish for this purpose a specific organization of high quality, made up of prestigious representatives of all of the principal contributing sources of knowledge and experience to function as a blue-ribbon, multidisciplinary, inter-industrial and socially responsible policy-making group.

One suggestion presented by the panel was for a State organization to be charged with the following responsibilities:

- Formulation of recommendations of Texas policy on the various as-

pects of developmental activity under the American free enterprise system, the multiple-use concept, and encouragement of the enunciation of these policies for public guidance.

- Planning for each decade, extending progressively at least ten years into the future. Guidelines for harbor and coastal improvement schedules, pollution control, park and resort development, mineral lease sales, training programs, fresh water supplies, industrial zoning, and other activities should be included, allowing all other departments and commissions to become involved.

- Investigation and reconciliation of conflicts of interests where these interests overlap or become com-

petitive and cannot be adjusted by the parties concerned.

- Liaison with other states, the federal government's counterpart agencies, and international bodies.
- Public information and orientation on a factual basis.

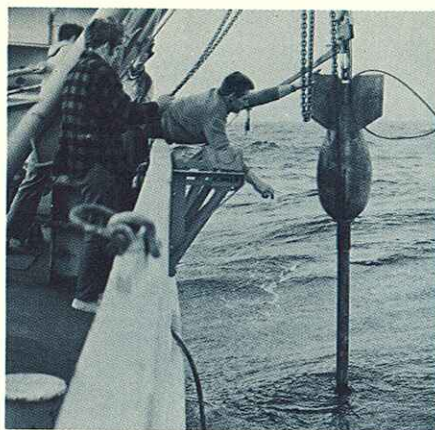
While developmental activities are being planned, their integration with the economic well-being of non-coastal Texas must not be overlooked. It would be detrimental to the State if the inland oil industry were destroyed by unlimited imports of petroleum, or if all river waters were reserved for estuarine or river-mouth use, or if other advantages were provided to the coastal zone that became disadvantages elsewhere.

It has already been established that mineral resources can be successfully, safely and economically extracted on shore under multiple-use conditions. We have operated under the multiple-use philosophy for many years, under controlled conditions that provide the public with the protection to which it is entitled. There is nothing new about the philosophy of consideration of other uses.

The lessons learned on land can be applied at sea and on the tidelands. The State of Texas can and should supply the necessary ground rules and guidelines so that the coastal development may be both economically and ecologically sound.

SCIENCE, ENGINEERING, EDUCATION (John C. Calhoun, Jr.)

If the presentation of the Panel members and keynote speakers can be summarized along any single theme, it is that there are many interfaces and that we need to learn more about each of them. The coastal zone is itself an interface with many kinds of physical boundaries—the air-sea boundary, the water-bottom boundary, the water-shore boundary. Other kinds of interfaces, however, particularly those of an institutional nature—government and industry, industry and university, government and university, and government and government were also recognized. Finally, interfaces are of the disciplinary type—the interplay between physical knowledge and social or behavioral knowledge. The problems to be solved will require a multidisciplinary approach.



There is a lack of knowledge about all of these interfaces as they relate to the marine field. The recommendations spoke specifically to the need for coupling devices, partnerships, consortia, interdisciplinary approaches, commissions, inter-agency agreements and various mechanisms which might bridge these interfaces.

A basic need for public awareness was voiced by panelists and keynoters. The public is generally poorly informed about coastal and ocean resources. The size and importance of the Texas marine region is not generally known by the people of the State. The need for public awareness covers the entire state and not just the coastal zone, however. The summary view seemed to be that the public needs to know more about everything going on with respect to the coastal zone and its problems, as well as its importance to the State. Programs or actions recommended included public TV programs and conservation education in the schools.

Another general theme discussed by the panel is the basic need for manpower. It was expressed as a need for technicians and skilled craftsmen, for refresher courses and career planning, for data analysts, and for persons oriented toward problem solving. Cooperative student programs to involve young people were suggested and the existence of such a program in an existing State agency were noted. University curricula that are not too specific were also suggested. Some recommendations spoke to the possible need for ocean engineers and on this, there were differences of opinion. One speaker recommended increased aid to state universities so that they can marshal their resources for this new frontier. Other recommendations specifically spoke to establishing trade and

technical schools and a school of naval architecture.

The need for technology and science was emphasized by the panel. Issues included data gathering, particularly the coordination of data gathering and data analysis. There was a clear recognition, however, that action needs to be based on facts. The possible duplication of facilities and methods for communicating technological and scientific knowledge were issues in the technology field. The needed level of science and technology appears to be different for different marine resources.

It was generally recognized that the State must assist in providing both scientific and technological developments for the marine field. Science and technology are needed for good management and there is a general acknowledgment that full use of technology is not now practiced.

In the broadest sense, the panel discussion considered what to do. The wide spectrum of opinions reflected two opposite viewpoints. One viewpoint, in effect, said, "Do more of the same. Do what we're doing more efficiently, at a faster rate and with more funds and resources." The other point of view seemed to say "We ought to do something different." Speakers had different views on who would take the initiative and what the "different" things might be. There did not appear to be a consensus as to whether people, knowledge, or technology was the most critical point.

The public is insufficiently aware of the marine problem to support either view. Our current vision can see no new results of a desirable nature that can be achieved without excessive costs, which the public is not willing to underwrite. We do not appear to know enough about the problem to devise special educational programs or to advise youth on what the future will hold.

Thus, we seem to be at an impasse as to how to embark on something different. It will need to be recognized in all cases that we are taking experimental steps and that funds will be needed to do so. It is in this framework that we should move ahead with specific recommendations to implement our goals. In any event, the people of the State need to know the magnitude of the problem and the magnitude of the cost involved.



COASTAL ZONE MANAGEMENT (J. Chrys Dougherty, Chairman)

The keynote speaker for this session made a number of general recommendations:

1) The individual developer should make his own choices, restrained only when his choice significantly interferes with the choice of others; he should be free to make the choice without informing a government agency; where it is desirable for the government to supervise these choices, supervision should be evenhanded; and the best level of government supervision is that closest to the people.

2) A model statute for marine resource development would establish (a) machinery for the determination of goals by an appropriate body, (b) machinery for resolving conflicts among goals, and (c) machinery for selection of those matters in which government decides to intervene.

3) The purpose of planning is to induce those who make decisions about land use to think rationally, to use existing knowledge and to follow a predetermined goal.

4) Legislation to achieve these ends must be based on a comprehensive balance sheet showing that the proposed development produces a net balance of public benefits which exceeds the cost.

5) The research on which any plan is based is always inadequate. Hence, a plan is essentially a device to prevent capricious action by the one administering the plan. Plans should require studies, indicate who should decide and state what the resulting decision will be if adequate research and tests are not conducted, and if the research and tests do not show that development meets the predetermined goals. The plan should also provide that the application must be disapproved if there is insufficient information to show whether the application should be approved or not.

6) There also must be a policy determination as to the standard that is to be applied by the administrator. The American Law Institute suggests that the standard be that the administrator must find "that the probable benefit to the general public from the proposed development exceeds the probable harm or cost to the local government and its residents from the project."



7) Determination must be made as to the level of government which is to do the regulating and the method to be used for resolving conflicts between levels of government. The Law Institute does not recommend the establishment of regions as administrative units but does envisage state agencies which can adopt regional operation. If a state planning agency is created, it should be empowered to designate areas or subject matter of critical state concern. It should do this by advance announcement, and, within this designated area or subject matter, should be empowered to supersede local regulation. The Law Institute Code requires both government and private parties to seek development applications and provides a review procedure for the party whose application is denied.

8) In addition to provision for such administrative discretion, Legislatures should, as a policy matter, spell out specific areas of state concern in which conflicting local regulation is to be superseded. At all events the agency given power to decide should be required to have a public hearing and state in writing reasons for its determination.

Commenting on the keynote suggestions, panelists emphasized that the major difficulties of solving coastal zone management problems are political rather than technical. Needed is a political arrangement that will foster responsible preservation, conservation and development. Engineers testify that resource development and environmental preservation or improvement are compatible. The paramount need is for a clear sense of

goals and objectives, followed by appropriate actions to achieve the common purpose. Unified action is more readily achieved through a shared sense of purpose than by organizational tinkering. Long range planning and regulation are essential in the face of constant change to provide both for industrial development and for environmental protection and improvement.

The problems created by the maze of laws, international, federal, state, county, city, and special taxing district were also cited. One panelist said that industry would generally approve of the creation of a state planning agency, with general power to conduct research, and to adopt plans and coordinate the activities of present departments and agencies within guidelines established by the Legislature, with the state agency having last resort authority to override local regulation in the state interest as to present and future use of lands and waters in the coastal zone.

The advantages of such an agency would be (1) to create a buffer between state and local government and between state and federal authority, (2) to minimize interagency and intergovernmental conflict, (3) to minimize present hysteria over threats to the environment, and (4) to minimize conflicts between public and private interests.

Real estate development interests are concerned with trying to produce—despite governmental regulations of all kinds—a saleable real estate product at a profit which will enable the developer to stay in business. The developers would

welcome a properly administered master plan which could and would be respected by every one. Five requisites of such a plan are:

1) Development of coastal natural resources through free enterprise operating under standardized, realistic guidelines assuring responsible development;

2) Implementation of the plan handled by the local government closest to the problem;

3) Responsiveness of the plan to the changing demand of the area;

4) Acquisition and operation of ample recreational lands and wildlife preserves by the government;

5) Representation of the regulatory agency, if any, from the private as well as the public sector.

Multiple uses must be provided for in the coastal zone. Good development, meeting a **bona fide** need in a responsible manner is progress, not pollution. Developers fear another level of government with more required permits, particularly when 50 percent of present developers' costs go for governmental approvals of various kinds. Local government is close to problems, but a statewide agency is better able to design criteria, which can be enforced by local government. Minimum construction standards, air and water quality, disposal of solid waste, adequacy of all forms of transportation are proper functions of an overall master plan and can best be done on a state level. In this way, solution of conflicts can best be achieved and the desired protection assured.



APPENDIX: Conference Participants

PLENARY SESSION—Thursday, September 10

Conference Co-Chairman DR. JOHN C. CALHOUN, JR.
Vice President for Programs
Texas A&M University
College Station, Texas

Speakers DR. CHAS. F. JONES
Vice Chairman of the Board
Humble Oil & Refining Company
Houston, Texas

MR. ROBERT B. ABEL
Director
National Sea Grant Program
Washington, D. C.

SESSION I—Coastal Zone Development

Chairman MR. M. HARVEY WEIL
Attorney at Law
Kleberg, Mobley, Lockett & Weil
Corpus Christi, Texas

Keynote Speakers DR. RALPH T. GREEN
Vice President
Federal Reserve Bank of Dallas
Dallas, Texas

DR. PETER T. FLAWN
Director, Division of
Natural Resources and Environment
University of Texas
Austin, Texas

Panelists MR. EDWARD H. HARTE
President and Publisher
Caller Times Publishing Company
Corpus Christi, Texas

MR. OLIVER OSBORN
Director
Contract Research Dept., Texas Division
Dow Chemical Company
Freeport, Texas

MR. R. O. WILSON
Vice President
Brown & Root, Inc.
Houston, Texas

MR. JAMES R. STANLEY
President
South Padre Investment Corporation
Houston, Texas

MR. CECIL REID
Executive Secretary
Sportsmen's Clubs of Texas, Inc.
Austin, Texas

LUNCHEON SESSION

THE HONORABLE PRESTON SMITH
Governor of Texas

SESSION II—Natural Resources-Fisheries

Chairman JOHN A. MEHOS
Vice President
Liberty Corporation
Galveston, Texas

Keynote Speaker DR. ALBERT K. SPARKS
Director, Bureau of Commercial Fisheries
Biological Laboratory
Galveston, Texas

Panel Chmn. MR. LIONEL HODGSON
Vice President and Manager
National Shrimp Processors Association
Brownsville, Texas

Panelists MR. OSCAR M. LONGNECKER
Executive Secretary
Texas Shrimp Association
Brownsville, Texas

MR. E. WAYNE WILSON
Attorney at Law
Cox, Wilson, Duncan & Black
Brownsville, Texas

MR. PAT L. PACE
Owner
Pace Fish Company
Brownsville, Texas

SESSION III—Natural Resources-Minerals

Chairman DR. FRANK B. CONSELMAN
Director, International Center for
Arid and Semi-Arid Land Studies
Texas Tech University

Keynote Speakers MR. EDD R. TURNER, JR.
Offshore Manager
Getty Oil Company
Houston, Texas

MR. CHARLES PARKER
President
Parker Brothers & Company, Inc.
Houston, Texas

Panel Chmn. MR. KENNETH E. MONTAGUE
President
General Crude Oil Company
Houston, Texas

Panelists REP. ROBERT L. ARMSTRONG
Texas House of Representatives
Austin, Texas

MR. JOHN MACKIN
Vice President and General Manager
Fluor Ocean Services, Inc.
Houston, Texas

MR. WILLIAM McILHENNY
Associate Scientist, Contract Research Dept.
Dow Chemical Company
Freeport, Texas

DR. ORLO E. CHILDS
Vice President for Research
Texas Tech University
Lubbock, Texas

GENERAL SESSION—Friday, September 11

Conference Co-Chairman
DR. THOMAS D. BARROW
 President
 Humble Oil & Refining Company
 Houston, Texas

SESSION IV—Science, Engineering, Education

Chairman
DR. JOHN C. CALHOUN, JR.

Keynote Speakers
MR. JAMES T. GOODWIN
 Coordinator of Natural Resources
 Division of Planning Coordination
 Office of the Governor
 Austin, Texas

Panel Chmn.
DR. RALPH E. GILCHRIST
 Director of Production Research
 Tenneco Oil Company
 Houston, Texas

Panelists
DR. EMMETT B. FIELDS
 Vice President and Dean of Faculties
 The University of Houston
 Houston, Texas

DR. RICHARD A. GEYER
 Head, Department of Oceanography
 Texas A&M University
 College Station, Texas

MR. ROBERT ALDERDICE
 Proprietor
 The Menteith Company
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MR. CARL H. SAVIT
 Technical Assistant to the Director
 Office of Science and Technology
 Executive Office of the President
 Washington, D.C.

MR. NICK S. CAMPISE
 President
 Divcon, Inc.
 Houston, Texas

MR. TERRANCE LEARY
 Coastal Fisheries Coordinator
 Texas Parks and Wildlife Department
 Austin, Texas

SESSION V—Coastal Zone Management

Chairman
MR. J. CHRYS DOUGHERTY
 Attorney at Law
 Graves, Dougherty, Gee, Hearn,
 Moody & Garwood
 Austin, Texas

Keynote Speaker
PROF. ALLISON DUNHAM
 Professor, School of Law
 University of Chicago
 Chicago, Illinois

Panelists
MR. HENRY LaBLANC, SR.
 Chairman of the Board
 Standard Brass & Manufacturing Co.
 Port Arthur, Texas

MR. VERNON A. McGEE
 Assistant for Program Development
 Office of the Governor
 Austin, Texas

MR. E. H. THORNTON, JR.
 Attorney at Law
 Dyche, Wheat, Thornton & Wright
 Houston, Texas

MR. LYON L. BRINSMADE
 Attorney at Law
 Butler, Binion, Rice, Cook & Knapp
 Houston, Texas

MR. JOHN B. TURNER, JR.
 President
 Friendswood Development Company
 Houston, Texas

GENERAL SESSION

Chairman
MR. DAN S. PETTY
 Director, Division of Planning
 Office of the Governor
 Austin, Texas

Panelists
DR. THOMAS D. BARROW
MR. JOHN A. MEHOS
DR. FRANK B. CONSELMAN
DR. JOHN C. CALHOUN, JR.
MR. J. CHRYS DOUGHERTY
MR. M. HARVEY WEIL

LUNCHEON SESSION

MR. LEON JAWORSKI
 President-elect
 American Bar Association
 Houston, Texas

ATTENDANTS

Robert B. Abel
 National Sea Grant Program

William H. Abington
 Texas Mid-Continent Oil & Gas Assoc.

David A. Adams
 Coastal Zone Resources Corp.

James W. Adams
 Ocean Industry Magazine

Richard M. Adams
 Texas Instruments, Inc.

Robert Alderdice
 The Menteith Co.

David V. Aldrich
 Texas A&M University

William Anderson
 City of Corpus Christi

Stanley A. Arbingast
 The University of Texas at Austin

Robert L. Armstrong
 Texas House of Representatives

John P. Aymond
 Southern National Bank

Robert E. Baker
 The Moody Foundation

Gene C. Bankston
 Shell Oil Company

Sam H. Barnes
 Central Power & Light Co.

Thomas D. Barrow
 Humble Oil & Refining Co.

Allen H. Bartel
 The University of Houston

Wilbur A. Bass
 Brazosport Junior College

Gene R. Bates
 Texaco, Inc.

Vernon E. Behrhorst
 Louisiana Intracoastal Seaway Assoc.

Davis Benton
 ESSA, Weather Bureau

Henry Berryhill U. S. Geological Survey	Don D. Cowan Texas Agricultural Extension Services	Harold L. Geis Pano Tech Exploration Corp.
John Bigham Texas House of Representatives	D. M. Cowart Schlumberger Well Services	John F. Geis First Security National Bank
Jack Blanton Texas House of Representatives	James D. Craik Texas Maritime Academy	Richard A. Geyer Texas A&M University
George R. Blitch The University of Texas at Austin	Lauro Cruz Texas House of Representatives	Harry O. Gibson City of Yoakum, Mayor
T. G. Blocker, Jr. The University of Texas Medical Branch	Gary C. Cummins Texas Parks & Wildlife Dept.	Ralph Gilchrist Tenneco Oil Co.
Randolph Blumberg American Science & Engineering Co.	Ernst Davis The University of Texas School of Public Health	James T. Goodwin Office of the Governor
James R. Bradley Texas A&M University	L. Jack Davis Gulf Coast Waste Disposal Authority	G. E. Gotschall General Crude Oil Co.
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Ronald F. Bunn The University of Houston	Allison Dunham The University of Chicago School of Law	LeVan Griffiths Southern Methodist University
Paul J. Burka Texas Senate Legislative Counsel	Mike Eastland Gulf Coast Waste Disposal Authority	John H. Groh Port of Beaumont
Robert W. Bybee Humble Oil & Refining Co.	Mrs. A. V. Emmott Texas Conservation Council	Arnold J. Gully Texas Tech University
Horace R. Byers Texas A&M University	Eliezer Erel The University of Houston	Clare A. Gunn Texas A&M University
John C. Calhoun, Jr. Texas A&M University	H. E. Eveland Lamar State College of Technology	Alvin A. Hahn Land Use Committee
Nick S. Campise Divcon, Inc.	Mrs. Frances Farenthold Texas House of Representatives	D. Whitney Halladay East Texas State University
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Theodore Chamberlain Ocean Science and Engineering	Olin S. Fearing Trinity University	Robert L. Hartig State of Alaska
Leo F. Childs NASA	Edward T. Fecteau, Jr. U. S. Department of Commerce	Jack R. Hawkins Texas House of Representatives
Orlo E. Childs Texas Tech University	Emmett B. Fields The University of Houston	Murphy E. Hawkins Bureau of Mines
Al Cisneros Brownsville Navigation District	W. L. Fisher The University of Texas at Austin	H. S. Hayre The University of Houston
Jim Clark Texas House of Representatives	Peter T. Flawn The University of Texas at Austin	Jerry W. Heare Texas Industrial Commission
Robey H. Clark Mobil Oil Corp.	Ted B. Ford Louisiana State University	Gilbert T. Heidman Texas Agricultural Extension Service
Willis H. Clark Texas A&M University	James H. Frazier Galveston College	Charles E. Helsley The University of Texas at Dallas
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Frank B. Conselman Texas Tech University	William C. Galegar Federal Water Quality Administration	Willis G. Hewatt Texas Christian University
Earl F. Cook Texas A&M University		Henry H. Hildebrand The University of Corpus Christi

Milton Hochgraber City Councilman, Port Lavaca	Terrance R. Leary Texas Parks & Wildlife Dept.	George Mitchell George Mitchell & Associates
Claude R. Hocott Esso Production Research Co.	Ray Lemmon Texas House of Representatives	Kenneth E. Montague General Crude Oil Co.
Lionel T. Hodgson National Shrimp Processors, Inc.	Leonard Leon Halliburton Services	Franklin B. Moon Bernard Johnson Engrs. Inc.
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