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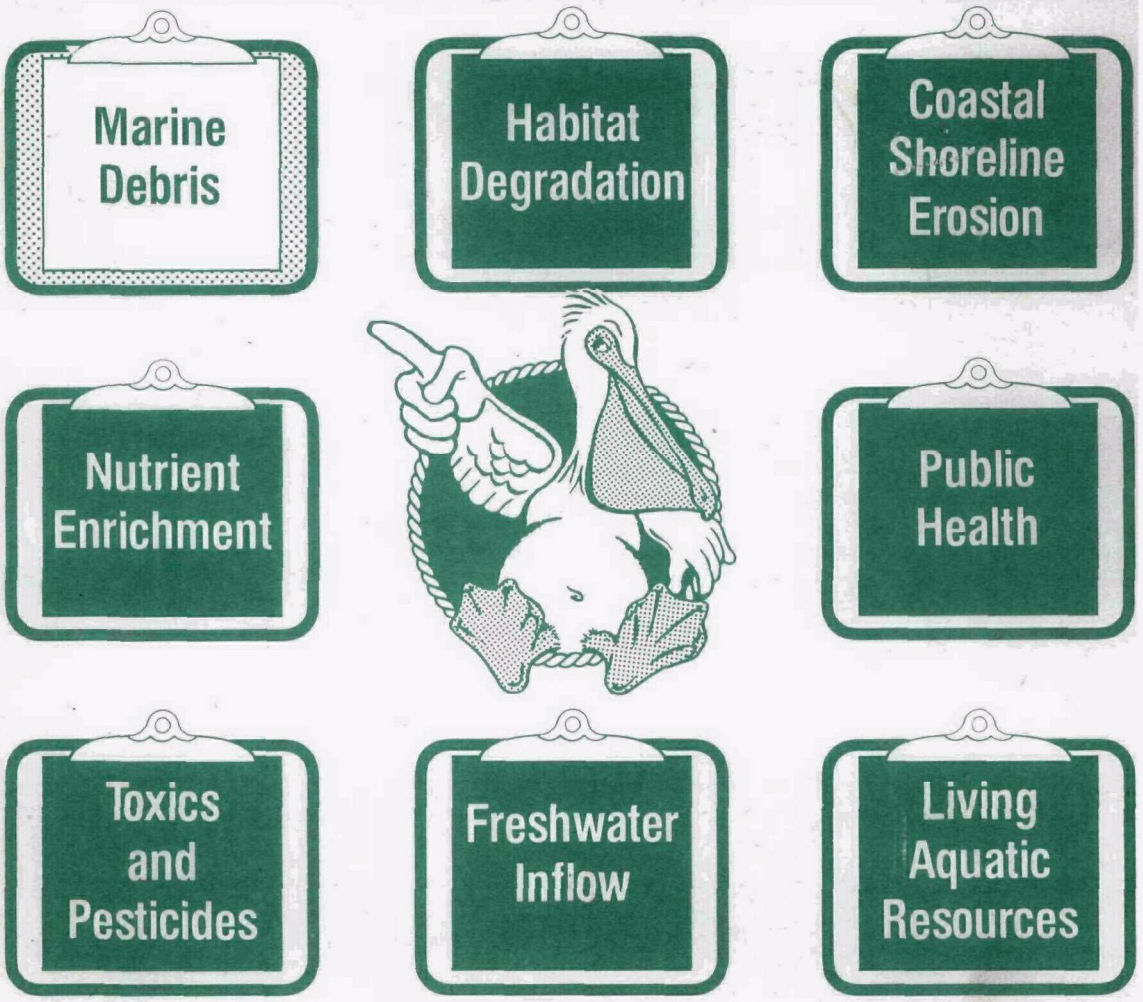
GULF OF MEXICO PROGRAM

Marine Debris Action Agenda For The Gulf Of Mexico

Framework for Action



EXECUTIVE SUMMARY

The Gulf of Mexico contains ecological and commercial riches matched by few other bodies of water in the world. Yet its blue-green waters belie the increasing environmental threats that endanger those values. In recognition of these threats, Regions IV and VI of the United States Environmental Protection Agency (EPA), which share jurisdiction over the five Gulf Coast States (Alabama, Florida, Louisiana, Mississippi, and Texas), initiated the Gulf of Mexico Program in August of 1988. The Gulf of Mexico Program's major purpose is to develop a comprehensive strategy to protect and enhance the Gulf's environmental quality.

Members of the Gulf of Mexico Program quickly identified marine debris as one of the most pressing environmental problems facing the Gulf. Unfortunately, discarded cans, bottles, plastic gloves, and other trash are a common sight along the Gulf shoreline, often averaging up to a ton a mile in some areas. The dramatic and pervasive nature of such debris led Gulf of Mexico Program members to establish a Marine Debris Subcommittee, charged with characterizing and proposing solutions to the marine debris problem.

Composed of Federal, state, and local government agencies, public interest organizations, citizens, scientific experts, and private industry representatives, the subcommittee set out to develop goals, objectives, and specific activities to address marine debris in the Gulf. Three goals were established: 1) eliminate the illegal disposal and careless loss of solid waste; 2) eliminate existing debris; and 3) foster pride, stewardship, and an increased understanding of the Gulf's marine and coastal resources among the people and groups who use them.

The purpose of this Action Plan is to specify the primary activities needed to reduce, and eventually eliminate, marine debris from Gulf of Mexico shores and waters. The Marine Debris Subcommittee has been meeting for more than three years. In that time, the Subcommittee has reviewed information and data collected by citizens and scientists, discussed actions that can resolve the problem, and evaluated methods for achieving and monitoring results.

Fifty-five activities, called "action items," describe specific tasks that have been developed to meet the goals. Selected by the Gulf of Mexico Program Marine Debris Subcommittee are those activities that are most significant and most achievable. This document's list of action items is fairly comprehensive, but not exhaustive. It does not reflect *all* of the activities necessary to eliminate the problem, nor does it list activities in order of priority. This document begins an evolving process of Action Plans in which action items are designated, implemented, and then reassessed as

progress in the Gulf is made. In the future, new action items will be developed to meet the changing needs in the Gulf of Mexico.

Some of the listed activities are already underway but not yet completed. Others are included because they will guide responsible Federal, state, and local government agencies and private sector organizations in allocating resources where they are most needed and in justifying future management strategies. This Action Plan should prompt specific agencies and groups to become involved and coordinate needed actions.

For the public, the Gulf of Mexico Action Plan should serve two purposes. First, it should reflect the public will with regard to solving the problem. Second, it should communicate what activities are planned for controlling marine debris and serve as a baseline from which to measure the success of these activities over the next several years.

This Action Plan is a living document. The Gulf of Mexico Marine Debris Subcommittee anticipates that it will be continually revised and updated. Consequently, it will be formally reviewed and revised in 1992.

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I. OVERVIEW OF THE GULF OF MEXICO

The Gulf of Mexico - A Vast and Valuable Resource

Reaching northwest from Florida along the shores of Alabama, Mississippi, and Louisiana, and then southwest along Texas and Mexico, the Gulf of Mexico is the ninth largest body of water in the world. The Gulf's United States coastline measures approximately 1,631 miles--longer than the entire Pacific coastline of California, Oregon, and Washington. The Gulf itself extends more than 617,600 square miles and contains one of the nation's most extensive barrier-island systems, 33 major river systems, and 207 estuaries (Buff and Turner, 1987). A cornerstone of the region's economy, the Gulf 's diverse and productive ecosystem provides a variety of valuable resources and services, including transportation, recreation, fish and shellfish, and petroleum and minerals.

Encompassing over five million acres (about half of the national total), the Gulf's coastal wetlands serve as critical habitat for 75 percent of the United States' migrating waterfowl (EPA, 1988). The Gulf's mudflats, salt marshes, mangrove swamps, and barrier island beaches also provide year-round nesting and feeding grounds for abundant numbers of gulls, terns, and shorebirds. Five species of endangered whales, including four baleen whales and one toothed whale, are found in the Gulf. Gulf waters also harbor the endangered American crocodile and five species of endangered or threatened sea turtles (loggerhead, green, leatherback, hawksbill, and Kemp's Ridley). The endangered West Indian (or Florida) manatee inhabits waterways and bays along the Florida peninsula.

In addition, the Gulf's complex network of channels and wetlands provides habitat for estuarine dependent commercial and recreational fisheries. The rich waters yield approximately 2.4 billion pounds of fish and shellfish each year. Worth more than $780 million at dockside, this harvest represents 40 percent of the total annual domestic harvest of commercial fish (NOAA, Southeast Fisheries Service, 1988). The Gulf boasts the largest and most valuable shrimp fishery in the United States, and also produces more than half of the oysters harvested yearly in the nation (NOAA, National Estuarine Inventory). Other Gulf fisheries include diverse shellfisheries for crabs and spiny lobsters, and finfisheries for menhaden, herring, mackerel, tuna, grouper, snapper, drum, and flounder. The entire U.S. Gulf of Mexico fishery yields more finfish, shrimp, and shellfish annually than the South and Mid-Atlantic, Chesapeake, and New England regions combined.

The Gulf's bountiful waters draw millions of sport fishermen and beachusers to their shores each year. It is estimated that the Gulf supports more than one-third of the

nation's marine recreational fishing, hosting 4 million fishermen in 1985 who caught an estimated 42 million fish (Boesch, 1987). Popular catches include blue and white marlin, trout, redfish, wahoo, shark, and swordfish. Tourism related dollars in the Gulf Coast States contributed an estimated $20 billion to the economy (Gulf of Mexico Program, 1990).

Gulf oil and gas production are equally valuable to the region's economy and are a critical part of the nation's total energy supply. In 1990, more than 1,600 Outer Continental Shelf (OCS) leases were in production, yielding approximately 90 percent of U.S. offshore production. These OCS revenues annually contribute about $3 billion to the Federal Treasury (Minerals Management Service, 1991). The industry employs some 30,000 people in the Gulf of Mexico.

Approximately 45 percent of U.S. shipping tonnage passes through Gulf ports, which include three of the nation's busiest: Houston/Galveston, Tampa, and New Orleans. According to EPA, vessel trips in and out of American Gulf ports and harbors exceeded an estimated 600,000 trips in 1986. Additionally, the U.S. Navy is implementing its modified Gulf Coast Homeporting Plan, designed to dock at least 25 vessels at three locations along the Gulf coast.

Thousands of people depend on the Gulf of Mexico to earn a living and flock to its shores and waters for entertainment and relaxation. The temperate climate and seemingly abundant resources are attracting more and more people. The region currently ranks fourth in total population among the five U.S. coastal regions, accounting for 13 percent of the nation's total coastal population. Although the Gulf region is not as densely settled as others, it is experiencing the second fastest rate of growth. According to the U.S. Department of Commerce, the Gulf's coastal population is projected to increase by 22 percent by the year 2010, to almost 18 million people. Florida's population is expected to have skyrocketed by more than 200 percent by that year.

The Gulf's resources and environmental quality are not only affected by the millions living and working in the region, but also by activities occurring throughout much of the nation. Two thirds of the land area of the contiguous United States drains into the Gulf, bringing with it potential environmental problems associated with pesticides, fertilizers, toxic substances, and trash.

The Gulf of Mexico - A Resource At Risk

Increasing population pressures mean increasing use of and demands on the Gulf of Mexico. Until recently, the Gulf was considered too vast to be affected by pollution and overuse. Recent trends indicate, however, serious long-term environmental damage unless action is initiated today. Signs of increasing degradation throughout the Gulf system include the following (Gulf of Mexico Program, 1989):

- Fish kills and toxic "red tides" were an increasing phenomenon in Gulf waters during the 1980's.
- Alabama, Mississippi, Louisiana, and Texas are among those states that discharge the greatest amount of toxic chemicals into coastal waters.
- Of the shellfish producing areas along the Gulf Coast, 3.4 million acres (57 percent) are permanently or conditionally closed.
- Louisiana is losing valuable coastal marsh habitat at the rate of 37 square miles a year (Johnston, 1991).
- Almost two tons per mile of marine trash covered Texas beaches in 1988.
- Up to 3,000 square miles of oxygen deficient (hypoxia) bottom waters, known as the "dead zone," have been documented off the Louisiana and Texas coasts.

The Gulf of Mexico Program - Goals and Structure

Problems plaguing the Gulf cannot be addressed in a piecemeal fashion. These problems and the resources needed to address them are too great. The Gulf of Mexico Program was formed to pioneer a broad, geographic focus to address major environmental issues in the Gulf before the damage is irreversible or too costly to correct.

The program is part of a cooperative effort with other agencies and organizations in the five Gulf States, as well as with the people and groups who use the Gulf. In addition to EPA, other participating Federal government agencies include: National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), U.S. Department of Defense (DOD), U.S. Fish and Wildlife Service (FWS), U.S. Soil Conservation Service (SCS), Minerals Management Service (MMS), National Park Service (NPS), U.S. Coast Guard (USCG), National Aeronautics and Space Administration (NASA), U.S. Army Corps of Engineers

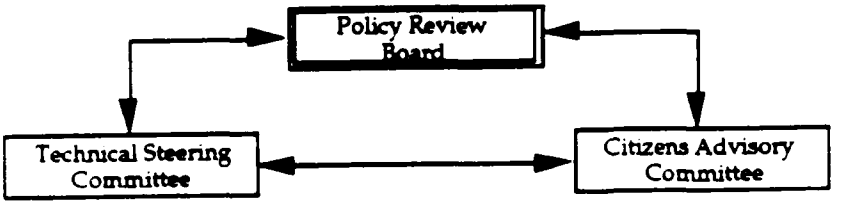
(COE), Department of Energy (DOE), U.S. Geological Survey (USGS), and U.S. Food and Drug Administration (FDA).

By building on and enhancing programs already underway, as well as by coordinating new activities, the Gulf of Mexico Program will serve as a catalyst for change. The program's overall goals are to provide:

- A mechanism for addressing complex environmental problems that cross Federal, state, and international jurisdictional lines;
- Better coordination among Federal, state, and local programs, thus increasing the effectiveness and efficiency of the long-term effort to manage and protect Gulf resources;
- A regional perspective to address research needs, which will result in improved information and methods for supporting management decisions; and
- A forum for affected groups using the Gulf, for public and private educational institutions, and for the general public to participate in the solution process.

The Gulf of Mexico Program is managed by three committees: a Policy Review Board, a Technical Steering Committee, and a Citizens Advisory Committee. Composed of 20 senior level representatives of state and Federal agencies and representatives of the technical and citizens committees, the Policy Review Board guides and reviews program activities. The Citizens Advisory Committee is composed of five governor-appointed citizens who represent environmental, fishery, agricultural, business/industrial, and development/tourism interests in each of the five Gulf Coast States. This committee provides public input and assistance in publicizing the Gulf of Mexico Program's goals and results. Representatives of state and Federal agencies, the academic community, and the private and public sectors appointed by state governors or by the Policy Review Board are members of the Technical Steering Committee and provide technical support to the board.

Figure 1.1 Gulf of Mexico Program Committees



During the early stages of program development, the Gulf of Mexico Program established nine technical subcommittees, each co-chaired by one Federal and one state representative. Seven of the nine subcommittees address the following priority environmental problems in the Gulf of Mexico:

- Habitat Degradation of such areas as coastal wetlands, seagrass beds, and sand dunes;
- Freshwater Inflow (i.e., diversions of water away from coastal estuaries) for use in flood control, navigation, and recreation, and to service growing coastal populations;
- Nutrient Enrichment resulting from such sources as storm water, industries, and agriculture;
- Toxic Substance and Pesticide contamination originating from industrial and agriculturally based sources;
- Coastal and Shoreline Erosion caused by natural and human-related activities;
- Public Health threats from swimming in and eating seafood products coming from contaminated water; and
- Marine Debris from land-based sources and marine commercial and recreational sources.

Two of the program's nine subcommittees, the Public Education and Outreach Subcommittee and the Data and Information Transfer Subcommittee, support the other seven subcommittees.

The Marine Debris Subcommittee

Ms. Angela Farias, Director of Marine Conservation, Texas General Land Office, and Mr. Robert Stender, Head of Environmental Compliance, Chief of Naval Air Training, U.S. Navy, co-chair the Marine Debris Subcommittee. The other members are:

Mr. Anthony Amos	University of Texas
Ms. Gail Bishop	National Park Service
Col. Floyd Buch	Port of Corpus Christi, TX
Ms. Cornelia Carrier	Citizens Advisory Committee representative
Ms. Barbara Coltharp	Louisiana Litter and Recycling Program
Mr. Barney Congdon	U.S. Minerals Management Service
Ms. Cindy Cosper	Florida Department of Environmental Regulation
Mr. Ed Fike	Lafourche Parish Council, LA
Mr. Jim Franks	Gulf Coast Research Laboratory, MS
Ms. Lucy Gibbs	Texas Shrimp Association
Mr. Greg Gitschlag	National Marine Fisheries Service
Mr. Mark Hilzim	Gulf Coast Conservation Association
Mr. Phillip Hinesley	Alabama Department of Economic and Community Affairs
Ms. Ann Hodge	Browning Ferris Industries, TX
Mr. Bill Holland	Gulf of Mexico Program
Ms. Susan Jackson	U.S. Environmental Protection Agency, HQ
Ms. Annie Jamison	Pascagoula Keep America Beautiful, MS
Dr. Herb Kumpf	National Marine Fisheries Service
Ms. Dianne Lindstedt	Louisiana Geological Survey
Ms. Linda Maraniss	Center for Marine Conservation, TX
Mr. John Marshall	Alabama Department of Environmental Management
Ms. Karen Mitchell	National Marine Fisheries Service
Lt. Cdr. William Prosser	U.S. Coast Guard
Ms. Laura Radde	U.S. Environmental Protection Agency, Region 6
Mr. Villere Reggio*	U.S. Minerals Management Service
Mr. Dean Roome	Coalition to Restore Coastal Louisiana
Mr. Dave Ruple	Bureau of Marine Resources, MS
Ms. Linda Skupien	MS-AL Sea Grant Consortium
Ms. Sharron Stewart	Gulf Coast Fishermen's Environmental Defense Fund, TX

*Previous Co-chair 1988-1991

Mr. Ted Thorjussen	West Gulf Maritime Association, TX
Mr. Harty C. Van	Amoco Production Company, LA
Dr. Sharon Walker	Gulf Coast Research Laboratory, MS
Mr. John "Fritz" Wettstein	Florida Department of Natural Resources
Dr. Claude White	Oxy Chem, TX
Cdr. Phil Wieczynski	U.S. Coast Guard

The Marine Debris Subcommittee developed the following goals for addressing the marine debris problem in the Gulf of Mexico:

- Eliminate the illegal disposal and careless loss of man-made solid waste in the marine and coastal environments of the Gulf of Mexico;

- Eliminate existing debris from the marine and coastal environments of the Gulf of Mexico; and

- Foster pride and stewardship and increase understanding of the marine and coastal resources of the Gulf of Mexico (including the harmful effects of marine debris) among the user groups of the Gulf of Mexico region.

The Gulf of Mexico Policy Review Board endorsed these goals on November 8, 1990. In developing this Action Plan, the Subcommittee has worked with EPA storm water permit writers from EPA Regions IV and VI, marine debris and ocean dumping coordinators from EPA Headquarters, an EPA diving program representative from Region IV, and an environmental control representative from the Exxon Production Company.

II. MARINE DEBRIS IN THE GULF OF MEXICO

What is Marine Debris?

Marine debris is trash in the ocean--any manufactured object accidentally or purposely put into the marine environment, such as cans, bottles, crates, rope, packing materials, bags, sheeting, fishing lines and nets, net fragments, trawl webbing, cargo strapping bands, six-pack rings, and other man-made items. Any item that is not properly disposed of may become marine debris.

Historically, most marine debris is plastic. Because plastics are inexpensive, lightweight, and durable, they have been considered the ideal material for many products. World production of plastics more than doubled between 1975 and 1981. In 1987, the U.S. alone produced more than 34.6 billion plastic bottles, more than 6 billion pounds of plastic trash bags, and some 201 million pounds of plastic for disposable diapers (Center for Marine Conservation, 1988). Common items used by beachusers, boaters, and maritime industries are made of plastic. It is not surprising that plastics are estimated to compose one-half to two-thirds or more of all objects sighted at sea or collected during beach cleanups.

The same qualities that make plastics so attractive also make them a particularly dangerous type of marine debris. For example, beverage six-pack yokes can remain intact in the marine environment for 450 years. Although scientists have created partially degradable plastics, these are not necessarily a desirable alternative. Partially degradable plastics can become brittle and shatter when exposed to sunlight, creating many smaller pieces that blight the oceans and coast.

Until recently, the oceans were viewed as a convenient and boundless receptacle for our trash, and as an attractive alternative to land disposal. To reverse this trend, in 1987, the U.S. Congress passed the Plastics Act and the United States also joined 39 other nations to ratify Annex V of the International Convention for the Prevention of Pollution from Ships, known as MARPOL. MARPOL V bans the dumping of plastics by vessels at sea and in navigable waters and also regulates the disposal of other types of solid waste in the marine environment (also see page 34).

The ratification of MARPOL V was a necessary first step in eliminating plastic marine debris. It gave the issue international recognition and sparked substantial legislative and educational initiatives. Despite ongoing efforts to implement and enforce MARPOL V, plastic trash from land-based sources and debris from illegal ocean dumping continue to invade Gulf waters in substantial amounts.

Marine debris in the Gulf is not limited to plastic, but includes wood, metal, rubber, paper, glass, tar, and cloth as well. According to EPA, data gathered during voluntary national beach cleanups in recent years suggest that approximately 30-45 percent of the objects collected in national beach cleanups were non-plastic items that are not prohibited by MARPOL V.

Effects of Marine Debris

Marine debris kills and maims marine mammals, fish, shellfish, sea turtles, and birds. According to EPA, an estimated 2 million seabirds and 100,000 marine mammals die on U.S. coasts each year from becoming entangled in marine debris or from ingesting plastic mistaken for food. During the National Beach Cleanup Day in September 1990, there were 142 reports nationwide of wildlife affected by debris either through apparent entanglement or ingestion.

Animals can mistake plastic pellets from resin spills and other physically degraded plastic products for fish eggs or other food sources. Such plastics are indigestible--debris can choke animals, block their digestive tracts, and cause intestinal ulcers (Fowler, 1986). Some creatures accidentally feeding on plastic may feel a false sense of fullness and, as a result, slowly starve to death. Animals entangled in six-pack rings or discarded rope may strangle, suffocate, or exhaust themselves while trying to escape. Entanglement can also hamper their ability to catch food, and infections caused by cuts often lead to loss of limbs. Lost or discarded fishing nets (called "ghost" nets) ensnare fish, crabs, diving seabirds, and other forms of marine life for several years after the nets are released. Economic losses are also important. While there have been no similar studies in the Gulf, New England studies show that lobster valued at $250 million is lost each year to "ghost traps" (Karter, 1973).

Scientists have documented an increasing number of injuries and deaths among fish, marine and terrestrial mammals, birds, and turtles that have eaten or become entangled in marine debris. According to one study (Balasz and Choy, 1985), sea turtle populations are most harmed by consuming man-made debris floating in open seas worldwide. A worldwide sea turtle literature review identified 79 reports of sea turtles ingesting plastics and 60 reports of sea turtle entanglements, many of which came from the Gulf of Mexico (and Wider Caribbean) area (Balasz, 1985). The most common source of entanglement was monofilament fishing line. Plastic bags, sheets, tar balls, and plastic particles were among the most common items ingested. These items are commonly found on Gulf beaches. Evidence of the continuing problem of entanglement occurred on March 11, 1991, when a female pygmy sperm whale died after becoming stranded on Matagorda Island, just off the Texas coast. The whale died from an infection caused by a plastic bag that she expelled from her mouth.

Sea turtles readily eat plastic bags or plastic sheeting, which they mistake for a favorite food--jellyfish. This is a particular concern because all sea turtle species found in Gulf waters are listed as either threatened or endangered under the Federal Endangered Species Act. National Marine Fisheries Service and University of Texas scientists have examined the stomach contents of stranded (dead) sea turtles. Their findings indicate that one-third to one-half of the endangered and threatened species are ingesting plastic products or by-products, such as bottles, milk cartons, and water jugs (EPA, 1991). In addition, dead turtles have been found with plastic bags and fishing lines protruding from their shells.

Non-plastic products also harm sea turtles. For example, scientists who studied the stomach contents of 111 stranded loggerhead turtles in the Gulf of Mexico found that more than half contained man-made debris. Of the turtles that could be identified as having died as a direct result of eating the debris, half had consumed non-plastic debris. In 1988, other sea turtles were found that had been killed by glass and metal (Plotkin and Amos, 1989).

Data collected from sea turtle strandings along the south Texas coast from 1986 to 1988 showed that the animals were significantly affected by having eaten marine debris or--to a lesser extent--having become entangled in marine debris. The most common item found to cause entanglement was fishing line, followed by trawl nets, vegetable sacks, and other types of nets and rope (Center for Environmental Education, 1987). All five sea turtle species inhabiting Gulf waters have been found to consume or to become ensnared by marine debris.

Many scientists believe that plastic debris threatens many of the larger marine species, and observers throughout the world have reported incidences of whale and dolphin entanglement in fishing gear (Interagency Task Force, 1988). On New Year's Day, 1984, an infant pygmy sperm whale died, despite all efforts to save him, after becoming stranded on a Galveston beach in Texas. A post mortem examination (necropsy) revealed that he had eaten numerous large plastic bags, including a large trash bag, a bread wrapper, and a corn chip bag, which created a false sense of fullness resulting in a slow death by starvation. In Florida, injuries and deaths caused by plastic debris--plastic jugs, disposable surgeons' gloves, plastic bags, and monofilament line--have been documented for four species of marine mammals stranded along the State's coast: bottlenose dolphin, false killer whale, pygmy sperm whale, and West Indian (Florida) manatee (Barros, Odell, and Patton, 1989). Debris on beaches is also known to entangle terrestrial species, such as foxes and rabbits, who have been observed entangled in nets and other plastic items (Fowler and Merrill, 1986).

Of the world's 280 seabird species, 80, to date, are known to have ingested plastic debris items ranging from small plastic pellets to polystyrene pieces to cigarette

lighters and toys. Seabirds are also prone to entanglement, especially in monofilament fishing lines. For example, the Japanese salmon-gill net fishery, in which more than 1,600 miles of net is set each night, is reported to drown over 250,000 seabirds each year during a two-month fishing season (King, 1984). An early 1970's study in Florida reported that 80 percent of brown pelicans showed signs of injury from entanglement in fishing gear (Heneman, 1988).

Marine debris also has more subtle ecological effects on the Gulf of Mexico. For instance many materials sink soon after being dropped into the water or after they collect heavy biological growth. According to EPA (1990), it is likely that pockets of accumulated debris exist on the Gulf floor. Non-biodegradable material could disrupt biological communities and adversely affect fisheries. Meanwhile, biodegradable materials--such as food waste--create an oxygen demand and, in waters like the Gulf that are already poor in oxygen, significantly decrease the oxygen available for marine life.

Plastic or cloth can become caught in fishermen's nets and boat propellers, clog water intakes, and disable engines, resulting in safety hazards and costly repairs. According to the Minerals Management Service (Reggio, 1991), drums--which pose serious threats to beachusers and snag trawling nets--typically cost between $1,400 and $3,500 each to remove. Observers at Padre Island National Seashore see a new drum about every two days.

Trash washing up on Gulf shores is clearly an eyesore and a health hazard, and is detrimental to the economies of coastal states. Since 1962, 99 percent of visitor complaints to National Park Service officials at Padre Island National Seashore in Texas have been concerning beach litter. Rangers hear visitors claim they will never return because of "filthy beaches" (Heneman, 1988). Texas estimates that its coastal cities and counties spend more than $14 million a year to clean debris from beaches (Heneman, 1988).

Status and Sources of Marine Debris in the Gulf of Mexico

Because it is enclosed on three sides and is infrequently flushed by tides and currents, the Gulf of Mexico is a unique repository for marine debris. Trash entering its waters stays there until winds, currents, and tides take it to shore, often far from its original source. Debris ranging from tarballs to 55-gallon drums collects along Gulf shores. Although MARPOL V provisions (see page 34) have no doubt reduced the current disposal of and amount of plastics in the Gulf of Mexico, most of the debris presently found is still disposable plastic products. These products come from a host of ocean and land-based sources that are often difficult to pinpoint.

More than 10 years ago, scientific monitoring, studies, and investigations began evaluating the amounts, types, sources, and effects of marine debris in the Gulf. To help characterize the sources--as well as the amounts and types--of debris washing ashore, the Center for Marine Conservation initiated a Texas Coastal Cleanup in September 1986 to remove and characterize trash from State beaches. In addition, CMC developed a data collection system to be used by volunteers for that cleanup.

Today, CMC data cards include a checklist of 80 items of debris and sections for listing the sources of debris found. Volunteers in 25 states and in several foreign countries use the cards during the National Coastweeks beach cleanup day held every fall. Data collected by these volunteers go into the National Marine Debris Database and provide for much of what is currently known about marine debris in the Gulf of Mexico.

Some types of debris collected, such as cigarette butts, come from a variety of sources; sources of other items are easier to identify because they typify certain activities or are commonly generated by certain industries. (For example, commercial fishermen recognize plastic light sticks as items often used on their boats.) CMC, with assistance from marine industry groups, has identified the following six general categories of marine debris, each of which can be characterized by certain items:

- Galley-type wastes generated by vessels
- Recreational fishing and boating gear
- Commercial fishing wastes and gear
- Operational wastes produced by vessels and offshore petroleum operations
- Sewage-associated wastes indicating inadequate sewage-treatment practices
- Medical wastes--characterized by plastic syringes

Storm drains are also a significant source of marine debris because they allow almost anything to wind up in oceans and on beaches. Nevertheless, these and other land-based sources are not easily identifiable and thus cannot be ascertained from the beach cleanup data cards.

Ocean-Based Sources

Traditionally, ships in open water disposed of their wastes directly into the ocean. In the early 1970's, long before legislation was passed prohibiting the disposal of trash at sea, the National Academy of Sciences estimated that the worldwide rate of solid waste disposal from ocean vessels and platforms was 14 billion pounds a year. Before legislation, the world's merchant shipping fleet discarded approximately 4,800,000 metal, 300,000 glass, and 450,000 plastic containers at sea per day (Horsman, 1982). U.S. Navy ships can generate more than three pounds of solid waste per person per day, and some ships' crews number 5,000 people. Most of the trash found on Gulf States' shorelines is traceable to offshore sources (CMC, 1991, and Texas Coastal and Marine Council, 1985). The following is a list of types and sources of ocean-based marine debris:

- *Galley Wastes* are items commonly used in the kitchens of ships at sea. They include plastic trash bags, plastic milk and water jugs, plastic bleach containers, vegetable sacks, egg cartons, and meat trays. Although these items are also used on land, they are not things people typically take to the beach. When found on the coasts in large quantities, such wastes generally come from ships, commercial fishing vessels, recreational boaters, and offshore petroleum operations on rigs and platforms.

Galley wastes consistently have been a major source of marine debris in the Gulf. While the galley waste national average for the 1990 National Beach Cleanup Day was 3.3 percent of all trash collected, the percentage of these wastes for all the Gulf Coast States except Florida was at least two to three times higher.

In the 1989 cleanup, Louisiana had the highest concentration of galley waste, amounting to nearly 14 percent of its total trash. Plastic milk and water jugs were the most common kinds of galley waste reported in that State for both the 1988 and 1989 cleanups. Texas ranked second nationally for 1988 and 1989 (with 10 percent of its total trash being galley wastes), and came in fourth in 1990. Alabama and Mississippi have also had comparatively high levels of galley wastes during all three years.

- *Recreational boaters and fishermen* also produce significant amounts of trash--at least one and one-half pounds of solid waste per person per day--according to the United States Coast Guard. Items typically contributing to marine debris are floats, lures, and plastic monofilament fishing line. This fishing line is the most common cause of wildlife entanglement, accounting for more than one-third of all reports on the 1990 National Beach Cleanup Day. The Florida Coastal Cleanup has focused on the collection of monofilament fishing line. In 1990, 579 pounds of fishing line were collected and sent to manufacturers for recycling.

Nationally, recreational fishing debris is most prevalent in Texas and Louisiana. In the 1989 cleanup, Texas replaced Maine nationally as having the highest concentration of boating and fishing waste in the United States, with rope being the most common item. In 1990, Texas remained above the national average (ranking second nationally), with 1.5 percent of its debris being boating and fishing wastes. Louisiana ranked third in the nation for such debris in the 1990 cleanup.

- *Commercial fishermen* generate marine debris that is probably the most easily identified and the most obvious, particularly in Alabama, Louisiana, and Texas. Items commonly attributed to commercial fishermen include operational wastes, such as plastic salt bags, plastic fishing nets, light sticks, plastic rope, rubber gloves that are lost or thrown overboard, beverage and food containers, and food wrappers. The worldwide fishing industry dumped an estimated 150,000 tons of plastic into the ocean each year before legislation prohibited this practice. Metal and wood traps and buoys can be separated during storms or by propellors and drift in the ocean for unknown periods of time. In the lobster fishery on the Florida Gulf coast, 25 percent of the 96,000 traps in use were estimated to have been lost in 1985 (Center for Environmental Education, 1987).

On the 1990 National Beach Cleanup Day, four of the five Gulf States--Louisiana, Texas, Mississippi, and Alabama--reported percentages of commercial fishing wastes as percentages of total debris that were above the national average. Percentages for Texas (7.5 percent) and Louisiana (7.4 percent) were twice as high as those for most states. The most common commercial fishing waste items found in the Gulf were plastic light sticks and rubber gloves--typically used by shrimp fishermen. In addition, commercial fishing nets were responsible for 16 percent of all wildlife entanglements reported during the 1990 cleanup.

- Other forms of ocean-based debris are classified as *operational wastes* because they typically originate from offshore maritime and petroleum operations. Typical items are plastic sheeting, strapping bands, fluorescent light tubes, wooden crates, wooden pellets, glass light bulbs, hard hats, and metal drums. Because of extensive petroleum and shipping activities, all Gulf States typically generate high concentrations of operational waste. During the 1989 National Cleanup Day, plastic strapping bands were the most common type of operational waste in Florida and Texas, while glass light bulbs were the most common kind found in Alabama, Louisiana, and Mississippi.

Land-Based Sources

Land-based sources of marine debris include beachusers; sewage overflows that carry refuse from homes, restaurants, and factories; illegal disposals; and storm water that carries litter from the streets. It is difficult to trace many domestic items (e.g. metal

cans and plastic and glass bottles) to a single source. Items found on a south Texas beach could be the remains of a nearby resident's picnic, or could have originated from a careless boater far up the Mississippi River or a litterer in Houston. The following are the major land-based sources and generators of marine debris:

- *Users of Beaches, Docks, & Marinas* - EPA estimates that about 25 percent of the trash on Gulf Coast beaches is left by beachusers, an amount that can be expected to increase as the population grows.

- *Storm Water* - Rainwater washes pollutants, dirt, land debris, and refuse from city streets into storm drains. Although many people do not realize it, these curbside drains are direct links to rivers and oceans many miles away. Just about everything (from plastic cups to sneakers) found along streets and gutters can be swept into the Gulf.

- *Sewage* - In some areas, storm water systems are connected directly to sewer pipes. As a result, although most sewerage systems are required to screen out large, nondegradable objects, periods of heavy rainfall cause the capacity of these systems to be exceeded. This causes raw sewage to be discharged into local waterways. The presence of tampon applicators and latex condoms typically indicate that sewage is entering marine areas. These items are prevalent on south Texas beaches and can be attributed to either beachusers or inadequate sewerage systems, especially those in Mexico because most sewage from coastal Mexican cities is untreated (Heneman, 1988). During the 1990 National Beach Cleanup Day, sewage-associated wastes in the Gulf were small compared to other areas nationwide. However, medical wastes were prevalent in Louisiana and Texas.

- *Solid Waste Disposal/Landfills* - Trash shipments and poor siting of landfills contribute trash to waterways. Some landfills are located along coastal waterways where lightweight litter, such as plastic, may blow off during transport or be exposed by erosion or storms on closed landfill sites. Private landfills and illegal dumping, including the illegal dumping of medical wastes, also contribute to debris problems.

- *Rivers and Streams* - Rivers and streams may also play a major role in carrying debris into the Gulf of Mexico from land-based sources, although the relative amounts are unknown.

- *Floating Structures* - Another source of marine debris is large chunks of polystyrene foam supporting floating docks and marina structures. When these chunks of foam begin to break apart, they become a marine debris problem.

- *Improper Management Practices* - Items targeted for commercial and manufacturing use, such as resin pellets, can be accidentally released into the marine environment due to improper containers, storage, and shipping practices.

Other Sources

Because it is difficult to pinpoint specific sources for some items of marine debris, beach cleanup volunteers are usually asked to record items bearing labels or company names. According to CMC, volunteers reported that more than 1000 different items of debris found on Texas beaches in the 1989 cleanup came from at least 33 countries, including Russia and China. Texas has always claimed the largest amount and assortment of "international" debris of all the U.S. states, reporting 171 items from 18 different countries for the 1990 National Beach Cleanup Day.

Of debris from foreign countries, debris from Mexico was the most common kind found on Texas beaches, and, on the 1989 National Beach Cleanup Day, included at least 50 plastic bottles of "El Pinador" cleaner, 100 plastic motor oil bottles, and 206 bleach bottles. Foreign labels, however, do not always mean that the items come from foreign ships, just as a particular company is not always responsible for products or containers ending up in the ocean. Many of the foreign items found on Gulf Coast beaches can be bought in the U.S. or are brought into the country by U.S. citizens.

CMC cautions that specific items and sources of marine debris may vary from those described in the preceding pages, depending on the part of the country in which the data were gathered. Nevertheless, data collected during National Beach Cleanup Days are helpful in making comparisons between states, and also show annual trends in composition, types, and sources of marine debris.

"Take Pride Gulf-Wide" Coastal Cleanups Results

Of the more than 1 million pounds (~ 475 tons) of marine debris gathered on Gulf Coast beaches in the 1988 Beach Cleanup Day, more than 68 percent was made of plastic. In 1989, 21,410 volunteers collected 345 tons of trash from 1,056 miles of Gulf coast beaches in Texas, Louisiana, Mississippi, Alabama, and Florida; most was plastic. (A third of the total was glass, paper, and metals. Five percent of the items were made of wood, rubber and cloth.) In 1990, 1,227,297 pounds (~ 613 tons) of trash were collected from 1,379 miles of Gulf beaches in Texas, Louisiana, Mississippi, Alabama, and the Gulf coast of Florida by 36,643 volunteers. In 1990, 63.9 percent of the trash collected was plastic.

Table 2.1 Summary of 1990 Beach Cleanup

Summary of 1990 Beach Cleanup				
State	**Volunteers**	**Miles Cleaned**	**Pounds of Debris**	**Pounds per Mile**
Alabama	2,618	62	74,000	1,194
Florida*	10,340	949	392,757	413
Louisiana	6,000	76	250,000	3,289
Mississippi	1,863	106	44,000	415
Texas	15,822	186	466,540	2,508

*Gulf coast Florida counties only.

A Gulf Coast State by State Review

The following charts depict the results of the 1989 and 1990 cleanup days for each of the five Gulf Coast States. All information is based on annual National Beach Cleanup results from CMC.

ALABAMA COASTAL CLEANUP

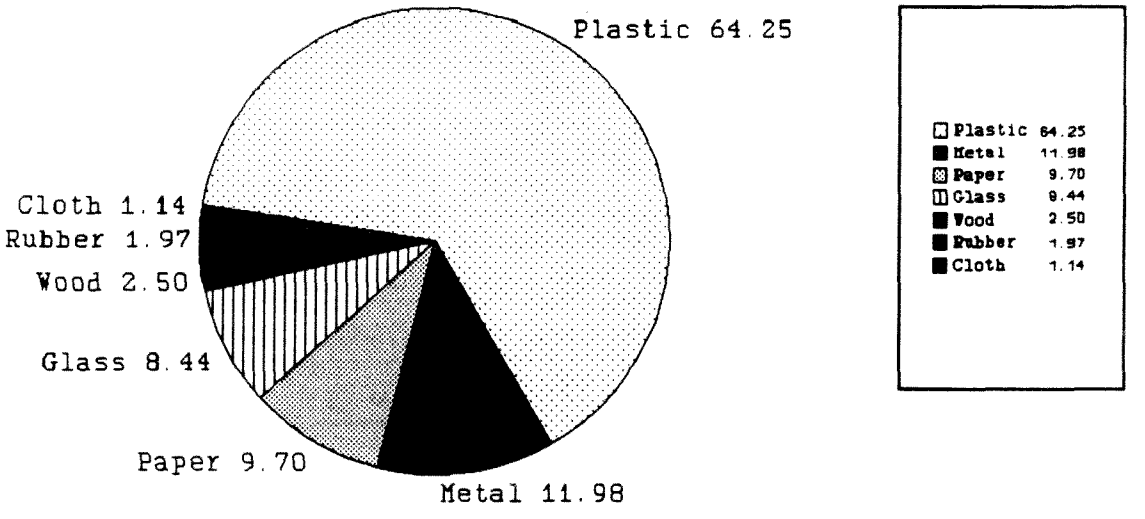
Table 2.2 Results of Alabama Coastal Cleanup

Results		
	1989	**1990**
Volunteers	725	2,618
Miles Cleaned	52	62
Pounds of Debris	12,000	74,000
Pounds per Mile	231	1,194
Number of Items	40,095	
Tons	6	37

Table 2.3 Composition of Alabama Beach Debris

Composition of Beach Debris		
Item	**% in 89**	**% in 90**
Plastic	62.43	64.25
Metal	12.59	11.98
Paper	11.47	9.70
Glass	8.74	8.44
Wood	2.19	2.50
Rubber	1.59	1.97
Cloth	0.99	1.14

Figure 2.1 Composition of Alabama Beach Debris--1990



Source: Center for Marine Conservation, 1991

Alabama's coastal cleanup campaign has been dubbed "Get the trash out of the splash." In both the 1989 and 1990 cleanups, more than half of all marine debris collected from Alabama beaches was plastic.

FLORIDA COASTAL CLEANUP

Table 2.4 Results of Florida Coastal Cleanup

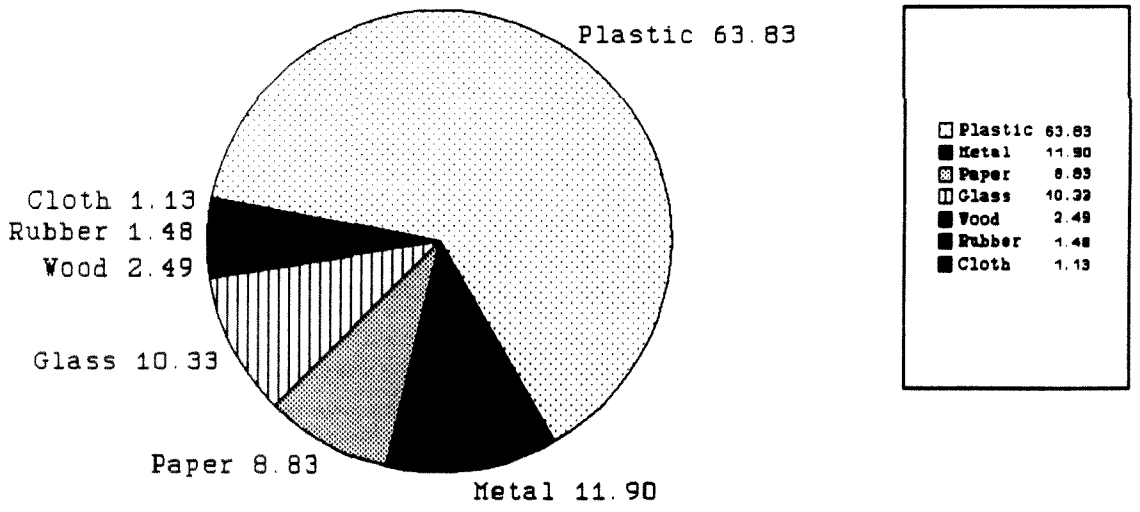
Results			
	1989	**1990**	1990-Gulfcoast
Volunteers	14,632	18,413	10,340
Miles Cleaned	911	1,050	949
Pounds of Debris	395,440	399,666	392,757
Pounds per Mile	434	381	414
Number of Items	529,401	704,780	376,590
Tons	200	200	196

*Gulf coast Florida is calculated based on data from Monroe through Escambia counties.

Table 2.5 Composition of Florida Beach Debris

Composition of Beach Debris		
Item	**% in 89**	**% in 90**
Plastic	64.85	63.83
Metal	11.36	11.90
Paper	9.94	10.33
Glass	8.71	8.83
Wood	2.23	2.49
Rubber	1.49	1.48
Cloth	1.31	1.13

Figure 2.2 Composition of Florida Beach Debris--1990



Source: Center for Marine Conservation, 1991

Florida's cleanup crews have adopted the motto "Be a Beach Buddy." During the 1989 cleanup day, volunteers found 467 miles of monofilament line on 911 miles of coastline, an increase from 305 miles of line in 1988. Crews in 1989 also discovered 15 dead animals--sea turtles, birds, and an opossum--entangled in fishing line.

Based on miles covered and number of volunteers, Florida boasted the largest cleanup in 1990 of any state in the nation. Crews found 579 miles of discarded fishing line, as well as 93 items from 29 different foreign countries. Twenty birds, sea turtles, crabs, and fish were found entangled in marine debris. Of these, 8 birds were still alive and released. Also, although medical waste was only 0.09 percent of the total, volunteers collected 608 syringes and other medical waste items.

Typically, Florida reports the highest percentage Gulf-wide of trash attributable to passenger cruise lines.

LOUISIANA COASTAL CLEANUP

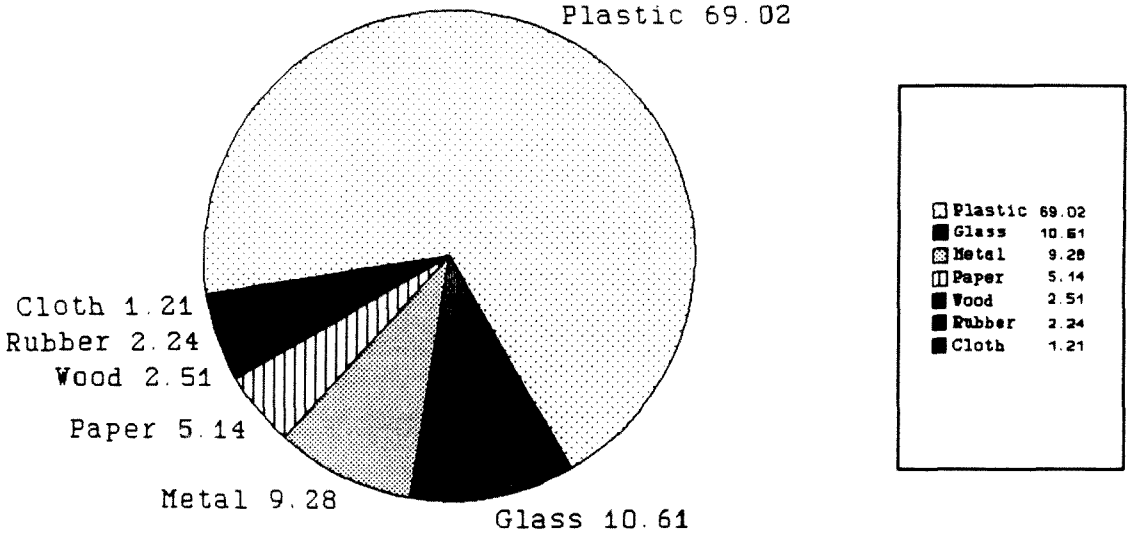
Table 2.6 Results of Louisiana Coastal Cleanup

Results		
	1989	**1990**
Volunteers	3,450	6,000
Miles Cleaned	67	76
Pounds of Debris	110,000	250,000
Pounds per Mile	1,462	3,289
Number of Items	76,870	
Tons	55	125

Table 2.7 Composition of Louisiana Beach Debris

Composition of Beach Debris		
Item	**% in 89**	**% in 90**
Plastic	70.53	69.02
Metal	10.13	10.61
Paper	9.02	9.28
Glass	5.48	5.14
Wood	2.21	2.51
Rubber	1.38	2.24
Cloth	1.26	1.21

Figure 2.3 Composition of Louisiana Beach Debris--1990



Source: Center for Marine Conservation, 1991

The motto of cleanup crews in Louisiana was the regional slogan, "Take Pride Gulf-Wide." Louisiana has doubled its participation in beach cleanups from its first in 1987. Looking back to this State's 1987 cleanup results, 3,300 volunteers gathered 200 tons (90,000 items) of debris from 65 miles of coastline. Plastics made up 64 percent of all debris that year. Polystyrene cups accounted for nearly 10 percent of all items collected. Fishing gear was the largest identifiable source of debris, relative to the categories of cargo, galley, and operational wastes.

In 1990, several fish, a turtle, and a dead water moccasin were discovered entangled in plastic sheets, rope, wire, and fishing line. Volunteers found many dead animals including a rat, two catfish, 80 fish, four dolphins, four crabs, two sharks, nine turtles, and one cow.

MISSISSIPPI COASTAL CLEANUP

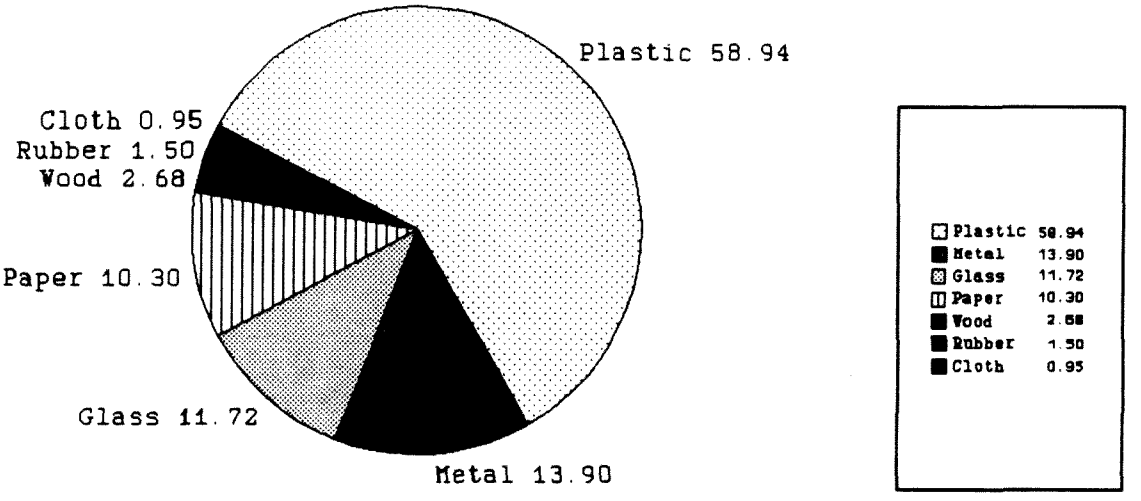
Table 2.8 Results of Mississippi Coastal Cleanup

Results		
	1989	**1990**
Volunteers	1,760	1,863
Miles Cleaned	100	106
Pounds of Debris	62,000	44,000
Pounds per Mile	620	415
Number of Items	73,853	
Tons	31	22

Table 2.9 Composition of Mississippi Beach Debris

Composition of Beach Debris		
Item	**% in 89**	**% in 90**
Plastic	54.85	58.94
Metal	14.63	10.30
Paper	13.03	13.90
Glass	12.47	11.72
Wood	2.43	2.68
Rubber	1.54	1.50
Cloth	1.04	0.95

Figure 2.4 Composition of Mississippi Beach Debris--1990



Source: Center for Marine Conservation, 1991

Mississippi volunteers encourage others to "Lend a Hand in the Sand. Keep Coastal Mississippi Waters and Shorelines Clean." Looking back at 1987, 100 volunteers collected 3.5 tons, or 3,655 items, of debris from six miles of beach. Plastics made up 52 percent of the total that year. In 1988, cleanup crews removed an estimated 3,000 pounds of debris per mile, more than any other state collected--except Georgia and Texas. Although it is difficult to account for the decrease in 1990 to 415 pounds per mile, it may be a result of improved and more frequent beach cleaning and the passage of the Mississippi Marine Litter Act in 1989.

TEXAS COASTAL CLEANUP

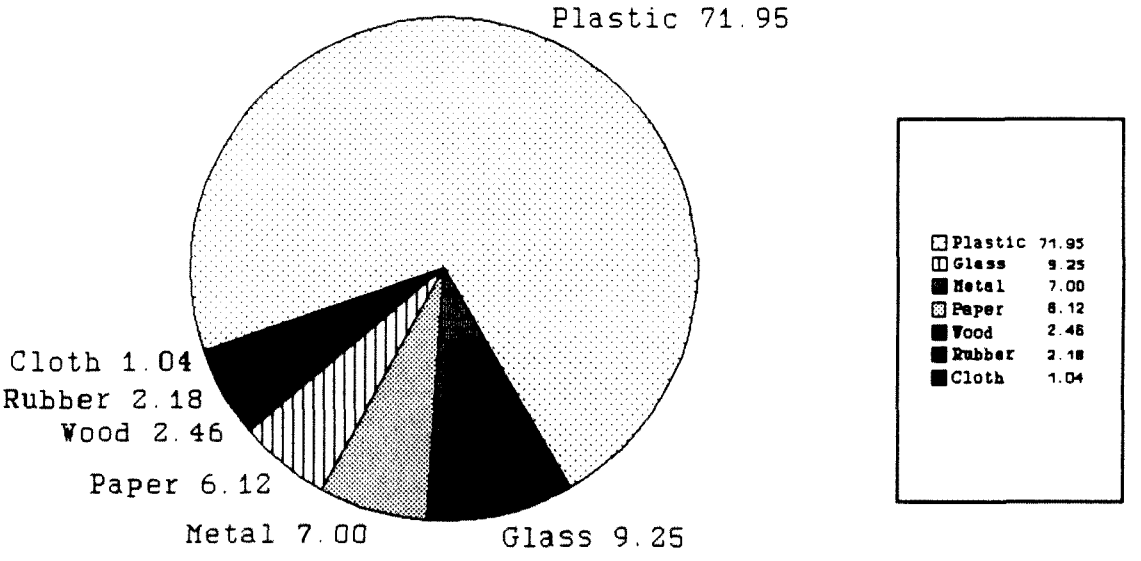
Table 2.10 Results of Texas Coastal Cleanup

Results		
	1989	**1990**
Volunteers	8,751	15,822
Miles Cleaned	164	186
Pounds of Debris	316,000	466,540
Pounds per Mile	1,927	2,508
Number of Items	448,557	
Tons	158	233

Table 2.11 Composition of Texas Beach Debris

Composition of Beach Debris		
Item	**% in 89**	**% in 90**
Plastic	69.23	71.95
Metal	10.74	6.12
Paper	8.14	7.00
Glass	6.69	9.25
Wood	2.17	2.46
Rubber	1.86	2.18
Cloth	1.18	1.04

Figure 2.5 Composition of Texas Beach Debris--1990



Source: Center for Marine Conservation, 1991

Lone Star State volunteers, whose motto is "Be a Beach Buddy," have found everything from bikini bottoms to refrigerators on Texas beaches. Many items collected on Texas beaches typically bear foreign labels and company insignia, indicating that much of the debris is generated by offshore sources. Since the first Texas Coastal Cleanup in 1986, volunteers have collected more than one ton of trash per mile. That year 124 tons were collected from 122 miles of beach. Due to the development of a data card and the analyses of the debris recorded by CMC, the Texas cleanup was the most documented cleanup ever held.

In 1987, galley wastes made up the highest percentage of debris found on relatively inaccessible Matagorda Island, indicating that the waste was generated offshore. In the 1989 cleanup, volunteers found several dead catfish entangled in plastic, a dead drum fish caught in small plastic strapping bands, and other dead fish ensnared in strands of rope and fishing line. In 1990, six crabs, six fish, three seagulls, and two blue herons were found entangled in marine debris (usually fishing line or rope). One dead fish was found with a plastic bag in its gills. Although there were quite a few reports of dead animals, they cannot all be positively attributed to marine debris.

The "Dirty Dozen"

In 1988, CMC began ranking the items most collected and reported by cleanup volunteers. The most abundant items found in the cleanups are known as the "Dirty Dozen." A compilation of all the Gulf States' Dirty Dozen for 1990 yielded the following results:

Table 2.12 Number of Debris Items Collected Gulf-Wide in 1990

Number of Debris Items Collected Gulf-Wide in 1990*		
Item	**Number**	**Percent of Total**
cigarette filters	115,852	13.88
plastic pieces	107,443	12.87
foamed plastic pieces	80,250	9.61
plastic caps and lids	73,594	8.81
plastic bags and wrappers	69,930	8.37
plastic cups, utensils, straws	68,440	8.19
glass beverage cans	68,406	8.19
metal beverage cans	55,136	6.60
paper pieces	46,467	5.56
foamed plastic cups	37,396	4.47
glass pieces	31,609	3.78
plastic rope	30,158	3.61
plastic beverage bottles	27,351	3.27
metal bottle caps	14,668	1.76
miscellaneous plastic bottles	8,565	1.03
TOTAL	**835,265**	**100.00**

*This table reflects data collected from the entire State of Florida.

Table 2.13 Alabama's 1990 Dirty Dozen

Alabama's 1990 Dirty Dozen			
		Total Number Reported	**Percent of Total Debris Collected**
1.	plastic caps and lids	4,089	6.92
2.	foamed plastic pieces	4,006	6.78
3.	cigarette filters	3,844	6.50
4.	plastic pieces	3,235	5.47
5.	plastic beverage bottles	2,768	4.68
6.	paper pieces	2,600	4.40
7.	metal beverage cans	2,529	4.28
8.	glass beverage bottles	2,527	4.28
9.	foamed plastic cups	2,269	3.84
10.	plastic cups and utensils	1,752	2.96
11.	glass pieces	1,654	2.80
12.	metal bottle caps	1,640	2.77
TOTAL		**32,913**	**55.69**

In 1989, plastic caps and lids were also ranked at the top of the dirty dozen list, with 2,683 items constituting 6.69 percent of the total debris collected.

Table 2.14 Florida's Dirty Dozen

Florida's 1990 Dirty Dozen			
		Total Number Reported	**Percent of Total Debris Collected**
1.	cigarette filters	77,486	11.05
2.	plastic pieces	44,393	6.33
3.	glass beverage bottles	44,211	6.30
4.	foamed plastic pieces	42,909	6.12
5.	metal beverage cans	40,747	5.81
6.	plastic straws	29,231	4.17
7.	paper pieces	28,672	4.09
8.	plastic caps and lids	28,198	4.02
9.	foamed plastic cups	27,016	3.85
10.	plastic food bags & wrappers	27,012	3.84
11.	plastic cups and utensils	22,676	3.23
12.	plastic beverage bottles	17,035	2.77
TOTAL		**429,586**	**61.25**

*This table reflects data collected from the entire State of Florida.

In 1989, 47,533 plastic cups, spoons, forks, and straws were collected in Florida, and ranked first in that State's Dirty Dozen. Those items were 8.02 percent of the total debris collected that year.

Table 2.15 Louisiana's 1990 Dirty Dozen

Louisiana's 1990 Dirty Dozen			
		Total Number Reported	**Percent of Total Debris Collected**
1.	plastic pieces	10,537	7.79
2.	foamed plastic pieces	9,170	6.78
3.	plastic caps and lids	8,726	6.46
4.	plastic rope	5,621	4.16
5.	metal beverage cans	5,535	4.09
6.	glass beverage bottles	5,487	4.06
7.	plastic milk & water gallon jugs	5,187	3.84
8.	foamed plastic cups	4,829	3.57
9.	plastic food bags and wrappers	4,020	2.97
10.	plastic beverage bottles	3,817	2.96
11.	miscellaneous plastic bottles	3,378	2.80
12.	glass pieces	2,990	2.21
TOTAL		**69,297**	**51.26**

Plastic caps and lids topped Louisiana's 1989 Dirty Dozen list, with 5,620 items (7.31 percent) reported.

Table 2.16 Mississippi's 1990 Dirty Dozen

Mississippi's 1990 Dirty Dozen			
		Total Number Reported	**Percent of Total Debris Collected**
1.	metal beverage cans	6,325	6.93
2.	cigarette filters	4,710	5.16
3.	foamed plastic pieces	4,327	4.74
4.	glass pieces	4,038	4.43
5.	plastic food bags & wrappers	3,946	4.33
6.	plastic pieces	3,940	4.32
7.	glass beverage bottles	3,904	4.28
8.	plastic caps and lids	3,741	4.10
9.	plastic beverage bottles	3,731	4.09
10.	paper pieces	3,294	3.61
11.	foamed plastic cups	3,282	3.60
12.	plastic cups and utensils	2,188	2.40
TOTAL		**47,426**	**52.00**

Mississippi reported paper pieces as the top marine debris item in 1989. Cleanup crews reported a total of 5,101 paper pieces, which comprised 6.91 percent of the total debris collected.

Table 2.17 Texas' 1990 Dirty Dozen

Texas' 1990 Dirty Dozen			
		Total Number Reported	**Percent of Total Debris Collected**
1.	plastic pieces	45,338	9.46
2.	cigarette filters	29,812	6.22
3.	plastic caps and lids	28,840	6.02
4.	plastic rope	24,537	5.08
5.	plastic food bags & wrappers	23,121	4.82
6.	glass pieces	22,927	4.78
7.	foamed plastic pieces	19,838	4.14
8.	metal beverage cans	13,028	2.72
9.	plastic straws	12,593	2.63
10.	glass beverage bottles	12,277	2.56
11.	paper pieces	11,901	2.48
12.	miscellaneous plastic bags	11,831	2.47
TOTAL		**256,043**	**53.38**

Plastic pieces were also the top offender in Texas in 1989. In that year, they comprised 9.02 percent of the total.

Conclusion: Marine Debris and the Health of the Gulf Coast

Marine debris in the Gulf of Mexico is not only a health hazard, but is also detrimental to the economies of coastal states and damaging to the marine environment and its inhabitants. These negative effects are evidenced by the following examples:

- All five sea turtle species inhabiting Gulf waters have been found to consume or to become ensnared by marine debris. The most common item found to cause entanglement was fishing line, followed by trawl nets, vegetable sacks, and other types of nets and rope (Center for Environmental Education, 1987).

- Drums, which can pose serious health threats to beachusers and snag trawling nets, typically cost between $1,400 and $3,500 each to remove (Reggio, MMS, 1991).

- Park rangers at the Padre Island National Seashore in Texas hear visitors claim they will never return because of "filthy beaches" (Heneman, 1988).

- In Florida, injuries and deaths caused by plastic debris--plastic jugs, disposable surgeons' gloves, plastic bags, and monofilament line--have been documented for four species of marine mammals stranded along the State's coast: bottlenose dolphin, false killer whale, pygmy sperm whale, and West Indian (Florida) manatee (Barros, Odell, and Patton, 1989).

As a result of these increasing indicators of the marine debris problem, monitoring, studies, and investigations have begun to evaluate the amounts, types, sources, and effects of marine debris in the Gulf. The Center for Marine Conservation developed a data collection card to be used for volunteers in beach cleanups in order to help characterize the sources of marine debris. The data from all beach cleanups have shown that items most likely to entangle marine life or to be eaten by it--plastic bags, pellets, and fishing line--are commonly found types of marine debris on the Gulf coastline. Conclusions drawn from Gulf beach cleanups are not dissimilar from those yielded by studies conducted in other parts of the world, as described earlier.

The sources of marine debris can be divided into two main categories: 1) ocean-based sources--including galley wastes, recreational boaters and fishermen, commercial fishermen, and operational wastes; and 2) land-based sources--including users of beaches, docks, and marinas, storm water, sewage, solid waste disposal/landfills, rivers and streams, floating structures, and improper management practices.

Based on the evidence of the growing negative effects of marine debris in the Gulf and the characterization studies which have determined sources of the problem, the Gulf of Mexico Program has developed a framework for action and proposed activities needed to begin to solve the marine debris problem. This information is provided in the chapters which follow.

III. THE SOLUTION -- A FRAMEWORK FOR ACTION

This section describes the legal and institutional framework currently in place to address marine debris in the Gulf of Mexico. It also outlines some of the positive efforts already underway at the international, Federal, regional, and state levels, as well as those undertaken by private organizations and industry. A list of marine debris projects completed or underway in the Gulf of Mexico is included in Appendix B, the "Gulf of Mexico Marine Debris Information Survey." The survey was requested and funded by the Gulf of Mexico Program and prepared for the Texas Adopt-A-Beach Program by CMC.

International Level

International Legal Instruments

MARPOL

In 1987, the U.S. joined 39 other nations to ratify Annex V of the International Convention for the Prevention of Pollution from Ships, MARPOL, which bans the dumping of plastics by vessels at sea and in navigable waters as well as regulates the disposal of other types of solid waste. In addition, MARPOL requires all ports to supply or make available adequate disposal facilities. The Marine Plastic Pollution, Research, and Control Act of 1987 (MPPRCA) is the U.S. law that implements Annex V. The law became effective December 31, 1988, and USCG has issued implementing regulations under the Act.

MARPOL V regulates, but does not prohibit, ocean disposal of non-plastic debris. According to the Treaty, areas that are more susceptible to pollution by trash due to special oceanographic and environmental conditions may be designated as "special areas." Such a designation provides extra environmental protection by prohibiting the dumping of materials in addition to plastic. A Special Area designation for the Gulf has been accepted as of July 1991. The implementation process is currently underway and will include a study of reception facilities around the Wider Caribbean Region (the Wider Caribbean area includes the Caribbean Sea, the Gulf of Mexico, the Straits of Florida, and the coastal lands of 25 nations that border these waters). Special Area designation of the Gulf means that ships will not be permitted to dump any trash except ground food wastes into Gulf waters.

Contact: Marine Environment Division
International Maritime Organization (IMO)
4 Albert Embankment
London SE1 7SR
United Kingdom

London Dumping Convention

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, known as the London Dumping Convention, is an international agreement concerned solely with the dumping of wastes into the marine environment. The agreement bans the international dumping of biological, chemical, and radiological agents of war and regulates the dumping of other hazardous compounds. The three countries bordering the Gulf of Mexico (Cuba, Mexico, and the United States) are contracting parties.

Contact: Marine Environment Division
International Maritime Organization (IMO)
4 Albert Embankment
London SE1 7SR
United Kingdom

United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea was adopted in Montego Bay in 1982, and provides a framework of principles for national rights and obligations in relation to ocean use--including environmental protection. It encourages states and international organizations to participate in an integrated management system for the oceans. Provisions include obligations for territorial seas and ports of coastal states.

Although the Law of the Sea Convention has not yet entered into force, its principles (except those relating to deep-seabed mining) have obtained widespread support. Therefore, it can serve as an important vehicle for promoting the protection and preservation of the marine environment. As of June 1989, two countries bordering the Gulf of Mexico have signed the Law of the Sea Convention: Cuba and Mexico.

Contact United Nations Office for Ocean Affairs and the Law
of the Sea (UNOALOS)
United Nations Headquarters, U.N. Plaza
New York, NY 10017

Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region

The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region was adopted in Cartagena de Indias, Colombia, in 1983. Under this Convention, contracting parties are obligated to prevent, reduce, and control pollution from ships, land-based sources, airborne sources, and seabed activities. The parties are also required to protect unique and fragile ecosystems and the habitats of endangered species, and to engage in technical assistance programs, information and data exchange, and regional cooperation during marine emergencies. In addition, the nations are committed to developing liability and compensation procedures for damage resulting from pollution incidences. All three countries bordering the Gulf of Mexico (Cuba, Mexico, and the United States) have ratified the Cartagena Convention.

Contact: Regional Coordinating Unit
UNEP Caribbean Environment Programme (CEP)
14-20 Port Royal St.
Kingston, Jamaica

Other Activities of the United Nations and Other International Agencies

United Nations Environment Programme (UNEP)

The Regional Seas Programme links countries that share a common sea so that they can cooperate with and aid each other in solving marine pollution problems. The Gulf of Mexico enjoys special protection through this program under the Convention for the Protection and Development of the Marine Environment, Wider Caribbean Region Action Plan (see above).

Contact: Regional Coordinating Unit
UNEP Caribbean Environment Programme (CEP)
14-20 Port Royal St.
Kingston, Jamaica

Food and Agriculture Organization

The fisheries division of the United Nations Food and Agriculture Organization collects information on marine animal entanglement and helps gather data on marine debris and pollution issues.

Contact: Fisheries Division
FAO
Via delle Terme di Caracella
00100 Rome, Italy

International Maritime Organization (IMO)

The IMO, established in 1958, is a specialized United Nations agency that examines international shipping issues involving safety and pollution. IMO was responsible for several conferences resulting in international agreements on oil pollution control from ships, eventually leading to the adoption of MARPOL.

IMO was instrumental in the adoption of the Gulf of Mexico as a Special Area under MARPOL Annex V (see page 36). In November 1990, the Marine Environment Protection Committee of the IMO agreed to designate the Gulf of Mexico and the Caribbean Sea as Special Areas under Annex V of MARPOL, which means that no dumping of any trash will be allowed in those areas. Formal adoption of the designation will take place in July 1992 unless there are objections from a majority of IMO's eighty-six member nations.

Contacts: Mr. Jan Voordouw
United Nations Environmental Programme
14-20 Port Royal St.
Kingston, Jamaica

International Maritime Organization (IMO)
Marine Environment Division
4 Albert Embankment
London SE1 7SR, United Kingdom

United Nations Educational, Scientific and Cultural Organization - Intergovernmental Oceanographic Commission (UNESCO/IOC)

IOC works in close cooperation with the Caribbean Environment Program, particularly through the CEPOL program, in projects and activities to satisfy the following objectives: 1) to organize and carry out a regionally coordinated marine pollution monitoring and research program; 2) to strengthen the capabilities of national institutions allowing for their participation in regional and national efforts in order to implement marine pollution monitoring and research activities; and 3) to develop pollution control programs at the national and regional levels.

Contact: Secretariat
Intergovernmental Oceanographic Commission (IOC)
UNESCO Headquarters
7 place de Fontenoy
75700 Paris, France

Organization of American States (OAS)

The Organization of American States (OAS) is the oldest regional society of nations in the world, dating back to 1890. The Department of Regional Development (DRD) is the traditional "environmental focal point" in OAS. DRD has a multidisciplinary focus and strong orientation toward the formulation of specific investment projects for the development and rational use of natural resources, energy and infrastructure.

Contact: Organization of American States (OAS)
Department for Regional Development
1889 F Street, N.W.
Washington, DC 20006

Beyond the extensive efforts of the United Nations, many other academic, professional, and governmental organizations--such as the Commission of the European Economic Communities and the International Union for the Conservation of Nature and Natural Resources--are taking steps to combat the marine debris problem.

Federal Level

Federal Statutes Affecting Marine Debris Programs

Marine Plastic Pollution, Research, and Control Act of 1987

The Marine Plastic Pollution, Research, and Control Act (MPPRCA), requires that the effects of plastic pollution on the marine environment be identified and reduced. This Act is an amendment to the Act to Prevent Pollution from Ships, which regulates the disposal of waste generated during normal operations of vessels. USCG has lead responsibility for implementing MPPRCA. This act also requires establishment of a public education program on plastic pollution and citizen pollution patrols.

MPPRCA includes the provisions of MARPOL Annex V to prohibit the disposal of plastic by vessels at sea and to regulate the disposal of other types of garbage. Jurisdiction extends to any vessels operating in the navigable waters of the United States, including the territorial seas, and U.S. ships, including public vessels, operating anywhere. MPPRCA also requires that placards be placed in ships to highlight garbage disposal limitations. The Act also mandates waste management plans, reception facilities at ports and marinas, citizen monitoring of beach debris, and research on the effects of plastic in the marine environment. As required under MPPRCA, EPA developed a Report to Congress entitled "Methods to Manage and Control Plastic Waste" (EPA, 1990). NOAA prepared another Report to Congress describing the effects of debris on marine life.

Degradable Plastic Ring Carrier Act of 1988

This legislation directs EPA to require that plastic ring carriers be made of naturally degradable material that, when discarded, will decompose within a reasonable time. EPA is currently developing regulations to implement this Act nationally.

Marine Protection, Research and Sanctuaries Act of 1972, as amended by the Ocean Dumping Ban Act of 1988

The Marine Protection, Research and Sanctuaries Act (MPRSA), better known as the Ocean Dumping Act, regulates the transport of materials for the purpose of ocean dumping. MPRSA implements the provisions of the London Dumping Convention (see page 35). While EPA does not permit the ocean dumping of trash or garbage, certain materials can be ocean dumped under this Act (i.e., sewage, fish waste, and dredged material).

An amendment to the MPRSA, the Ocean Dumping Ban Act (ODBA), prohibits ocean dumping of sewage sludge and industrial waste after December 31, 1991. Although the primary purpose of ODBA is to minimize the impacts of ocean disposal, it does not specifically address the handling of plastics. The Act also includes provisions prohibiting public vessels from disposing of potentially infectious medical wastes at sea and toughens the penalties for dumping medical wastes in the ocean.

Shore Protection Act of 1988

The Shore Protection Act requires garbage barges carrying municipal or other nonhazardous commercial waste to install handling systems and obtain permits for waste transport. Under the authority of the Act, EPA and USCG are working to develop a regulatory program to address vessel transportation of wastes. EPA is also preparing a Report to Congress describing the need for and potential effectiveness of a tracking system for vessels transporting wastes in U.S. waters.

Clean Water Act of 1977 as amended by the Water Quality Act of 1987

The Clean Water Act (CWA) outlines a number of programs that regulate discharges into the navigable waters of the U.S. and other activities that affect water quality.

In trying to prevent, reduce, or eliminate water pollution, EPA has set effluent limitations, or restrictions on the discharges of many specific substances, under its National Pollutant Discharge Elimination System (NPDES). All NPDES permits require self-monitoring and reporting of violations, with very severe penalties for falsification. EPA has limited resources to commit to inspection and compliance monitoring. However, EPA has entered into a Memorandum of Agreement (MOA) with the Minerals Management Service (MMS) which has regulatory authority over offshore oil and gas rigs with regard to safety and other operations. The MOA allows the MMS to act as EPA's representative to ensure compliance with NPDES permits.

Storm water discharges are direct, untreated discharges that can include street runoff from storms and illegal sewerage hook-ups--all of which contribute to marine debris. The Act requires that cities with populations over 100,000 develop comprehensive plans for controlling storm water runoff. The plans must include a description of legal authorities and financial support for implementation. The Act also sets deadlines for these cities to obtain permits. These storm water regulations also require that certain industrial facilities that discharge storm water apply for a permit. In implementing this program, EPA Regions IV and VI will emphasize public awareness and education, as well as recycling and pollution prevention, and will also conduct a vigorous program of inspections of industrial discharges. Future EPA regulations

may cover smaller urbanized areas and other industries shown to be a problem. Although plastics are not specifically regulated by the CWA, discharges from factory pipes or city storm sewers that may contain plastics and other types of marine debris are also subject to control. With full state compliance, these regulations will result in a significant decrease in the release of street litter into the marine environment during heavy rains.

Another section of CWA, §319, establishes a program for managing contaminated runoff from nonpoint sources of pollution. Each state is to identify all waterbody segments that fail to meet water quality standards or to attain designated uses due to runoff, boating wastes, faulty septic systems, and other sources of nonpoint pollution. The states must then submit a four-year management program for controlling the pollutant sources. The plans are subject to EPA approval and may be eligible for grants of up to 60 percent of some costs (excluding construction) to assist in implementation.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act provides grants to coastal states for developing and administering management programs for their coastal zones. These programs can include the control of marine debris. The Act protects natural, historic, and archaeological resources, providing also for increased recreational access to coastal areas, management of coastal development, and coordination and streamlining of Federal and state decisions that directly affect these resources. All Federal activities that directly affect a state's coastal zone must be consistent with that state's Federally approved coastal management plan. Alabama, Florida, Louisiana, and Mississippi have developed such plans. The Governor of Texas has given notice to the Department of Commerce that Texas will submit a coastal management plan for approval under the Federal Coastal Zone Management Act.

Medical Waste Tracking Act of 1988

The Medical Waste Tracking Act requires a 24-month demonstration program for the tracking of medical waste in selected states. It also requires EPA to develop lists of medical wastes and regulations for the demonstration program.

The National Ocean Pollution Planning Act of 1978

This Act calls for the establishment of a comprehensive, coordinated, and effective Federal program for ocean pollution research, development, and monitoring. NOAA, in consultation with other agencies, prepares a five-year Federal plan for the National Marine Pollution Program, which is updated every three years.

Marine Mammal Protection Act of 1972

The Marine Mammal Protection Act places a moratorium on the taking and importation of marine mammals and marine mammal products for any purpose other than scientific research or public display. The Marine Mammal Commission, established in 1974 under Title II of the Act, recommends protection and conservation policies on marine mammals for Federal agencies.

Fish and Wildlife Conservation Act of 1980

This Act provides financial and technical assistance to states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. It requires the Fish and Wildlife Service to review Federal projects for their impact on wildlife and allows FWS to specify required activities to reduce harm to wildlife.

Endangered Species Act of 1972

The Endangered Species Act contains provisions to conserve endangered and threatened species and the ecosystems on which they depend. The Act requires that criteria be developed for determining which species are "endangered" or "threatened." The Act prohibits the "taking" of any endangered or threatened species and requires consultation among agencies concerning actions that may jeopardize an endangered or threatened species.

Interagency Coordination

Interagency Task Force on Marine Debris

An Interagency Task Force on Persistent Marine Debris was formed by the White House Domestic Policy Council in 1987 to address the problem of plastics pollution. The Task Force charge was to assess the problem and need for research, find ways to reduce plastic debris, and devise alternative ways to solve the problems of plastic marine pollution. The Task Force is chaired by the Department of Commerce (NOAA) and includes representation from the Department of Agriculture (Animal and Plant Health Inspection Services), Department of Defense (Navy), Department of Health and Human Services (Food and Drug Administration), Department of the Interior (Office of Legislative Affairs), Department of State, Department of Transportation (USCG), EPA, Marine Mammal Commission, Council on

Environmental Quality, Office of Domestic Policy, and the Office of Management and Budget. The recommendations of the Task Force, set out in their 1988 report, include:

- Federal leadership and interaction of state activities and private groups,
- Public awareness and education,
- Vigorous implementation of all laws related to marine debris,
- Research and monitoring of the effects and sources of marine debris and the potential use of degradable plastics, and
- Continuation of beach cleanups and monitoring.

Marine Debris Roundtable

The Marine Debris Roundtable is an advisory group composed of EPA, NOAA, NMFS, FWS, USCG, DOD, NPS, and environmental and industrial organizations, such as CMC and the Society of Plastics Industries. Meeting on an ad hoc basis--roughly once a year--this advisory group has encouraged discussion and coordination of efforts nationally and serves as an arena to exchange information, ideas, and technology on topics such as degradability and control measures. Current activities are focused on:

- Determining the sources and effects of debris;
- Establishing appropriate control measures through education, prevention, and voluntary compliance, as well as regulations and legislation;
- Coordinating resources;
- Coordinating volunteer beach cleanups; and
- Developing monitoring programs to determine the effectiveness of operating control programs.

Beach Cleanups

Through grants to CMC, EPA Headquarter's National Marine Debris Program and NOAA's Marine Entanglement Program sponsor the national beach cleanups, which have occurred from 1987 to 1991. These two agencies also sponsor CMC's National

Marine Debris Database, which contains coastal cleanup collection results on the types and quantities of debris found on the nation's coasts and shorelines. To update the National Marine Debris Database, CMC distributes data cards to states that conduct beach cleanups. All completed cards are returned to CMC for compilation and analysis. In 1990, more than 44,685 volunteers in the Gulf of Mexico participated in the national coastal cleanup. The agencies use the data collection results to monitor marine debris trends along the coastline. EPA and NOAA also fund CMC information distribution centers in Washington, D.C., and California.

NOAA and EPA are coordinating efforts to develop a marine debris monitoring guidance document that describes methods for sampling debris on beaches and at sea to assess trends. The EPA-sponsored pilot programs will be undertaken in New Jersey, Maryland, and possibly Texas. In addition, EPA, the Navy, and the Maritime Administration (MARAD) will co-sponsor a conference on shipboard waste incineration criteria and technologies during the Winter of 1991-92.

Involved Federal Agencies

In addition to the interagency activities, many Federal agencies have taken individual steps to address the marine debris problem. Some of their key activities are highlighted below.

Environmental Protection Agency (EPA)

EPA Administrator William Reilly issued the National Coastal and Marine Policy in 1989. One of the goals of this policy is the recovery of full use of shores, beaches, and water by reducing amounts of plastics, floatables, and debris.

EPA is working toward this goal through a National Marine Debris Program, coordinated in Washington, D.C., as well as through region-specific activities in appropriate EPA regions. The national program focuses on:

- Determining the sources and effects of marine debris;
- Establishing appropriate control measures through education, prevention, and voluntary compliance, as well as regulatory actions; and
- Developing monitoring programs to determine the effectiveness of operating controls.

EPA has conducted a number of activities under this program. For instance, EPA has developed a pilot project for a Bay Keeper Program, which recruits, orients, and retains volunteers for bay patrols and initiates investigation and follow-up with regulatory agencies on pollution incidents. The Agency is testing the program in Annapolis, MD. Active Bay Keeper Programs currently exist in San Francisco Bay and other estuaries.

EPA is also developing a school curriculum that addresses such subjects as the sources and effects of marine debris and pollution prevention techniques. Further, the Agency provided funds to CMC to produce a public service announcement on marine debris featuring Popeye, the cartoon character.

Surveys of floating debris in several U.S. harbors, including the Houston Ship Channel, are being conducted using the Agency's Ocean Survey Vessel, the PETER W. ANDERSON and other ships. Through these studies, EPA hopes to better understand the sources and impacts of floatable debris and to corroborate data collected at national beach cleanups.

EPA is also conducting a study of the incidence and sources of plastic pellets in the environment and is working with the Society of Plastics Industries to analyze the problem and offer recommendations to prevent loss of pellets in the future. In conjunction with this study, EPA has visited seven pellet manufacturing, transport, and use facilities, some of which are in the watershed that drains into the Gulf of Mexico. EPA is also conducting combined sewer overflows/storm sewer studies to determine the amount and types of debris existing in these systems. Floatables collected in sewage treatment plants are also being identified and quantified to determine the types of debris that sewage contributes to the aquatic environment.

Finally, EPA is developing *The National Strategy for Controlling the Release of Debris to the Aquatic Environment.* This strategy will help the Agency implement recommendations from the Interagency Task Force that are EPA's responsibility. The recommendations will be used by EPA headquarters to develop national action plans and by the EPA regions to develop local action plans.

Contact: Mr. David Redford
Office of Wetlands, Oceans, and Watersheds (WH-556F)
U.S. Environmental Protection Agency
401 M. Street, SW
Washington, DC 20460

National Oceanic and Atmospheric Administration (NOAA)

National Marine Fisheries Service (NMFS)

NMFS is charged with protecting, conserving, and managing a wide range of marine species and their habitats. In 1984, Congress directed NMFS to develop a research program in consultation with the Marine Mammal Commission (see page 44). The subsequent International Workshop on the Fate and Impact of Marine Debris held in Hawaii later that year helped define the goals and objectives of the program.

The Marine Entanglement Research Program

Prior to the passage of MARPOL, NOAA began the Marine Entanglement Research Program. Through this program, NOAA and EPA currently sponsor educational activities aimed at debris generators and oversee the operation of two marine debris information offices. NOAA also sponsors research on the origin, amount, distribution, and particularly the effects of debris on marine species; conducts studies on the impacts of debris (such as lost fishing nets) on marine mammals and birds; and explores ways to reduce the amount of non-degradable material lost or disposed of at sea. In June 1989, NOAA released a report to Congress on the fates and effects of plastic debris at sea and methods to mitigate environmental damage.

The Sea Grant College Program

Sea Grant College Program marine advisory agents are involved in public education and in the organization of beach cleanups and workshops to discuss marine debris.

Contact: Ms. Karen Mitchell
National Marine Fisheries Service
P.O. Drawer 1207
Pascagoula, MS 39568-1207

The Department of Transportation (DOT)

The U.S. Coast Guard (USCG)

The Department of Transportation's Coast Guard is the enforcing agency of MARPOL V provisions under the authority of the Marine Plastic Pollution, Research, and Control Act. USCG is mandated to establish guidelines to ensure effective implementation and enforcement of the MARPOL V provisions, as they apply to U.S. navigable waters, vessels, or vessel facilities under U.S. jurisdiction. USCG has

begun to issue certificates to terminals and ports that are equipped with proper disposal facilities for operational solid waste from ships. In addition, USCG is enforcing a new rule, effective July 31, 1990, requiring vessels over 40 feet to have a waste management plan and vessels over 26 feet to display placards outlining plastic and solid waste dumping restrictions. Coast Guard Auxiliaries are considering including information on proper trash disposal practices in their boater safety courses.

In November 1990, USCG proposed a Special Area designation for the Gulf of Mexico at the International Maritime Organization meeting in London.

Contact: Lt. Cdr. William Prosser, U.S. Coast Guard
Eighth Coast Guard District
500 Camp Street
New Orleans, LA 70130-3396

The Department of the Interior (DOI)

Minerals Management Service (MMS)

The Department of the Interior's MMS is the lead regulatory agency for Federal offshore oil and gas operations. MMS has established pollution prevention and control regulations for handling and treating trash and wastes generated by petroleum activities. MMS restricts the disposal of solid waste materials into the ocean and inspects offshore operations to ensure compliance. Under the theme "Take Pride Gulf-Wide," MMS pursues an active role in developing methods and supporting research to mitigate the effects of marine debris. In 1986, MMS issued a special directive to all Gulf of Mexico oil and gas operations to train employees on proper waste disposal. MMS also sponsors an annual Information Transfer Meeting to present major Gulf environmental issues to industry, state and local governments, and the general public. Recently, MMS held special sessions on marine debris.

Contact: Mr. Barney Congdon
Minerals Management Service
1201 Elmwood Park Blvd.
New Orleans, LA 70123

National Park Service (NPS)

Within the Department of the Interior, NPS conducts research on marine debris and has established programs to address disposal and cleanup. NPS actively participates in the Gulf's Take Pride education programs at or related to national seashores, lakeshores, and rivers--including interpretive programs. NPS also works with private groups (such as Keep America Beautiful) to develop solutions to solid waste problems.

NPS has collaborated with USCG and others since 1984 in inventorying, removing, and analyzing the contents of 55-gallon drums washing up on the 65 miles of Gulf shoreline at Padre Island National Seashore. NPS is also conducting a systematic investigation of marine debris at eight National Parks located along the Pacific, Gulf, and Atlantic coasts.

Contact: Ms. Gail Bishop
National Park Service
Gulf Islands National Seashore
3500 Park Road
Ocean Springs, MS 39564

U.S. Fish and Wildlife Service (FWS)

FWS conducts research for NOAA on marine debris ingestion rates and possible effects on seabirds. FWS also cooperates with state agencies to educate fishermen and boaters on the hazards of marine debris. Ongoing habitat research in Florida provides valuable information on entanglement and ingestion and their effects on the endangered Florida manatee.

Contact: U.S. Fish and Wildlife Service
75 Spring St., SW Room 1276
Atlanta, GA 30303

The Department of Defense (DOD)

Since 1971, the U.S. Navy has led a Shipboard Pollution Abatement Program to regulate waste discharges from naval vessels. Although all public vessels (including those of the Navy) are exempt from MARPOL V provisions until 1993, the Navy has implemented a program reducing the amount of plastics dumped by its ships by 70 percent. The Renew America Organization named the U.S. Navy Shipboard Plastics Pollution Prevention Program (SPPP) among the Nation's model environmental programs being recognized in the 1991 "Searching for Success Program." The Navy

has also begun developing alternatives to current shipboard waste management systems and shipboard pollution control equipment. Along this vein, the Navy has investigated source reduction, researched alternative packing materials, begun an education program, and explored new waste management technology--such as shipboard trash compactors--designed to better manage solid and plastic waste generated on board Navy ships.

According to the Navy, an aircraft carrier training ship based in Florida has completed a test of the newly developed solid waste management equipment. Through the use of new technology, the carrier crew was able to hold all plastic, including food-contaminated plastic and all other solid waste, during a two-week test period. Upon returning to port, the plastic waste was recycled into plastic lumber used to make picnic tables, fence posts, pallets, and park benches. More broadly, the Navy convened an Ad Hoc Advisory Committee on plastics to develop a comprehensive plan for waste reduction, handling practices, and educational programs.

The Navy is also working with the CMC to coordinate a program for school children to participate in beach cleanups with the Navy. This educational program will also include tours of Navy vessels and the teaching of proper waste disposal methods.

Contact: Mr. Robert Stender
U.S. Navy
Naval Air Station
Corpus Christi, TX 78419-5100

U.S. Department of Agriculture (USDA)

USDA's *Animal and Plant Health Inspection Services (APHIS)* regulate trash disposal from foreign ships to prevent the entry and spread of exotic pests and disease in the U.S. APHIS regulates transport and disposal of trash on ships arriving at U.S. ports that have visited foreign ports other than Canada. According to APHIS, ships entering the U.S. from a foreign port are required to sterilize, incinerate, or dispose of trash into an USDA approved waste system. APHIS will work with USCG in approving trash disposal facilities and in monitoring compliance with MARPOL V among those ships it currently regulates.

Contact: Plant Protection and Quarantine
6505 Bell Crest Road
Federal Center Bldg.
Hyattsville, MD 20782

The Department of State (DOS)

The State Department played a leading role in U.S. ratification of MARPOL Annex V. Representing the U.S. in international meetings on marine pollution issues and in the negotiation of treaties and agreements for foreign fishing in U.S. waters, the Department of State ensures that the U.S. complies with its international obligations under these agreements.

Contact: Office of Oceans and Polar Affairs
OES/OPA
Room 5801
2201 C Street, NW
Washington, DC 20520

Regional Level

The Gulf of Mexico Program

The Gulf of Mexico Program Marine Debris Subcommittee adopted the "Take Pride Gulf-Wide" theme and logo to reflect its mission and has made great strides toward achieving a litter-free Gulf coastline. Public and industry interest in cleaning up and caring for the Gulf has burgeoned. Public participation in the annual Gulf-wide beach cleanup day in September has grown from 11,000 volunteers in 1987 to more than 37,000 in 1990. Adopt-A-Beach programs have been established in all five Gulf States, and by the end of 1990, 273 public and private sponsors had adopted 286 miles of Gulf of Mexico beaches. The Gulf of Mexico Program has been instrumental in the designation process of the Gulf as a Special Area under MARPOL Annex V. This campaign marks the first time that a Special Area designation has been pursued for United States waters.

In 1989, the Gulf of Mexico Marine Debris Subcommittee funded the following projects:

- Public service announcement emphasizing the ocean as a home to wildlife and the harm caused by marine debris; and

- Marine debris information survey, which is a review of projects, legislation, and educational and information materials on marine debris in the Gulf of Mexico (contained in Appendix B of this document).

In 1990, the Subcommittee funded the following projects:

- Fifteen minute *Take Pride Gulf-Wide* video;
- Manual on how to start and run an Adopt-A-Beach Program, which the Subcommittee hopes to later translate into Spanish for distribution to the Wider Caribbean; and
- U.S. Geological Survey (USGS) pilot project at Fourchon Beach, LA, that is analyzing Adopt-A-Beach data and making recommendations on the long-term use of volunteers for data collection.

In 1991, the Subcommittee is providing support for the National Park Service's study of the Padre Island National Seashore and for the development of a debris data collection methodology for a five-state monitoring program.

Contact: Mr. William Holland
Gulf of Mexico Program
Bldg. 1103, Room 202
John C. Stennis Space Center
Stennis Space Center, MS 39529

EPA Regions IV and VI

EPA Regions IV and VI are currently in the process of implementing this Gulf of Mexico Program Marine Debris Action Plan as part of their marine debris strategies. The regional marine debris programs are intended to complement and supplement the activities of the Gulf of Mexico Marine Debris Subcommittee.

Boater's Pledge Program

In 1990, the Gulf of Mexico Program Marine Debris Subcommittee started pilot projects in the five Gulf States to initiate a Boater's Pledge Program. A Boater's Pledge Workshop was held in June 1991 to facilitate the planning of a region-wide Boater's Pledge Program among the five Gulf States.

Spin-off activities have occurred in each of the five Gulf States including:

- A Boater's Pledge project is also being developed in Alabama. Alabama has published an information pamphlet through the Alabama Sea Grant Extension entitled "Stow-It, Don't Throw It" in addition to producing and distributing 30-gallon boater's trash bags.

- A Boater's Pledge Program will begin soon in Louisiana with materials available to all those in attendance at Beachsweep workshops. Louisiana plans to expand the Boater's Pledge Program statewide, making decals and pledge forms available to the general public for sportsmen, fishermen, and others in addition to ocean-going vessel operators. The materials will be dispersed through the Louisiana Cooperative Extension Offices in each parish, as well as through Sheriffs' offices and the Department of Wildlife and Fisheries agencies.

State Level

Gulf States have also been tackling the marine debris problem. Some of their key activities are highlighted below. The chart on page 60 is a brief overview of state programs related to marine debris.

Alabama

The Alabama Coastal Area Management Program (ACAMP) is currently being revised and will be instrumental in implementing the Gulf of Mexico Marine Debris Action Plan. The State already has several acts under its criminal code that prohibit the disposal of all plastics within U.S. waters. ACAMP divides coastal area program responsibilities between two State agencies. The Alabama Department of Economic and Community Affairs (ADECA) is responsible for administration and planning, while permitting and enforcement activities are conducted by the Alabama Department of Environmental Management (ADEM). ADEM also regulates new boat marinas and requires trash receptacles for the disposal of debris. Enforcement of marine litter laws is the responsibility of USCG and the Alabama Marine Police.

The Alabama Coastal Cleanup takes place on the third Saturday in September, in coordination with National COASTWEEKS and the "Take Pride Gulf-Wide" coastal cleanups. In addition, an Adopt-a-Beach program for Alabama has been approved and is currently being implemented. Pamphlets on Adopt-a-Beach and Coastal Cleanup, along with a bumper sticker, have already been produced.

The Department of Environmental Management, the Department of Conservation and Natural Resources, and the Department of Public Health have proposed legislation that would prohibit the discharge of sewage or refuse from any vessel in Alabama waters. Penalties for violation would range from $100 to $25,000. The Alabama Legislature is considering this bill during its 1991 session.

Contacts: Mr. John Marshall
Alabama Department of Environmental Management
Mobile Field Office
2204 Perimeter Road
Mobile, AL 36615

Mr. Phillip Hinesley
Coastal Programs Office
Alabama Department of Economic and Community Affairs
10936-B Hwy 98
Fairhope, AL 36532

Florida

The Florida Coastal Management Program is a network program implementing Statewide policies and regulations involving the jurisdiction and cooperation of many agencies. The priority issue is resource protection. Principal State coastal regulatory programs address activities in wetlands, beaches, dunes, aquatic preserves, and estuaries, and include point and nonpoint source management. Generally, discharge of any wastes into Florida waters requires a permit. This permit includes specific information about the materials to be released, pollution abatement measures to be undertaken, a time limitation for releases, and any additional conditions or restrictions (mitigation) to preserve and protect the waters of the State. Permission is also required to use sovereign submerged lands. Dumping of litter in waters of the State has been prohibited since 1971 under the Florida Litter Law. The Florida Marine Patrol in the Department of Natural Resources provides an enforcement presence in the State marine waters.

Florida's Solid Waste Management Act of 1988 requires all counties to initiate a recycling program and achieve an overall 30 percent volume reduction goal by 1994. The Act provides grants for public information and education programs and degradability requirements for packaging, including polystyrene. Owners of marinas, ports, terminals, etc., are also required to provide trash receptacles.

In 1988, the Clean Florida Commission was established and a non-profit corporation, Keep Florida Beautiful Inc., was funded to work with civic groups and private industry. These two groups work together on litter control. Keep Florida Beautiful

Inc. administers the Florida Adopt-A-Shore Program, which was initiated in 1990 and already has 370 miles of adopted coastline.

The Florida Department of Education has produced and distributed a solid waste management curriculum for Florida schools (pre-kindergarten through third grade). The Florida Marine Fisheries Commission sets policy on fishing gear and has made it State policy to prohibit the intentional discard of monofilament line or net. The Florida Legislature has, by statute, prohibited the release of more than 10 balloons at one time.

In a coordinated effort, the nonprofit CMC through the Florida office of the CMC organizes the annual Florida Coastal Cleanup. A steering committee of public and private representatives helps plan the Statewide cleanup. The Florida Coastal Management Program in the Department of Environmental Regulation publishes the *Florida COASTWEEKS Calendar.* In 1990, over 18,400 people participated in the one-day cleanup, data collection, and recycling effort. The 1989 and 1990 Florida Cleanups set a world record.

Contacts: Ms. Cindy Cosper
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ms. Heidi Lovett
Center for Marine Conservation
One Beach Dr. SE, Suite 304
St. Petersburg, FL 33701

Ms. Rosemary Prince
Florida Adopt-A-Shore Program
402 West College Avenue
Tallahassee, FL 32301

Louisiana

The Louisiana Coastal Resources Program covers significant land and water activities under the Louisiana State and Local Coastal Resources Act. This Act also provides for Coastal Use Guidelines that cover levees; linear facilities; dredge spoil disposition; shoreline modification; surface alterations; and oil, gas, and other mineral extraction activities. Any discharge into State waters requires a permit under the Louisiana Water Control Law, and discharge of any substance likely to cause water pollution is forbidden.

Two State statutes specifically address marine litter. Act 235 sets penalties for littering in the State, including specific punishments for those who litter from water vessels. Act 936 establishes minimum standards for litter receptacles throughout the State including rules for marinas, piers, boat launching areas, ferry landings, and public beaches.

Presently, Louisiana's Adopt-A-Beach program covers 21 beaches--numbering 38.8 miles. Louisiana has also passed a new recycling law (Act 185 in 1990) mandating recycling in all communities to meet a 25 percent waste reduction by 1992.

Contact: Ms. Barbara Coltharp
Louisiana Office of Litter Control and Recycling
P.O. Box 94291
Baton Rouge, LA 70804-9291

Mississippi

Mississippi's environmental agencies work toward the State goal of regulating water pollution by promoting activities that use resources in compliance with the Mississippi Coastal Program. The coastal program includes wetlands management, fisheries management, policy coordination, special management areas, scenic preservation, and protection of the national interest. In addition, the Mississippi Air and Water Pollution Control Commission is charged with developing regulations for water quality. It is unlawful to cause pollution of any waters or to discharge any wastes that may bring the State's water quality below the Commission's standards.

The Mississippi State Marine Litter Act of 1989 prohibits disposal of plastics and other trash in marine waters and sets the requirements for disposal facilities in certain areas. The Act also includes provisions set forth in MARPOL. Revisions to the law in 1991 provide for containment of certain hazardous substances on boats, recovery of entangled fishing gear, and provisions to impose fines for violations of up to $10,000 and/or community service (25-250 hours) requiring litter collection.

Contact: Mr. Dave Ruple
Mississippi Department of Wildlife, Fisheries, and Parks
Mississippi Bureau of Marine Resources
2620 Beach Blvd.
Biloxi, MS 39531

Texas

The Texas General Land Office has developed a coastal management plan for Texas beaches and the State-owned submerged land underlying the Gulf of Mexico. On June 7, 1991, the Texas State Legislature passed two bills creating a State-Owned Wetlands Conservation Plan and a Coastal Management Plan addressing coastal erosion, beach access, dune protection, and planning and coordination of these activities. The Governor of Texas has given notice to the Department of Commerce that Texas will submit a coastal management plan for approval under the Federal Coastal Zone Management Act.

Texas has also adopted new rules to prevent the dumping of solid waste from marinas, rigs and vessels operating in State waters under State permits. To help promote plastics recycling, State legislation, passed in 1989, requires Texas manufacturers of plastics to use a coding system to facilitate recycling. An educational program for schools, ports, and beach cleanups is being developed to highlight recycling of plastics.

Texas has played a significant role in the ratification of MARPOL Annex V, obtaining Special Area Designation for the Wider Caribbean Region, and in bringing the International Maritime Organization (IMO), the United Nations Environmental Programme (UNEP), and the World Bank together to build reception facilities in the Wider Caribbean Region.

CMC created the Texas Coastal Cleanup in 1986, and works with the Adopt-A-Beach program to coordinate the September Cleanup. The Texas Adopt-A-Beach Program currently has over 190 groups that have adopted all 172 miles of accessible beach in Texas. Over 67,000 volunteers have removed 1,700 tons of debris off Texas beaches. The Texas General Land Office adopted the Texas Lakeshore Cleanup Program in 1989 and conducts over 30 lakeshore cleanups around the State.

The Texas program has gone beyond just beach cleanups, instituting educational efforts and pilot projects to involve commercial fishermen, oil companies, recreational boaters and fishermen, and other Gulf user groups.

Contacts: Ms. Angela Farias
Director of Marine Conservation
Texas General Land Office
1700 North Congress Ave., Room 837
Austin, TX 78701-1495

Ms. Linda Maraniss
Regional Director
Center for Marine Conservation
1201 West 24th Street
Austin, TX 78705

Table 3.1 State Efforts in Addressing Marine Debris

State	Mandatory Recycling Law	State Coastal Zone Mgmt. Plan	National Pollutant Discharge Elimination System (NPDES) EPA-Delegated Program	Litter Law	Beach Adoption Program	Educational Program	Bottle Bill
AL		X	X	X	X	X	
FL	X	X		X	X	X	
MS		X		X	X	X	
LA	X	X		X	X	X	
TX		X	X	X	X	X	

User Groups

According to presentations made at America's Sea Symposium held in December 1990 in New Orleans, LA, key user groups have made some important strides toward combatting the marine debris problem in the Gulf of Mexico. Some of these efforts are described below.

Oil and Gas Industry

The Offshore Operators Committee (OOC) represents 55 oil and gas companies and 26 service companies that conduct virtually all of the oil and gas exploration and production activities in the Gulf of Mexico. The OOC promotes the theme "Clean Rigs, Clean Water, Clean Beaches."

In 1985, the OOC increased employee training on waste disposal, including producing a video entitled "All Washed Up." By the end of 1987, 45 OOC-member companies had used 160 copies of the video for viewing by over 10,000 employees of the oil and gas industry or their contractors (MMS, 1988). Recently, the OOC formed an Ad Hoc Environmental Waste Handling-Recycling Committee to improve the industry's record on the proper disposal of recyclables such as domestic trash, drums, hard hats, and plastic and wooden transportation materials. The new committee is charged with reviewing existing beach cleanup reports, identifying offshore and shore-based waste reduction and recycling areas, providing procedures and educational tools to establish waste management and recycling programs, and assisting local communities to create recycling programs.

According to a recent OOC member survey, 75 percent of respondents use some form of advanced waste management practices for offshore generated waste such as recycling, sorting, or waste minimization. Respondents--31 operators and 5 service companies--represented 70 percent of offshore oil and gas production based on 1988 production data for the Gulf of Mexico. Half of the respondents have implemented a "no polystyrene offshore" policy in regard to food service products. A majority of respondents use covered baskets or an equivalent for transporting solid waste to shore for proper disposal.

Contacts: Mr. Bernie Herbert
Amoco Production Company in New Orleans
P.O. Box 50879
New Orleans, LA 70150

Offshore Operators Committee
P.O. Box 50751
New Orleans, LA 70150

Plastics Industry

The plastics industry, represented by the Society of the Plastics Industry (SPI), is attempting to reduce the number of resin pellets released into the environment. SPI has sponsored numerous activities and provided funding for displays, brochures, and other public education materials--including ads in industry journals--on how to properly dispose of plastics. Intended audiences range from individuals to merchant shippers. SPI works with NOAA to support activities at fishing tournaments, trade conferences, and beach cleanups. SPI is also working with EPA to develop control techniques for the plastics industry.

In 1987, SPI sponsored the '87 Symposium on Degradable Plastics to promote research and give information on degradable plastics. The objectives were to examine not only if and how plastics can be made to degrade but also whether it is desirable for plastic products to be made degradable.

The SPI Plastic Bottle Institute and Plastic Recycling Foundation promote recycling and improved plastics-recycling technology. SPI also formed the Council on Plastics and Packaging in the Environment. A broad-based coalition of various industry representatives, the Council develops and distributes public education materials on solid waste disposal. In 1988, the plastics industry established the Council for Solid Waste Solutions to support technical research, government relations, and communications.

Contact: Society of the Plastics Industry
1275 K Street NW, Suite 400
Washington, DC 20005

Commercial Fishing

A coalition of commercial fishermen from five nations met in 1987 for the the North Pacific Rim Fishermen's Conference on Marine Debris to discuss ways to reduce the problem. The group passed a resolution outlining several goals that members could

undertake ranging from increased efforts to reduce loss of plastic items, to promoting education programs, to research. The fishing industry adopted the "Stow it, don't throw it" motto.

The Texas General Land Office, Texas Shrimp Association, and Texas A&M Sea Grant secured a grant from the Gulf and South Atlantic Fisheries Foundation to sponsor a pilot project known as "Operation Clean Sweep." This project was designed to encourage commercial fishermen to save marine debris caught offshore in shrimp nets and return the debris to port. Three commercial fishing ports in south Texas provided special trash receptacles for offshore shrimpers and participated in special education and outreach activities.

The Organized Fishermen of Florida (OFF) represents commercial fishermen, and has an active Marine Refuse Disposal Project. Through a grant, fishermen from Cortez, FL, have received stow trash, and are working on promoting used oil recycling. They have been active volunteers in the Florida Coastal Cleanup and have worked with other organizations to clean debris from sites that are targeted for future habitat restoration, before restoration begins. They also assisted the CMC with several marine debris education campaigns, including posting aluminum Popeye signs around boat ramps and marinas in Martin and St. Lucie Counties.

Contacts: Ms. Sharron Stewart
Gulf Coast Fishermen's Environmental Defense Fund
P.O. Box 701
Lake Jackson, TX 77566-0701

Ms. Lucy Gibbs
Texas Shrimp Association
403 Vaughn Bldg.
Austin, TX 78701

Mr. Mark Taylor
Organized Fishermen of Florida
Gulf Coast Office
P.O. Box 118
Cortez, FL 34215

Merchant Shipping

According to a presentation made at America's Seas Symposium in December 1990, approximately 33 percent of the modern merchant fleet now operating in the Gulf carries cargo that is shipped in containers or units. This type of cargo generates little or no waste at sea. In anticipation of MARPOL V, ship owners installed and use grinders, compactors, and ship-board incinerators to better handle their waste. In addition, separation of trash and waste reduction are believed to be a common practice, with ship stewards avoiding plastic packaging and buying in bulk quantities. Polystyrene cups and plastic trash can liners have been replaced by reusable drinking cups and paper bags.

The American Institute of Merchant Shippers supports MARPOL V and has required pollution prevention training, logbook entries, and waste management plans in order to comply with its provisions.

Contact: Mr. Ted Thorjussen
West Gulf Maritime Association
1717 E. Loop 610
Houston, TX 77029-4019

Port Authorities

Port Authorities are created by state or local governments to facilitate international trade and to stimulate economic development. In 1987 the American Association of Port Authorities surveyed all U.S. ports to assess how many had adequate disposal facilities for ship wastes, as required by MARPOL V. At that time, approximately 60 percent of the 84 member ports had facilities that were capable of handling regulated wastes. All ports are currently trying to comply with MARPOL V provisions.

Contacts: Colonel Floyd Buch
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P.O. Box 1541
Corpus Christi, TX 78403

Mr. David C. Carpenter
Director of Environmental Affairs
Tampa Port Authority
P.O. Box 2192
811 Wynkoop Road
Tampa, FL 33601

Marine Industries

Boat manufacturers are including MARPOL information placards in their new models. In addition, at least one fishing tackle manufacturer is accepting used monofilament line for recycling. The industry is interested in providing extra services that will contribute to the attainment of waste management goals.

Recreational Boating and Fishing

Boating and fishing enthusiasts are being educated about the dangers of marine debris--mostly through public service announcements and magazine advertisements, including the Regional Boater's Pledge Program. The most memorable message is the "don't teach your trash to swim" fish entangled in the six-pack ring. The Florida Conservation Association reports that its members are participating in the national beach cleanups. Trash bags are being handed out at fishing tournaments. The catch-and-release ethic is being translated to trash and recycling. The U.S. Coast Guard requirement for MARPOL placards on boats over 26 feet has increased awareness. Awareness, and not enforcement, is prompting skippers to inform their charters to "Stow it, don't throw it."

Cruise Lines

The cruise line industry is making progress in complying with the MARPOL regulations and has begun separating wastes. However, recycling facilities are not available at all ports. In addition, education of employees and passengers is still sporadic. One cruise line has made a company policy to dismiss any employee that discards trash overboard. Public awareness and interest in the environmental records of companies has encouraged compliance. Illegal dumping reports may be filed with the nearest U.S. Coast Guard Office.

Private and Nonprofit Organizations

Center for Marine Conservation (CMC)

In 1986, CMC developed a detailed data card for use in the first Texas Coastal Cleanup. That data card is now distributed to beach cleanup volunteers nationwide and in several foreign countries to facilitate the standardization of marine debris information. The data card includes 80 items under the categories of plastic, polystyrene, glass, rubber, metal, paper, wood, and cloth. The cards also include safety tips and sections for the name of the volunteer, beach cleaned, most peculiar

item collected, stranded animals found, and sources of debris. The printing of more than 100,000 data cards is paid for by EPA, NOAA, and USCG.

In 1986, CMC analyzed the data cards from the Texas Coastal Cleanup and, with help from their marine debris steering committee, produced a detailed report on the kinds and amounts of trash found on 16 Texas beaches. This report also included 50 recommendations to stop marine debris and was used by policy makers in Washington, DC, as well as by the media. Since 1988, CMC has published a state-by-state look at marine debris, listing the 12 most common items--"the Dirty Dozen"--found in each state during statewide cleanups held nationally.

The data collected by volunteers has provided valuable information leading to the passage of MARPOL V legislation and has aided in the Gulf of Mexico Special Area designation under the MARPOL V Treaty. These data on marine debris have been used by policy makers, the press, port directors, and users of the oceans.

CMC also conducts research on techniques for saving entangled animals and provides information and technical advice to Congress, Federal and state agencies, and a variety of local organizations.

Contacts: Ms. Linda Maraniss
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Center for Marine Conservation
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Senior Programs Assistant, Florida Regional Office
Center for Marine Conservation
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St. Petersburg, FL 33701

IV. THE UNFINISHED AGENDA --
Both Current Commitments and Uncommitted Activities

GOALS

The Gulf of Mexico Program established three goals for addressing the marine debris problem:

- Eliminate the illegal disposal and careless loss of man-made solid waste in the marine and coastal environments of the Gulf of Mexico;
- Eliminate existing debris from the marine and coastal environments of the Gulf of Mexico; and
- Foster pride and stewardship and increase understanding of the marine and coastal resources of the Gulf of Mexico (including the harmful effects of marine debris) among the user groups of the Gulf of Mexico region.

STRATEGIES, OBJECTIVES, and ACTION ITEMS

The Gulf of Mexico Program hopes to accomplish these goals through four main strategies: monitoring/assessment, cooperation/enforcement, pollution prevention, and public outreach. Specific objectives are grouped according to these solution strategies. Objectives are the specific, short-term targets for attaining the goals.

Each objective is followed by several activities, called action items, that describe specific tasks that the Marine Debris Subcommittee has developed to meet the goals and objectives for reducing marine debris.

Each action item is presented under the objective to which it most directly contributes. Some action items are cross referenced to other action items and are designated with a "→" sign in the left-hand column. This signals a close relationship among those actions and a need for coordination. Some of the activities listed are already underway; these items contain a short "status" update on the progress of the activity.

The Marine Debris Subcommittee has identified a lead agency for each action item--the agency with the most authority or jurisdiction over the particular issue. *This does not necessarily mean that the agency has agreed to carry out the activity or that the agency has the necessary funding to support this activity. The Marine Debris Subcommittee understands these action items will require commitments by agencies*

and organizations that are dependent on budget decisions. However, the Subcommittee members hope this document provides the rationale and support for such commitments and that future iterations of this document will include additional specific commitments.

Monitoring/Assessment

The amount, occurrence, distribution, source, and type of marine debris in Gulf of Mexico waters and on shorelines is currently reported on a limited basis. Some information has been gathered during beach cleanups sponsored by NPS, state parks, and Adopt-A-Beach programs and by use of consistent data cards from the CMC during national annual cleanups--but this is not enough. Current information should be used to further refine a statistically valid baseline from which to monitor changing conditions in the amounts and types of marine debris found throughout the five Gulf States. Other activities, such as USCG inspections, recreation site maintenance, and port disposal activities, can then be incorporated into the data base.

Specific objectives and action items under this strategy include:

OBJECTIVE - Monitor marine debris to assess land-based and marine-based sources and their effects on wildlife, human health and safety, and economics, as well as the effectiveness of measures designed to eliminate marine debris in the Gulf.

Lead: EPA
Target Date: 1992
→ 6

Action Item 1 - Five-State Marine Debris Monitoring Program

EPA HQ should, by 1992, design and implement a standardized, statistically-valid, five-state Marine Debris Monitoring Program for beaches and barrier islands of the Gulf of Mexico, as well as nationwide, to establish a baseline and support measures of improvement and assessments. To accomplish this, EPA HQ will work with CMC, NOAA, and others to design and test a survey methodology and monthly sampling program for monitoring the type, quantity and probable origin of marine debris. This national methodology will be refined to meet the specific needs and objectives of the Gulf of Mexico Marine Debris Monitoring Program, other Federal agencies, and Gulf of Mexico state agencies.

Status: EPA HQ and CMC are working together to develop a national methodology. GMP, via contract with the University of Texas Marine Science Institute, is assisting in the effort which is being tested in Maryland and New Jersey.

Lead: EPA
Target Date: 1992

Action Item 2 - Effect of River Inflow on Solid Waste Study

EPA should determine the effect of river inflow on the quantity, type, and location of solid waste in the Gulf of Mexico. In cooperation with the Freshwater Inflow Subcommittee of the Gulf of Mexico Program and USGS, EPA HQ and Regions IV and VI should select representative rivers for evaluation and analysis. A consistent sampling method and scheme suitable to the information needed should be established at or near the mouths of Gulf of Mexico rivers beginning in 1992.

Status: The Texas General Land Office has developed a "Trash Tally" card for freshwater sources. It is used during the Texas lakeshore and river cleanups. A Region IV NPDES representative is working with GMP on this analysis of the effect of solid waste inflow via rivers within the region.

Lead: GMP
Target Date: 1992
→ 31, 33

Action Item 3 - Pilot Projects for General Storm Water Permits

The Gulf of Mexico Program Freshwater Inflow Subcommittee and Nutrient Enrichment Subcommittee should work with the Gulf States to develop proposals and seek funding for pilot projects for general storm water permits to test cost effective methodologies.

Lead: EPA
Target Date: 1991-2
→ 7, 14, 18

Action Item 4 - Survey of Availability & Use of Trash Facilities in Gulf Ports

All major Gulf ports should be surveyed to determine what new trash facilities have been built, or what plans have been made with waste haulers, to comply with MARPOL V legislation. This study should also document the number of ships that have offloaded trash and the total tonnage of trash offloaded since Annex V has come into force. The survey should also record the amounts charged for offloading. The surveys should be conducted and reviewed in 1991 and results published by 1992.

Status: The Texas General Land Office has contracted with Texas and Louisiana Sea Grant Offices to conduct a survey of Gulf of Mexico Ports, Terminal Operators, and Waste Management and Recreational Facility Operators on how MARPOL Annex V is working, whether recycling is a component, and what the costs are. This is targeted for completion by late September 1991. Also, the Region IV Marine Debris strategy includes a study which is intended to address many of the issues related to the vessel waste handling situation.

Lead: CMC
Target Date: 1992
→ 2

Action Item 5 - Determination of Additional Sources of Marine Debris

CMC should help determine additional sources of marine debris found in the Gulf during 1992. To accomplish this, CMC will provide data cards to volunteers during river cleanups in all Gulf States and collect and analyze the data as part of the National Marine Debris Database.

Lead: NMFS
Target Date: 1992
→ 1

Action Item 6 - Monitoring & Reporting System for Offshore Waters

NMFS should establish a monitoring and reporting system for offshore waters in the Gulf of Mexico to assess the extent of marine debris by 1992. Through aerial surveys and research cruises conducted in the Gulf of Mexico, a recording system should be established to assess the extent of and document floating debris in the Gulf of Mexico.

Status: NMFS Pascagoula Laboratory has been conducting aerial surveys since 1988 and recording the sighting and position of all floating debris.

Lead: EPA
Target Date: 1992
→ 4, 14, 18

Action Item 7 - Survey of Recycling Programs of Gulf Ports & Marinas

EPA Regions IV and VI should, by 1992, report on successful recycling programs of Gulf Coast ports and marinas, develop criteria for instituting such programs Gulf-wide, and provide suggestions for involving the recycling industry. To accomplish this, EPA regions will survey, as necessary, Gulf Coast ports, docks, marinas, and access areas.

Lead: EPA
Target Date: 1991-2
→ 3 5

Action Item 8 - Survey of Plastic Pellet Manufacturing Plants & Users

EPA HQ should work with the Society for the Plastics Industry to survey plastic pellet manufacturing plants and pellet users around Gulf coastal areas in 1991-92, to determine where pellets are being lost to the marine environment and recommend solutions to the problem. EPA regions should follow-up on these report recommendations as appropriate, including site visits and enforcement of NPDES requirements.

Status: EPA HQ has already completed site visits to several plastic pellet manufacturing plants in the watersheds draining into the Gulf of Mexico and is developing recommendations for this industry to control pellet loss (i.e. storm water permits).

Lead: Marine Mammal Stranding Network
Target Date: 1991

Action Item 9 - Increase Distribution of Monitoring Information

The Marine Mammal Stranding Network for the Southeast Region should assist existing Gulf State stranding networks to increase the distribution of monitoring information on stranded animals that have ingested or become entangled in marine debris, beginning in 1991.

Cooperation/Enforcement

The effective control of marine debris in the Gulf of Mexico will require attention to international sources. Debris from 33 countries was reported on Gulf beaches; most was of Latin American or Asian origin. Securing the cooperation of foreign governments and fleets will require a long-term commitment of financial and organizational resources.

Although laws and programs designed to prevent marine debris exist, they are not fully enforced. For example, USCG is the agency responsible for enforcing Federal law, but enforcement is limited by lack of funds and competition with many other USCG programs and priorities in the Gulf. This is true not only of state and Federal laws, but also of city and county ordinances. Inadequate enforcement usually results from competing priorities among programs, inadequate funding, or lack of expertise in developing needed ordinances and programs.

Specific objectives and action items under this strategy include:

OBJECTIVE - Coordinate and secure the enactment of and compliance with Federal, state, and local laws and regulations to prevent pollution by solid waste in the Gulf of Mexico from both land-based and offshore sources.

Lead: States
Target Date: 1992

Action Item 10 - State Implementation of Federal Laws

Each Gulf State should enact laws or develop regulations to implement the Marine Plastics Pollution Research and Control Act, Shore Protection Act, Coastal Zone Management Act, and the storm water management portion of the Clean Water Act in state waters. The Gulf of Mexico Program will work with state agencies and legislators to facilitate the transfer of model legislation among all Gulf States by 1992. The Mississippi Marine Litter Act should be used as an example of model legislation for enforcing the provisions of the Marine Plastics Pollution Research and Control Act.

Lead: EPA
Target Date: Ongoing

Action Item 11 - Coordination & Technology Transfer

EPA HQ should work closely with other national programs (such as NOAA and USCG) to coordinate activities and provide technology transfer to the Gulf of Mexico Program and Gulf States on new techniques and innovative approaches for solving the marine debris problem. EPA HQ and Regions IV and VI will participate in the Marine Debris Roundtable, EPA Regional Marine Debris Coordinators meetings, and in the completion of a national strategy.

Status: A draft strategy is being developed titled "The National Strategy for Controlling the Release of Debris into the Aquatic Environment."

Lead: EPA
Target Date: Winter 1991
→ 4 2

Action Item 12 - Workshop on Shipboard Solid Waste Management

EPA HQ should hold a workshop on Options for Shipboard Solid Waste Management to bring the naval architects, EPA's air enforcement personnel, the shipping industry, and other commercial interests together to discuss safe, environmentally sound options for handling solid waste regulated under MARPOL V by Winter 1991.

Status: EPA HQ is working with the Marine Board of the National Research Council to develop a committee and hold a workshop on issues, problems, and the implementation of MARPOL V. This project is in cooperation with NOAA, USCG, the Maritime Administration, U.S. Navy, and the Marine Mammal Commission. USCG has also completed an inventory and certification of all port facilities serving ocean-going vessels and major fisheries. This will enable an analysis and comparison of efficient waste handling systems.

Lead: GMP
Target Date: Ongoing
→ 15, 16

Action Item 13 - Coordination of State Boater's Pledge Programs

The Gulf of Mexico Program Marine Debris Subcommittee and Public Education and Outreach Subcommittee should facilitate coordination among the Boater's Pledge leaders in each state by providing generic materials and program guidance, coordinating annual meetings, and providing communication through the Bulletin Board System, "Gulfline," and "Gulfwatch."

Status: The Gulf of Mexico Program started Boater's Pledge pilot projects in each Gulf State in 1990, and held a Boater's Pledge Workshop in June of 1991 to facilitate the planning of a region-wide Boater's Pledge Program among the five Gulf States.

Lead: EPA
Target Date: 1991-2
→ 4, 7, 18

Action Item 14 - Awards Program for Trash Facilities

EPA Regions IV and VI should survey docks, marinas, and access areas in the Gulf each year and establish an awards program to recognize proper, easy-to-use, and cost-effective trash facilities. This assessment should begin in 1991, and the first awards should be presented in 1992. This award could be coordinated with existing awards, such as "Take Pride in America."

Lead: USCG
Target Date: 1991
→ 13, 16

Action Item 15 - Marine Debris Information in Boater Safety Courses

USCG should support the Coast Guard Auxiliary and Power Squadrons in Gulf Coast Marine Safety Offices by providing them information on marine debris to distribute during boater safety courses by 1991.

Status: The USCG Auxiliary has published information on marine debris and is distributing it to all Gulf Coast Squadrons. In addition, USCG is providing MARPOL V information, as well as boater's pledge information, in all of their boater safety courses.

Lead: States
Target Date: 1992
→ 13, 15

Action Item 16 - Marine Debris Information in Boating Registration & Fishing License Mailings

Gulf States should include information about marine debris in boating registration and fishing licenses mailed in 1992. The Gulf of Mexico Program will provide examples and materials to state agencies as appropriate.

Status: This will be accomplished through the Boater's Pledge Program where practicable.

Lead: TX GLO
Target Date: 1991

Action Item 17 - Use of Shrimper Placards

The Texas General Land Office will transfer information during 1991 to other Gulf States regarding the use of a shrimper placard developed to meet USCG regulations.

Lead: EPA
Target Date: 1991
→ 5, 7, 14

Action Item 18 - Monitoring Disposal Facilities in Gulf Marinas

EPA Regions IV and VI should monitor Gulf marinas and access areas to determine whether proper disposal facilities are being provided as required under Public Law 100-220 and state regulations where they apply, and take appropriate actions by 1991.

Status: EPA Region IV has begun a region-wide survey of marinas and small port facilities to determine the nature and extent of successful waste handling facilities in Florida, Mississippi, and Alabama.

Lead: GMP
Target Date: 1992
→ 20, 48

Action Item 19 - Citizen Pollution Patrols

The Gulf of Mexico Program Marine Debris Subcommittee should encourage and promote the establishment of a volunteer corps of "citizen pollution patrols" in the five Gulf States. To accomplish this, the Subcommittee should showcase successful prototype programs, emphasizing training and support requirements, powers and authorities granted, and accomplishments, at the Year of the Gulf Symposium in 1992.

Lead: CMC
Target Date: 1992
→ 19, 48

Action Item 20 - Procedures for Reporting Dumping Violations

CMC should distribute information throughout the Gulf region on existing complaint procedures for reporting dumping violations to appropriate enforcement entities. To accomplish this, CMC should expand its program on reporting MARPOL violations, started in New Jersey and Maryland, to include the Gulf of Mexico region. CMC forms and educational information developed for the East Coast pilot should be adapted for use in the Gulf.

Lead: CMC
Target Date: 1992

Action Item 21 - Translation of Educational Posters & MARPOL V Stickers into Foreign Languages

CMC should develop posters and translate these and the Center's MARPOL V sticker into languages spoken by vessel masters on foreign ships (i.e., Philippine, Norwegian, Greek, Japanese, Portuguese, Korean, Vietnamese, and Spanish). These materials should be distributed to all Gulf ports for use on foreign ships by 1992.

Status: CMC has already translated and printed MARPOL stickers into Spanish and Vietnamese. Funding is not currently available for distribution of these stickers.

Lead: GMP
Target Date: 1992

Action Item 22 - Prohibition of Mass Release of Lighter-Than-Air Balloons

The Gulf of Mexico Program Citizens Advisory Committee should, by 1991, work with state legislators to secure legislation to prohibit the mass release of lighter-than-air balloons. To accomplish this, the CAC will present legislators in Gulf States with information about the Florida, Tennessee, and Delaware legislation, and will support or conduct outreach activities, including the use of the CMC's brochure, to inform the public about the dangers to wildlife from the release of balloons.

Lead: USCG
Target Date: Spring 1992

Action Item 23 - Education of Passengers & Crew Members About Marine Debris

USCG should ensure that all cruise line companies and U.S. and foreign flag ships inform passengers and crew members about marine debris, including laws and fines. This will be accomplished by spring 1992 through incorporation of pertinent information in safety instruction sessions given at the beginning of each trip.

Status: USCG is currently working with the shipping and cruise line industry to ensure that proper trash disposal techniques become incorporated into safety information for passengers and training materials for staff, particularly cooks and food handlers. USCG is working through organized boarding teams to inspect ships and is pursuing legislative initiatives.

Lead: GMP
Target Date: 1991

Action Item 24 - Trash Containers on Recreational Boats

The Gulf of Mexico Program Marine Debris Subcommittee should work with recreational boat manufacturers in all Gulf States to incorporate trash containers in the design of boats. The Subcommittee should also begin working with EPA Headquarters, the five Gulf States, and boat manufacturing companies to enact national legislation. This effort should be initiated by 1991.

OBJECTIVE - Implement MARPOL Annex V in the Gulf Subregion of the Wider Caribbean Basin (through USCG).

Lead: GMP
Target Date: 1991-2

Action Item 25 - Distribution of Technical Information to Wider Caribbean Countries

The Gulf of Mexico Marine Debris Subcommittee should work with Caribbean Environment Program (CEP) to distribute technical information about marine debris to countries of the Wider Caribbean in 1991 and 1992. This would include use of the *CEPNEWS* publication.

Lead: NPS
Target Date: 1991

Action Item 26 - Marine Debris Survey To Include The Virgin Islands National Seashore

The National Park Service should include the Virgin Islands National Seashore in the NPS Marine Debris Survey Program by 1991, which would add debris monitoring to the existing watershed monitoring program at the park.

Lead: GMP
Target Date: Ongoing

Action Item 27 - Distribution of Youth Material on Marine Debris & MARPOL V to Wider Caribbean Countries

Beginning in 1991, the Gulf of Mexico Program Public Education and Outreach Subcommittee should work with the Children's Alliance for the Protection of the Environment (CAPE) to distribute youth materials on marine debris and MARPOL Annex V to Wider Caribbean countries that are not currently parties to MARPOL Annex V.

Lead: CMC
Target Date: 1992

Action Item 28 - Translation of Existing Educational Materials into Spanish

CMC should translate into Spanish existing educational materials on marine debris and MARPOL, including "A Citizen's Guide to Plastics in the Ocean." These documents should be printed and distributed to Mexico, Cuba, and other Spanish speaking nations in the Wider Caribbean in 1992.

Status: CMC has printed the data card and MARPOL stickers into Spanish. The book, "A Citizen's Guide to Plastics in the Ocean" has recently been translated into Spanish. Funds are not currently available for the printing and distribution of the translated edition.

OBJECTIVE - Designate and implement the provisions of a Special Area designation of the Gulf of Mexico under MARPOL Annex V for the Gulf Subregion by 1992.

Lead: USCG
Target Date: 1992

Action Item 29 - Bilingual Educational Materials, Port Reception Facilities & Special Study Recommendations

USCG and IMO should provide bilingual educational materials on marine debris and MARPOL, promote port reception facilities for solid waste handling in the Gulf of Mexico Subregion, and implement special study recommendations by 1992

Status: IMO selected Economic Resources Limited from England to conduct a survey of Caribbean ports. The results of the survey will be used to put together a regional plan for the implementation of reception facilities that will be funded by the Global Environmental Fund of the World Bank. The survey of U.S. ports conducted by the Coast Guard has been completed. The survey concluded that "reception facilities are available and adequate at all major ports visited. However, services are often expensive and infrequently used."

Lead: OTA
Target Date: 1992

Action Item 30 - Economic Impact Assessment of U.S. Port Users

The Office of Technology Assessment should conduct an economic impact assessment of all users of U.S. ports and recommend a reasonable fee structure and incentives for implementation of MARPOL V within the Gulf region by 1992.

Pollution Prevention

The most effective way to reduce and eliminate marine debris is to prevent it from entering the system. It will cost far more to clean up pollution later than to prevent it now. Potential initiatives include source reduction and recycling programs, as well as general pollution prevention and waste minimization programs.

Pollution prevention should be a shared responsibility among all in the Gulf region--Federal, state, and local governments, the private sector, and citizens. Waste minimization is an area in which environmental and economic interests, through reduced costs, liabilities, and regulatory burdens, clearly coincide. The Gulf strategy

promotes voluntary waste minimization by providing information, technology transfer, and assistance to waste producers, and information to citizens.

Specific objectives and action items under this strategy include:

OBJECTIVE - Prevent pollution through education (multi-lingual) and promotion of waste reduction, recycling, and special manufacturing processes, and develop incentives where practical.

Lead: GMP
Target Date: 1992
→ 3, 33, 34

Action Item 31 - Development of Storm Water Controls: Best Management Practices, Municipal Ordinances & Management Plans

The Gulf of Mexico Program Freshwater Inflow Subcommittee, Nutrient Enrichment Subcommittee, and Toxic Substance and Pesticide Subcommittee should work with EPA Regions IV and VI and Gulf States during 1991 to develop storm water controls which will include Best Management Practices, municipal ordinances, and municipal management plans.

Status: EPA is currently writing guidelines for the new Coastal Nonpoint Pollution Control Program required by Section 6217 of the 1990 reauthorized Coastal Zone Management Act.

Lead: NPS
Target Date: 1992
→ 43

Action Item 32 - Expansion of Recycling Facilities for Beachusers

National Parks Service and Gulf States' county park agencies should expand recycling facilities for users of beach areas during 1992. The Texas pilot program should be used as a model.

Lead: EPA
Target Date: 1992
→ 3, 31, 34

Action Item 33 - Recycling & Pollution Prevention in City Storm Water Management Plans

EPA Regions IV and VI should include an emphasis on recycling and pollution prevention in the development of city storm water management plans applicable to cities with populations over 100,000, by 1992.

Status: Region IV storm water management program is working with GMP on the development of pollution prevention requirements in city storm water management plans.

Lead: EPA
Target Date: 1992
→ 3, 31, 33

Action Item 34 - Pollution Prevention in Industrial Storm Water Permits

EPA Regions IV and VI should include pollution prevention requirements in industrial storm water permits beginning in 1992.

Status: Region IV is investigating pollution prevention requirements for industrial permits.

Lead: EPA
Target Date: 1992
→ 8

Action Item 35 Targeting Pellet Manufacturing Facilities For General Storm Water Permits

EPA HQ should target pellet manufacturing facilities for storm water general permit regulatory requirements. This issue should be addressed in the 1992 Report to Congress and incorporated in amendments to appropriate regulations.

Lead: OOC
Target Date: 1992

Action Item 36 - Solid Waste Management Practices for Oil & Gas Industry

The Offshore Operators Committee should facilitate the development and implementation of sound solid waste management practices for the oil and gas industry in the Gulf of Mexico. Waste management programs should incorporate waste minimization through bulk packaging and reuse, and include the sorting and recycling of recyclable materials by 1992.

Status: The OOC has formed an ad hoc committee titled the Environmental Waste-Recycling Committee to address these issues. A four-step plan has been developed and approved by the OOC Executive Committee. Step one is to develop an oil and gas marine debris baseline. The investigation portion of this step is complete with a final report due in November 1991. All four steps are scheduled to be completed by the end of 1992.

Lead: OOC
Target Date: 1992
→ 38

Action Item 37 - Storage & Transportation of Solid Waste in Closed Receptacles

In accordance with the Shore Protection Act, the OOC should provide its operators with recommended waste management practices, such as the storage and transportation of solid waste in closed receptacles by 1992.

Status: The OOC's Waste-Recycling Committee has recently met with individual companies to discuss existing waste management practices. Information from this meeting will be utilized to begin building a list of recommended practices.

Lead: OOC
Target Date: 1992
→ 37

Action Item 38 - Industry-Wide "No Polystyrene" Policy

OOC should encourage its members not to use polystyrene products offshore in order to facilitate an industry-wide "no polystyrene" policy by 1992.

Status: Fifty percent of the oil and gas industry now have this policy. This issue will be addressed in the OOC's Waste Management Recommended Practices document discussed in Action Item 37.

Lead: OOC
Target Date: 1992

Action Item 39 - Employee Education & Awareness Programs

OOC should continue and enhance, during 1992, employee education and awareness programs, such as the "All Washed Up" video. These programs should be targeted to offshore personnel.

Lead: MMS
Target Date: 1991
→ 4 1

Action Item 40 - Drum Education & Notification Program - Offshore Oil & Gas Operations

MMS should establish an education and notification program by 1991 to help coastal jurisdictions and organizations identify drums washing ashore from offshore oil and gas operations. This will enable the targeting of responsible companies and facilitate the removal of such drums.

Lead: USCG
Target Date: 1991
→ 41

Action Item 41 - Drum Education & Notification Program - Unknown Sources

USCG should establish an education and notification program by 1991 to help coastal jurisdictions and organizations identify drums washing ashore from unknown sources.

Status: All drums that are leaking should be reported to 1-800-424-8802. All other drums that are found should be reported to the land owner or manager. A memorandum of understanding has been signed between EPA, USCG, NPS, and PAIS (Padre Island National Seashore) for removal of drums on Padre Island National Seashore. EPA has agreed to take the lead in a joint effort to investigate the sources of these drums. EPA Regions IV and VI are working with the State of Texas as it assumes responsibility for response, on-scene command, and funding for drum removal on State lands.

OBJECTIVE - Encourage the use of reusable, recyclable or non-persistent materials as a substitute for disposable materials.

Lead: GSA
Target Date: 1992
→ 1 2

Action Item 42 - Environmentally Benign Products

The General Services Administration should change the Federal government procurement process by 1992 to make it feasible for all agencies to purchase products that are environmentally benign.

Lead: States
Target Date: 1991
→ 32 50

Action Item 43 - Additional Trash Cans/Recycling Bins Beaches

State Adopt-A-Beach programs should require more trash cans/recycling bins at Gulf beaches by 1991. These programs should inform appropriate localities where trash cans/recycling bins are needed, using, where applicable, information from the Texas survey of trash cans. Consideration should also be given to securing state legislation.

Lead: States
Target Date: 1992

Action Item 44 - State Purchasing at Recyclable Products

Each Gulf State should, by 1992, enact legislation to implement state purchasing of recyclable products, including plastic.

Lead: GMP
Target Date: 1991

Action Item 45 - Gulf-Wide Corporate Recycling Council

The Gulf of Mexico Program Marine Debris Subcommittee should promote the establishment of a Gulf-wide corporate recycling council by 1991, modeled after the Texas Recycling Council. To accomplish this, the Texas General Land Office will provide information on the process and model used by Texas. The positive features of the Florida Business and Industry Recycling Program should also be examined.

Public Outreach: Education and Involvement

People living in two-thirds of the United States ultimately affect the environmental quality of the Gulf of Mexico. Therefore, effective pollution prevention requires an ongoing commitment from an informed citizenry. Public outreach nurtures such a commitment. Public information, education, and involvement are three components of an effective outreach strategy, which can reap significant benefits for the Gulf. More and more, public outreach is recognized as an effective resource management tool to address problems resulting from individual actions, such as the improper disposal of household and vessel waste, and to create a sense of stewardship within the community. A committed citizenry presents both a supplement and an alternative to enforcement programs.

Public outreach can foster recognition of the Gulf as a regional and national resource; stimulate civic, governmental, and private sector support for changing lifestyles; and develop the financial commitments necessary to preserve the resource. A strong outreach program showing the effects human activities have upon the health of the Gulf must enable all individuals, whether living on the coast or along the upper stretches of the Mississippi, to see themselves as caretakers of a vital, shared resource.

Specific objectives and action items under this strategy include:

OBJECTIVE - Support and facilitate activities that encourage cleanup and appreciation of coastal waters.

Lead: GMP
Target Date:
1991, Ongoing

Action Item 46 - Gulf-Wide Coastal Cleanup & Marine Debris Survey

The Gulf of Mexico Program Public Education and Outreach Subcommittee, Marine Debris Subcommittee, and Citizens Advisory Committee should facilitate the planning, organization, promotion, and coordination of a volunteer Gulf-Wide Coastal Cleanup and Marine Debris Survey each fall during National COASTWEEKS and National Public Lands Cleanup Month beginning in 1991. The data from these activities will be combined in a comprehensive national database.

Lead: States
Target Date:
Ongoing

Action Item 47 - Beach Cleanup Data Results

State coordinators in each Gulf State should fund the printing and distribution of data results on Gulf-wide state beach cleanups to provide feedback to beach cleanup volunteers about their efforts and provide results to their citizens, beach adoption groups, media, and state agencies. One method would be to print and distribute the data results from the CMC national report.

Lead: CMC
Target Date: 1991

Action Item 55 - Activity Book for Elementary Schools

CMC should print and distribute free of charge throughout the Gulf in 1991 their 92-page activity book for teachers and elementary school children entitled "The Gulf of Mexico: A Special Place."

Status: The activity book has been completed. Due to corporate and foundation grants, CMC was able to begin free distribution of the book in July 1991 to schools in Gulf States. The demand for the book far exceeds the first printing of 7,000 books, and additional funds are not currently available to cover another printing and continued distribution of the book Gulf-wide.

V. CONCLUSIONS

We intend this document to be a beginning, not an end. Our hope is that this Action Plan will serve as an inspiration and a call to action for the thousands who live and work in the Gulf of Mexico region. Marine debris robs the Gulf of its beauty, health, and value. Only by tackling the marine debris problem through purposeful and coordinated action can we hope to eliminate this unsightly and lethal presence from our oceans and beaches.

Through the implementation of the action items highlighted in this Action Plan, we *can* reduce and eventually eliminate marine debris from the Gulf of Mexico.

The Gulf of Mexico Program Marine Debris Subcommittee

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ACRONYM GUIDE

ACAMP	Alabama Coastal Area Management Program
ADECA	Alabama Department of Economic and Community Affairs
ADEM	Alabama Department of Environmental Management
APHIS	Animal and Plant Health Inspection Services
CAC	Citizens Advisory Committee, Gulf of Mexico Program
CAPE	Children's Alliance for the Protection of the Environment
CEP	Caribbean Environment Program
CMC	Center for Marine Conservation
CWA	Clean Water Act
DOD	Department of Defense
EPA	United States Environmental Protection Agency
FWS	U.S. Fish and Wildlife Service
GMP	Gulf of Mexico Program
IMO	International Maritime Organization
MARAD	Maritime Administration
MARPOL	International Convention for the Prevention of Pollution from Ships
MMS	U.S. Minerals Management Service
MMPA	Marine Mammal Protection Act
MPPRCA	Marine Plastic Pollution, Research, and Control Act of 1987
MPRSA	Marine Protection, Research and Sanctuaries Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OCS	Outer Continental Shelf
ODBA	Ocean Dumping Ban Act
OOC	Offshore Operators Committee
OTA	Office of Technology Assessment
PAIS	Padre Island National Seashore
PRB	Policy Review Board, Gulf of Mexico Program
SCS	Soil Conservation Service
SPI	Society of the Plastics Industry
TSC	Technical Steering Committee, Gulf of Mexico Program
TX GLO	Texas General Land Office
UNEP	United Nations Environment Programme
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

GULF OF MEXICO MARINE DEBRIS INFORMATION SURVEY

A Review of Educational and Informational Materials on Marine Debris in the Gulf of Mexico

Texas General Land Office
Garry Mauro, Commissioner
Texas Adopt-A-Beach Program
Austin, Texas

October 1991

Table of Contents

Preface

This Gulf of Mexico Marine Debris Information Survey was prepared by the Center for Marine Conservation for the Texas Adopt-A-Beach Program under the U.S. Environmental Protection Agency, Gulf of Mexico Program, Marine Debris Subcommittee. The survey was conducted to review all educational and informational materials available to date on marine debris in the Gulf of Mexico to provide a means for the Marine Debris Subcommittee to identify gaps in information, avoid duplication, and give direction to the Gulf of Mexico Program efforts.

This report contains listings of past, present, and future marine debris educational materials, legislation, public awareness and marine debris reduction programs, publications and reports, scientific data and research projects, and workshops and conferences pertaining to the Gulf of Mexico. In some cases, educational and informational materials that are national in scope are included where they may have direct applications to the Gulf of Mexico.

Entries are categorized by type of material or information and arranged alphabetically by title within that category. In general, each entry is listed as in the following example:

Sample: **All Washed Up** (video)
Offshore Operator's Committee, 1986
Educational video for offshore oil and gas industry workers...
13 minutes, $48.50 for 1/2" VHS format... tapes.
Contact: Great Ideas Productions

Key: Title of material
Author(s) and/or producer(s), date
Description
Length and cost if any
Contact(s) for the resource:

The complete address, telephone number, and individual for each contact is provided in the list of ***Agencies, Institutions, and Organizations.***

Also included is a Marine Debris Education and Information Inventory Form so that this report can be updated. A copy of this form can be found at the end of this report.

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Agencies, Institutions, and Organizations

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Mississippi/Alabama Sea Grant Consortium

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National Oceanic and Atmospheric Administration

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Anthony Amos

Wildlife Care Center

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(305) 524-4302
Pamela Dortch

Educational Materials

Audio Visuals

Take Pride Gulfwide: an Action Plan for a Clean Gulf of Mexico
(video)
Texas General Land Office, 1991
The Video portrays the problems and some solutions of marine debris in the Gulf of Mexico.
18 minutes
Contact: Gulf of Mexico Program

All Washed Up (video)
Offshore Operator's Committee, 1986
Educational video produced for offshore oil and gas industry workers.
13 minutes, $48.50 for 1/2" VHS format or $69.00 for 3/4" format tapes
Contact: Great Ideas Productions

Clean Ocean Campaign (public service announcement)
Center for Marine Conservation, 1990
Features Popeye the Sailor and Olive Oyl in a sailboat coming across Brutus dumping plastics. Cartoon characteros of seals and sea turtles are shown affected by plastics. "I cans't do it by meself maties, I needs your help" states Popeye after which the 1-800-CMC-CLEAN number appears encouraging viewers to call for more information on marine debris and beach cleanups.
30 seconds
Contact: Center for Marine Conservation, National Headquarters

Commercial Fisherman Slide Show
Center for Marine Conservation, 1987
Educational slide program and accompanying script produced for commercial fishermen with information on how they can help reduce the marine debris problem.
62 slides and script, can be borrowed at no charge or purchased for $25.
Contact: NOAA's Marine Debris Information Office

Don't Mess With Texas Beaches (video)
Texas Sea Grant College Program, in preparation
Information on the hazards posed by marine debris to wildlife and tourism and information on MARPOL Annex V. Produced for junior high school students.
Estimated 20-28 minutes, $20
Contact: Texas Sea Grant College Program

Flotsam and Jetsam: Killing Our Seas (video)
Florida Crossroads Program #111
Describes marine pollution in Florida in 1988. Copies of the half-hour show can be purchased for nonprofit public awareness use.
Contact: Florida Broadcasting Service, Inc., P.O. Box 200066, Tallahassee, FL 32316

Educational Materials

Audio Visuals

Lend a Hand in the Sand (video)

Mississippi Bureau of Marine Resources, 1988
Examines the marine debris problem worldwide and in the context of the Mississippi coastal region. Produced by the Gulf Coast Research Lab and the Mississippi/Alabama Sea Grant Consortium. Distributed to 95 public elementary schools in six southernmost coastal counties of Mississippi.
13.5 minutes
Contact: Mississippi/Alabama Sea Grant Consortium or Gulf Coast Research Laboratory

Marine Refusal Disposal Project (video)

National Oceanic and Atmospheric Administration 1988
Details the pilot project at the Port of Newport, Oregon which was developed to handle shipboard generated wastes.
9:08 minutes, $10 (this video tape is sold together with the "Trashing the Oceans" video program listed below).
Contact: NOAA's Marine Debris Information Office

Marine Debris and Entanglement Slide Show

Center for Marine Conservation, 1988
Educational slide program and accompanying script developed for the general public examines the types, sources, and problems caused by marine debris and efforts to combat the problem.
47 slides and script, $25
Contact: NOAA's Marine Debris Information Office

Plastics are a Different Kind of Trash (video)

National Oceanic and Atmospheric Administration, 1988
Provides information on the marine debris problem particularly as it relates to offshore oil and gas industry workers.
18 minutes
Contact: NOAA's Marine Debris Information Office

Stash Your Trash (slide show)

Stash Your Trash Educational Program, Mississippi Bureau of Marine Resources, and Mississippi/Alabama Sea Grant Consortium, 1989
Discusses various problems associated with marine debris and encourages responsible disposal of trash by recreational boaters.
Contact: Mississippi Bureau of Marine Resources or Mississippi/Alabama Sea Grant Consortium

Educational Materials

Audio Visuals

Take Pride Gulfwide (public service announcement)

U.S. Environmental Protection Agency, Gulf of Mexico Program, 1990
This video was distributed to all five Gulf States. Features a character in dolphin costume that emerges from the water carrying a full bag of trash and walks down the beach to a house where the trash is dumped on a kitchen table. Last 8 seconds used for a filler for each particular state's anti-beach litter message.
30 seconds
Contact: Texas Sea Grant College Program

Take Pride Gulfwide Mississippi Coastal Cleanup (video)

Mississippi Bureau of Marine Resources, 1988
Information on the September 1988 Mississippi beach cleanup.
No longer available
Contact: Mississippi Bureau of Marine Resources

The Challenge On The Coast

Conserving America Series Documentary - shown on PBS in 1989
Contact: WQED, 4802 Fifth Ave., Pittsburgh, PA 15213

Texas Adopt-A-Beach Program (slide show)

Texas Adopt-A-Beach Program, 1987
Describes the various problems caused by the presence of plastics and trash in the marine environment and the Texas Adopt-A-Beach Program's efforts to clean up the Gulf coast.
45 slides
Contact: Texas General Land Office

Trashed-Out Texas Beaches (video)

Texas Sea Grant College Program, 1987
Discusses marine debris in terms of its effects on marine life and Texas beaches. Features country rock band.
No longer available.
Contact: Texas Sea Grant College Program

Trashing the Oceans (video)

National Oceanic and Atmospheric Administration, 1987
Examines the problems of plastic marine debris and discusses efforts to combat the problem. Developed for general public audiences.
7:30 minutes, $10. (This video tape is sold together with the Marine Refuse Disposal Project video program listed above.)
Contact: NOAA's Marine Debris Information Office

Educational Materials

Audio Visuals

Trash Over the Side Means Trash on the Beaches (public service advertisement)

Texas Sea Grant Program and Texas Adopt-A-Beach Program, 1988
Features Lucky the trained dolphin retrieving a bottle after it is tossed overboard by a boater. Lucky heaves the bottle back at the offender, followed by a warning from musician Joe "King" Carrasco "Trash over the side means trash on the beaches and my friend Lucky is tired of it. So hey, don't mess with Texas beaches."
30 seconds
Contact: Texas Sea Grant College Program (not available to the general public)

United States Navy Plastics Waste Management Program Video Presentation Selections

U.S. Navy, 1989
Video includes six program selections on marine debris including "Plastics Waste at Sea," a 12-minute program specifically developed for the Navy on the marine debris problem and features singer Huey Lewis); a three-minute message from the Vice Commander; eight 30-second public service announcements; a copy of a three-minute news clip on marine debris produced by Navy News This Week; a copy of a three-minute news clip from ABC News; and the seven-minute video produced by the National Oceanic and Atmospheric Administration, Trashing the Oceans (see shipboard plastic waste management program and is part of package entitled "Ship's Guide to Recent Navy Initiatives for Shipboard Solid and Plastics Waste Management."
Not available to the general public, intended for naval personnel only.
Contact: U.S. Navy, Chief of Naval Operations

Educational Materials

Brochures

Adopt-A-Beach Program

Texas General Land Office , 1991
Informational brochure on marine debris and Adopt-A-Beach and Lakeshore Cleanup Programs.
3 panels
Contact: Texas General Land Office

A seabird could mistake this resin pellet for a fish egg. And die.

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1987
Developed for the plastics industry with specific information on the problems caused by plastic resin pellets in the marine environment and recommended actions for industry.
8 panels
Contact: NOAA's Marine Debris Information Office or The Society of the Plastics Industry

Be a Beach Buddy: 4th Annual Texas Coastal Cleanup

Center for Marine Conservation and Texas Adopt-A-Beach Program, 1989
Promotional brochure for September 1989 Texas Coastal Cleanup. Summarizes data collected from 1986, 1987, and 1988 beach cleanups.
10 panels
Contact: Center for Marine Conservation, Gulf Coast States Regional Office or Texas Adopt-A-Beach Program

Be a Beach Buddy: Texas Coastal Cleanup September 19, 1987

Center for Marine Conservation, 1987
Promotional brochure for September 1987 Texas Coastal Cleanup with facts on marine debris and entanglement.
10 panels
Contact: Center for Marine Conservation, Gulf Coast States Regional Office or Texas Adopt-A-Beach Program

Boater's and Fisherman's Pledge/Take Pride Gulf Wide

Texas Adopt-A-Beach Program, 1990
Defines the marine debris problem and encourages retrieval and proper disposal of trash generated in or recovered from the Gulf of Mexico. Included is a form inviting personal commitment by boaters to help protect the Gulf of Mexico.
6 panels
Contact: Texas General Land Office

Educational Materials

Brochures

Everyone's Trash Hurts Someone Sometime

Center for Marine Conservation and Texas Sea Grant College Program, 1989
Prepared for commercial fishermen in the Gulf. Documents fishing vessels that have been damaged by marine debris, provides Texas beach cleanup data in terms of items found that are generated by fishermen, and summarizes MARPOL Annex V and the U.S. Coast Guard's role in its enforcement.
8 panels
Contact: Texas Sea Grant College Program or Center for Marine Conservation, Gulf Coast States Regional Office

Great Texas Beach Trash-Off

Texas Adopt-A-Beach and Keep Texas Beautiful, Inc., 1990
Promotion for April 7, 1990 beach trash sculpture contest. Also describes spring cleanup's plastics recycling program.
7 panels
Contact: Texas General Land Office

Help for Hooked Birds

Suncoast Seabird Sanctuary, 1981
Details procedures for the safe release of pelicans and other seabirds that have ingested fishing hooks or become entangled in monofilament fishing line.
8 panels
Contact: Suncoast Seabird Sanctuary

Lend a Hand in the Sand: September Sweep of the Beach 1987

Louisiana Sea Grant Program, 1987
Promotion for September 1987 Louisiana beach cleanup with information on entanglement, recommendations for stowing and recycling trash, and a list of state and local beach cleanup zone coordinators with map of coastal cleanup areas.
8 panels
Contact: Louisiana Sea Grant College Program

Lots of Litter: The Challenge for a Cleaner Coast

Louisiana Geological Survey, 1987
Focuses on importance of Louisiana's coastal zone as a resource and essential wildlife habitat, describes nature and sources of marine debris, and includes brief summary of September 1987 beach cleanup.
8 panels
Contact: Louisiana Geological Survey

Educational Materials

Brochures

Louisiana Litter Watch: Adopt-A-Beach Program

Louisiana Department of Culture, Recreation and Tourism, 1986
Describes Louisiana's Adopt-A-Beach Program with list of Adopt-A-Beach representatives by parish. Provides an adoption agreement form.
4 panels
Contact: Louisiana Department of Culture, Recreation and Tourism

Our Water Planet is Becoming Polluted with Plastic Debris

National Oceanic and Atmospheric Admnistration, 1988
Provides general overview of marine debris problem with recommended actions for individuals. Developed as part of the Port of Newport Marine Refuse Disposal Project.
6 panels
Contact: NOAA's Marine Debris Information Office

Recycle! Please, Our Children's Future Depends On It

Texas Adopt-A-Beach Program, 1990
Provides basic information on recycling, emphasizes environmental protection, and urges public participation in local recycling programs. Includes information on six-pack ring entanglement and volunteer beach cleanups.
12 panels
Contact: Texas General Land Office

Take Pride Gulfwide: Keep the Gulf Coast Beautiful

U.S. Environmental Protection Agency, Gulf of Mexico Program, 1989
Defines marine debris, outlines problems, and lists and describes Gulf Coast States beach cleanup and Adopt-A-Beach programs. Produced by Texas Adopt-A-Beach Program.
6 panels
Contact: U.S. Environmental Protection Agency, Gulf of Mexico Program, or Texas Adopt-A-Beach Program

This discarded line is done fishing. But it's not done killing.

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1988
Developed for recreational fishermen with information on marine debris problem, recommended actions, and requirements of MARPOL Annex V.
8 panels
Contact: NOAA's Marine Debris Information Office

Educational Materials

Brochures

This discarded net is done fishing. But it's not done killing.

Center for Marine Conservation, National Oceanic and Atmospheric Adminstration, and The Society of the Plastics Industry, 1987
Developed for commercial fishermen with information on marine debris problem, recommended actions, and requirements of MARPOL Annex V.
8 panels
Contact: NOAA's Marine Debris Information Office

Tossing this trash overboard can leave death in your wake.

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1988
Developed for recreational boaters with information on marine debris problem, recommended actions, and requirements of MARPOL Annex V.
8 panels
Contact: NOAA's Marine Debris Information Office

Trash for Arts Sake! Beach Trash Sculpture Tour

Texas Adopt-A-Beach Program, 1990
Provides information on winning trash sculptures from the April 1990 contest held in Galveston and announces fall 1990 Texas Coastal Cleanup.
6 panels
Contact: Texas Adopt-A-Beach Program

When it's done holding your ship's garbage, it could hold death for some marine animals.

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1987
Developed for the commercial shipping industry with information on marine debris problem, recommended actions, and requirements of MARPOL Annex V.
8 panels
Contact: NOAA's Marine Debris Information Office

Educational Materials

Fact Sheets/Fliers

Adopt-A-Beach Program "Don't Mess With Texas Beaches"

Texas General Land Office, 1990
Discusses the origin and past accomplishments of the Texas Adopt-A-Beach Program. Provides a toll-free number for information on this program.
1 page
Contact: Texas General Land Office

Consumer Fact Sheet: Disposal of Plastics and Other Garbage in Waters of the U.S.

U.S. Coast Guard, 1988
Outlines and defines key terms for U.S. regulations that implement MARPOL Annex V.
1 page
Contact: U.S. Coast Guard

Florida is Experiencing a Neat Wave

Keep America Beautiful, 1989
Announces Florida's affiliation with Keep America Beautiful.
1 page
Contact: Keep America Beautiful, Inc.

Guidelines for Reducing or Eliminating Trash and Debris in the Gulf of Mexico: Notice to Lessees and Operators of Federal Oil and Gas Leases in the Outer Continental Shelf, Gulf of Mexico OCS Region

Minerals Management Service, 1986
Provides information on marine debris problem traceable to oil and gas operations and recommends marine debris education for offshore workers and trash management plan implementation.
2 pages, Reference number NTL #86-11
Contact: Minerals Management Service

Everything You Need to Know to Start an Adopt-A-Beach Program.

Texas Adopt-A-Beach Program, 1991
Provides information on how to initiate a statewide Adopt-A-Beach program.
Manual
Contact: Texas General Land Office

Educational Materials

Fact Sheets/Fliers

Marine Debris Facts and Figures

National Oceanic and Atmospheric Administration, 1987 (revised 1990)
Provides facts on use of plastics, sources of marine debris, and impacts on wildlife and the marine environment.
8 pages
Contact: NOAA's Marine Debris Information Office

Marine Litter: A Dangerous Eyesore

Louisiana Sea Grant College Program, 1987
Describes problems of wildlife entanglement, decreased tourism, danger to beachusers, and hazards to vessels caused by marine debris.
2 pages
Contact: Louisiana Sea Grant College Program

Operation Clean Sweep/We Take it to Port

Texas Adopt-A-Beach Program, 1989
Outlines year-long program and objectives of model port project in Texas developed to adequately handle shipboard generated trash.
1 page
Contact: Texas General Land Office

Recyclers in the State of Louisiana

Louisiana Department of Culture, Recreation and Tourism, 1988
Lists names, addresses, and telephone numbers of recycling centers throughout the state with information on types of materials handled by each center.
9 pages
Contact: Louisiana Department of Culture, Recreation and Tourism

Stash Your Trash!

Mississippi Bureau of Marine Resources and Mississippi/Alabama Sea Grant Consortium, 1989
Lists various problems associated with marine debris and encourages responsible disposal of trash by recreational boaters.
1 page
Contact: Mississippi Bureau of Marine Resources or Mississippi/Alabama Sea Grant Consortium

Educational Materials

Fact Sheets /Fliers

Take Pride Gulf Wide Beach Cleanup 1989

Minerals Management Service, 1989
Served as announcement of September 1989 Gulf-wide beach cleanup.
1 page
Contact: Minerals Management Service

The Take Pride Gulf Wide Beach Cleanup Will Be Held Saturday, September 23

Minerals Management Service, 1989
Served as announcement of fall 1989 beach cleanups and list of state coordinators.
1 page
Contact: Minerals Management Service

This is the End, Not the Beginning

Wildlife Care Center, 1986
Educational flier on the hazards to wildlife caused by plastic six-pack rings.
1 page
Contact: Wildlife Care Center

Educational Materials

Newsletters

Coastal Connection

Provides information on marine debris problems and ongoing efforts to eliminate marine debris, and promotes beach cleanups nationwide.
Biannually
Contact: Center for Marine Conservation, National Headquarters

Critter Cryer

Information for members of this non-profit center including articles on entangled animals which have been taken for rehabilitation.
Monthly
Contact: Peace River Wildlife Center

Louisiana Update

Includes articles on recycling and volunteer cleanup programs
Quarterly
Contact: Louisiana Department of Culture, Recreation, and Tourism

Texas Beach Bulletin

Includes articles on beach cleanups, coastal management, and other marine issues in Texas.
Quarterly
Contact: Texas General Land Office

Educational Materials

Posters

Do Your Share to Show You Care - Rebeautification in Process

Mississippi Bureau of Marine Resources
Beach Cleanup Poster

Help for Hooked Birds

Suncoast Seabird Sanctuary, 1988
Designed to educate fishermen and beachusers on how to release seabirds that have become entangled in monofilament fishing line.
Contact: Suncoast Seabird Sanctuary

I Hope Ya Swabs Won't Be Throwin No Plastics Overboard

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1989
Four-color poster featuring Popeye the Sailor Man depicts problems caused by plastics in the marine environment.
Contact: NOAA's Marine Debris Information Office

Our Ocean Is Drowning. Stow Your Trash and Prevent Marine Debris. It's the Law.

National Oceanic and Atmospheric Administration, 1988
Colorful poster depicts items of marine debris.
Contact: NOAA's Marine Debris Information Office

Stash Your Trash

Misissippi Bureau of Marine Resources and U.S. Environmental Protection Agency Gulf of Mexico Program, 1987
Depicts pelican on a pole and lists actions to be taken to reduce marine litter.
Out of Print.
Contact: Mississippi Bureau of Marine Resources

Stash Your Trash. It's the Law

Mississippi Bureau of Marine Resources and U.S. Environmental Protection Agency Gulf of Mexico Program, 1989
Served as announcement of 1989 Mississippi fall beach cleanup and state's enactment of a law to enforce MARPOL Annex V regulations.
Out of Print.
Contact: Mississippi Bureau of Marine Resources

Educational Materials

Posters

Stash Your Trash: Marine Litter is More Than an Eyesore

National Oceanic and Atmospheric Administration, 1987
Depicts pelican on a pole and lists actions to be taken to reduce marine litter.
Out of Print.
Contact: Mississippi Bureau of Marine Resources

Educational Materials

Stickers and Decals

Stow It, Don't Throw It!

Center for Marine Conservation, Texas Boating Trades Association, Texas Marina Association, 1987
Bumper sticker for boat trailers, 3" x 5"
Contact: Center for Marine Conservation, Gulf Coast States Regional Office

Stow It, Don't Throw It! Take Pride Gulf Wide

Texas Adopt-A-Beach Program, 1990
Sticker, 3" x 5"
Contact: Texas General Lsnd Office

Take Pride Gulf Wide: Keep Our Coast Beautiful

Minerals Management Service, 1989
Bumper sticker, 3" x 13"
Contact: Minerals Management Service

Take Pride Gulf Wide: Minerals Management Service

Minerals Management Service, 1988
Decal, 4" diameter
Contact: Minerals Management Service

Take Pride Gulf Wide: Stash Your Trash Keep Mississippi Waters and Shorelines Clean

Mississippi/Alabama Sea Grant Consortium, 1989
Sticker, 3.5" x 5"
Contact: Mississippi/Alabama Sea Grant Consortium

Educational Materials

Other Educational Media

Don't Mess With Texas Beaches (coloring book)

Texas Adopt-A-Beach Program, 1988
Developed for elementary school children. Includes 4 songs about littering on the beach. 17 pages
Contact: Texas General Land Office

Face the Ocean Skit

Gulf Coast Research Laboratory, 1988
A character in an "ocean drop" costume is interviewed by a "reporter" on the ocean. Skit includes questions about marine debris and its effects on the marine environment.
Contact: Gulf Coast Research Laboratory

Joey Saves the Day! Texas Adopt-A-Beach Program Puppet Show

Texas Adopt-A-Beach Program, 1988
Five minute puppet show features the Adopt-A-Beach mascot, "Lucky" the dolphin, and a young fisherman named "Joey". This show has been peformed approximately 200 times per year since its inception for elementary children at schools, libraries, and youth group meetings.
Contact: Texas General Land Office

Marine Debris: An Elementary School Public Awareness Program

Scranton Museum, Mississippi Marin Debris Trash Task Force, Mississippi Power Foundation 1989
Teachers packet designed for elementary school children. This packet was distributed to 95 public elementary schools in six southernmost coastal counties of Mississippi. The packet is no longer available.
Contact: Mississippi/Alabama Sea Grant Program or Dave Ruple c/o Mississippi Bureau of Marine Resouces

Marine Debris Bibliography

U.S. Environmental Protection Agency, 1989
Comprehensive bibliography containing information sources on marine debris.
Contact: U.S. Environmental Protection Agency, NOAA

Marine Debris Display

Gulf Coast Research Laboratory, 1988
Public display including wall exhibit and items of debris in aquarium depicting the problems caused by marine debris.
Contact: Gulf Coast Research Laboratory

Educational Materials

Other Educational Media

Marine Gang (actors and costumes)
Florida Sea Grant Extension Program, 1988
Traveling environmental education program on the coastal and marine environment for school children.
Contact: Florida Sea Grant College Program

Save Our Beaches (book mark)
Texas Attorney General's Office, 1987
Provides information on Texas' Open Beaches Act and public access to Gulf beaches with seven safety tips for Texas beach cleanup volunteers.
Contact: Texas General Land Office

Texas State Aquarium Marine Debris Exhibit
Texas State Aquarium, 1990
Public display including visuals and discovery boxes depicting the problems caused by marine debris. Exhibit highlights impacts of plastics and tar. Includes information on Texas Adopt-A-Beach Program and beach cleanups.
Contact: Texas State Aquarium

Thanks matey, I couldn't do it without you
Center for Marine Consevation, 1989
Metal button features Popeye the Sailor Man and promotes the Clean Ocean Campaign
Contact: Center for Marine Conservation, National Headquarters

Report to Congress on Plastics Waste
U.S. Environmental Protection Agency

Stash Your Trash - Keep Mississippi Beaches Clean
Mississippi Bureau of Marine Resources
Metal button.
Contact: Mississippi Bureau of Marine Resources

U.S. Environmental Protection Agency Headquarters Library
Room 2904 PM-211A
Washington, D.C. 20460
(202) 382-5922

Legislation

Federal

Act to Prevent Pollution from Ships

33 U.S.C. 1901 et seq.

As amended in 1987 by the Marine Plastic Pollution Research and Control Act, prohibits the discharge of plastics and regulates the discharge of other garbage from ships in navigable waters of the United States. Jurisdiction extends to any vessels operating in the navigable waters of the United States, including the territorial seas, and to U.S. ships operating anywhere. This is the U.S implementing legislation for the MARPOL Protocol and therefore also regulates the discharge of oil and hazardous substances from ships.

Clean Water Act

33 U.S.C. 1251, 1262, 1311 et seq (also called Federal Water Pollution Control Act)

Establishes a means to restore and maintain the chemical, physical, and biological integrity of U.S. waters and control pollution. This law sets water quality standards and limitations on effluent from point soruces, regulates discharges from point soruces, and prohibits discharge of toxic substances, oil, or other hazardous substances.

Comprehensive Enviromental Response, Compensation, and Liability Act

42 U.S.C. 9601 et seq.

Provides a mechanism to act in the fact of substantial enviromental damage, and to address the costs of enviromental cleanup associated with such action.

Degradable Plastic Ring Carriers

42 U.S.C. 6814

Enacted in October 1988, this law requies that by, October 1990, the U.S. Enviromental Protection Agency shall require that any plastic ring carrier device intended for use in the United States shall be made of naturally degradable material which, when discarded, decomposes within an established period of time.

Endangered Species Act

16 U.S.C. 1531 et seq.

Provides a means whereby the ecosystems upon which endangered species and threatened spcies depend may be conserved. Prohibits taking of any endangered or threatened species by any person subject to U.S. jurisdiction. Take is defined as kill, trap, harass, pursue, hunt, shoot, wound, capture or collect, or attempt to engage in any such conduct.

Legislation

Federal

Fishery Conservation and Management Act

16 U.S.C. 1801 et seq.

Established to conserve and manage the fishery resoruces found off the coast of the United States and to promote sound conservation and management principles. Includes a prohibition on the disposal of nets into U.S. waters by foreign fishermen operating in U.S. waters.

Marine Mammal Protection Act

16 U.S.C. 1361 et seq.

Ensures that species and population stocks of marine mammals do not dimish beyond the point where they cease to be a significant functioning element in the ecosystem of which they are a part. Establishes a moratorium on taking marine mammals. Take is defined as harass, hunt, capture, or kill.

Marine Plastic Pollution Research and Control Act

33 U.S.C. 1901

Prohibits the disposal by vessels of plastics at sea and regulates the disposal of other types of garbage. This law amended the Act to Prevent Pollution from Ships to include the provisions of MARPOL Annex V. Jurisdiction extends to any vessels operating in the navigable waters of the United States, including the territorial seas, and to U.S. ships operating anywhere, including public vessels. The term vessel also includes fixed or floating platforms and vessels within 500 feet of these structures. Also requires placards on garbage disposal limitations, waste management plants, reception facilities at ports and marinas, citizen monitoring of beach debris, research on the effect of plastics in the marine enviroment, and public education.

Marine Protection, Research and Sanctuaries Act

33 U.S.C. 1401 et seq. (also called the Ocean Dumping Act)

Regulates dumping at sea of all types of materials generated on land and prevents or strictly limits ocean dumping of materials "...which adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities." This is the U.S. implementing legislation for the international London Dumping Convention.

Medical Waste Tracking Act of 1988

42 U.S.C. 6992 et seq.

Enacted principally in response to growing public concern over medical waste washups on beaches, this amendment to the Resouce Conservation and Recovery Act regulates generators and handlers of solid and hazardous wastes and requires standards be set for proper separation, labeling, packaging, and tracking of certain classes of medical waste from point of generation to point of disposal.

Legislation

Federal

Migratory Bird Treaty Act

16 U.S.C. 703 et seq.

Prohibits taking of migratory birds listed in treaties between the United States and Great Britain, Mexico, Japan, and the Soviet Union.

Ocean Dumping Ban Act of 1988

33 U.S.C. 1401 et seq.

As an amendment to the Marine Protection, Research and Sanctuaries Act, this law prohibits ocean dumping of sewage sludge and industrial wastes after December 31, 1991, and also includes provisions prohibiting public vessels from disposing of potentially infectious medical wastes at sea and toughens the penalties for dumping medical wastes in the ocean.

Resource Conservation and Recovery Act of 1976

42 U.S.C. 6901 et seq.

Promotes the protection of health and the environment by regulating the disposal of solid waste.

Rivers and Harbors Act of 1989

33 U.S.C. 4407 (also called The Refuse Act)

Prohibits discharge into navigable waters or their tributaries "any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state." Jurisdiction includes all internal navigable waters and extends to three miles.

Legislation

Alabama

Balloon Legislation (City of Huntsville)

1990

Prohibits intentional release of 10 or more balloons made of a nonbiodegradable materials, or a biodegradable material that requires more than several minutes of contact with air or water to degrade, and inflated with a gas that is lighter-than-air.

Florida

Florida Balloon Legislation

1989. Senate Bill #348 Chapater 89-113 Laws of Florida, Statues 372-995

Prohibits release of more than 10 lighter-than-air balloons within 24-hour period.

Florida Degradable Plastics Rule

1989. Chapter 17-707 Laws of FLorida, 372.995 F.S.

Establishes standards and criteria by which materials are determined to be degradable and procedures by which manufacturers can apply to have their material or product determined to be degradable and approved for distribution or sale in Florida including plastic. In addition, Section 400 of this law entitled "Container Holding Devices" requires degradable plastic beverage container rings by July 1, 1989; Section 420 requires degradable plastic retail bags by January 1, 1990; and Section 440 requires polystyrene foam and plastic-coated paper products used in conjunction with food effective one year after the Enviromental Regulation Commission has determined by rule that such products meet certain requirements.

Florida Litter Law, as amended 1990

1988. 403.413

Prohibits the unpermitted disposal of litter and human waste from planes, trains, motor vehicles, and vessels; imposes penalties for dumping of human waste effective October 1,1993.

Louisiana

Louisiana Adopt-A-Beach Programs

1988. Enact R.S> 25: 1114.1

Authorized establishment of the Louisiana Adopt-A-Beach Program.

Legislation

Louisiana

Louisiana Litter Control Laws

1987. Senate Bill 193 ACT 235. Amends and re-enacts R.S. 25-111(A) & (B) and enacts R.S. 25: 111(E) & 111(A).
Extends existing laws and penalties for littering in rural area, adds existing penalties, and provides a penalty for throwing litter from a "water vessel." R.S. 25:111(B)(5) prohibits littering from boats and sets a fine of $100-$2,000 and a minimum jail term of six months.

Louisiana Litter Receptacle Placement Rule

1988. ACT 936, Louisiana Department of Culture, Recreation and Tourism: Litter Control and Recycling Commission Adoption of Title 25, under Cultural Resources: Part V, Chapter 3:301, 303, 305, 307, 309, 313, 315, 317.
Sets and defines minimum standards and requirements for the placement of litter receptacles in public areas.

Louisiana Solid Waste Recycling and Reduction Law

1989. House Bill 1199 Act 185
Requires degradable plastic beverage container rings by January 1, 1991.

Mississippi

Mississippi Marine Litter Act of 1989

Senate Bill 2675
As of July 1, 1989, prohibits the disposal by vessels of plastics and other garbage in marine waters of Mississippi and provides penalties up to $500 for first offenses and $10,000 for subsequent violations. Requires all marinas and other access areas used by vessels to have proper disposal facilities.

Texas

Texas Plastics Coding

1990. SB 444, 5-6-32-310
Requires plastic containers display a symbol indicating the type of resin used in their manufacture imprinted on the container. Applies to all plastic bottles and rigid plastic containers that are manfactured or distributed on or after July 1, 1991.

Legislation

Texas

Texas Oil Spill Prevention and Response Act

1991. SB 14

The Texas General Land Office is in charge of marine oil spills and authorizes the GLO to take a leadership role in the prevention of and response to spills.

Texas Omnibus Recycling Legislation

1991. SB 1340

This major waste management initiative provides for state procurement incentives and requirements; used oil, tire, and battery recycling; environmental education; and a recycling market study.

Texas Comprehensive Coastal Management Legislation

1991. SB 1053

This major new coastal initiative includes provisions on beach access, dune protection, beach erosion, and agency coordination.

Texas Protection and Enhancement of State-Owned Coastal Wetlands

1991. SB 1054

Public Awareness and Marine Debris Reduction Programs

Adopt-A-Beach Programs

Alabama Adopt-A Beach Program
Proposed to begin in October 1990
Contact: Alabama Department of Environmental Management

Florida Adopt-A-Shore Program
Not officially established as of September 1990
Contact: Keep Florida Beautiful, Inc.

Louisiana Adopt-A-Beach Program
Initiated in 1989
Contact: Louisiana Department of Culture, Recreation and Tourism

Mississippi Adopt-A-Beach Program
Initiated in September 1989
Contact: Mississippi Bureau of Marine Resources

Texas Adopt-A-Beach Program
Initiated in 1987
Adopting groups are assigned a section of coastline which they agree to clean two or three times per year. Two cleanups take place during the major statewide Texas beach cleanups conducted each year, spring and fall.
Contact: Texas Adopt-A-Beach Program

Coastal Cleanup Programs

Alabama Coastal Cleanup
Initiated in September 1988
Annual volunteer fall beach cleanup.
Contact: Alabama Department of Environmental Management

Florida Coastal Cleanup
Initiated in September 1988
Annual volunteer fall beach cleanup.
Contact: Center for Marine Conservation, Florida State Office

Public Awareness and Marine Debris Reduction Programs

Coastal Cleanup Programs

Great Texas Beach Trash Off

Initiated in April 1987
Annual volunteer spring beach cleanup.
Contact: Texas Adopt-A-Beach Program or Keep Texas Beautiful, Inc.

Louisiana September Sweep

Initiated in September 1987
Annual volunteer fall beach cleanup.
Contact: Louisiana Department of Culture, Recreation, and Tourism

Mississippi Coastal Cleanup

Initiated in October 1987
Annual volunteer fall beach cleanup.
Contact: Mississippi Bureau of Marine Resources

National Beach Cleanup and Marine Debris Database

Initiated in 1987
Annual volunteer fall beach cleanup using standardized data cards. This effort serves to coordinate all beach cleanups in U.S. coastal states and territories including the five Gulf Coast States. Data collected during these cleanups is compiled and analyzed in a final national report. The first national beach cleanup took place in 1988, with subsequent cleanups in 1989 and 1990. The national program also works with international groups in organizing beach cleanups. Funding for this program has been provided in part by the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, the Society of the Plastics Industry, the Council for Solid Waste Solutions, Dow Chemical Company, the National Association of Plastic Container Recovery, and private contributions.
Contact: Center for Marine Conservation, National Headquarters

Texas Coastal Cleanup

Initiated in September 1986
Annual volunteer fall beach cleanup.
Contact: Center for Marine Conservation, Gulf Coast States Regional Office, or Texas Adopt-A-Beach Program

Public Awareness and Marine Debris Reduction Programs

Other Programs

Cameron County Parks Department Trash Bag Deposit-Return Program

Initiated in 1988

Beach visitors at park pay 50 cents and receive a trash bag and list of safety rules. Refunds are given for returned filled bags.

Contact: Cameron County Parks or Texas Adopt-A-Beach Program

Compilation of Responses to Information Request on Beach Trash and Debris

April 1989

A questionnaire on the marine debris issue was sent to the directors of all five Gulf coast state natural resource agencies responsible for maintaining Gulf parks and beaches. A five-page summary report is available.

Contact: Minerals Management Service

Fisherman's Resolution on Marine Debris

Initiated in 1987

A three-part resolution outlines an effort to stow all trash and to retrieve any trash found at sea and bring it to shore. The resolution encourages fish houses, marinas, and other land-based facilities to provide trash receptacles and recycling programs.

Contact: Organized Fishermen of Florida

NOAA's Marine Debris Information Office

National Oceanic and Atmospheric Administration, 1988

This national clearing house distributes educational and informational materials on the marine debris problem including 14 packets designed for specific groups or covering specific topics as follows: elementary school children, secondary and high school children, teachers and educators, general public, plastics recycling and degradability, offshore oil and gas companies, recreational boaters and fishermen, commercial fishermen and processors, port and terminal operators, press and media personnel, plastics industry, cruise ship passengers, cargo vessel operators or passengers.

Contact: NOAA's Marine Debris Information Office

Offshore Operator's Committee Beach Litter Questionnaire

July 1990

The Offshore Operator's Committee, representing more than 70 companies that are involved in oil and gas exploration and production in the Gulf of Mexico, distributed a questionnaire to the industry to solicit suggestions for methods which might be implemented to eliminate the problem of beach litter originating from offshore industry operations. A summary report of the survey results is available as of October 1990.

Contact: Offshore Operator's Committee

Public Awareness and Marine Debris Reduction Programs

Other Programs

Operation Clean Sweep

Initiated in 1989

Pilot project designed to encourage commercial fishermen to properly dispose of shipboard-generated trash and to retrieve and deliver marine debris caught in their nets to onshore collection stations. Three Texas ports are participating in this project (Brownsville, Palacios, and Aransas Pass) by providing facilities for collection of debris and arranging for its disposal.

Contact: Texas Shrimp Association, Texas General Land Office, or Texas A&M Sea Grant

Operation Trashmaster

Initiated in 1988

Louisiana recreational fishermen are encouraged to bring their litter back to port. This "Cast Your Line Not Your Litter" Campaign was first implemented through Louisiana fishing rodeos.

Contact: Louisiana Sea Grant College Program

Texas Beach Cleanup Plastics Recycling Projects

Initiated in March 1990

In spring 1990, Texas beach cleanup volunteers in Galveston, Corpus Christi, Padre Island, and Padre Island National Seashore separated plastic trash from other debris. The plastic was then reprocessed and made into park benches. During the fall 1990 Texas Coastal Cleanup this project was expanded to a statewide effort.

Contact: Texas General Land Office

Publications and Reports

Alabama Coastal Cleanup September 24, 1988: Get the Trash Out of the Splash Summary Report

Alabama Department of Environmental Management, 1988
Summary of 1988 Alabama beach cleanup with list of zone captains, sample data cards and guide to marine debris, sponsors, and local newspaper clippings.
31 pages
Contact: Alabama Department of Environmental Management

Alabama Coastal Cleanup September 23, 1988: Get the Trash Out of the Splash Summary Report

Alabama Department of Environmental Management, 1989
Summary of 1989 Alabama beach cleanup with list of zone captains, sample data cards and guide to marine debris, and newspaper clippings.
12 pages
Contact: Alabama Department of Environmental Management

All About Beach Cleanups

Center for Marine Conservation, 1989
Guide to organizing a beach cleanup with information on data collection and publicity, and examples of successful cleanup programs.
30 pages
Contact: NOAA's Marine Debris Information Office

Citizens Guide to Plastics in the Ocean

Center for Marine Conservation, National Oceanic and Atmospheric Administration, and The Society of the Plastics Industry, 1988
Provides information for the general public on the marine debris problem, relevant legislation, and programs and projects developed to reduce the problem.
143 pages
Contact: NOAA's Marine Debris Information Office

Cleaning America's Beaches: 1988 National Beach Cleanup Results

Center for Marine Conservation, 1989
Provides national, state, and local results of data on types and quantities of marine debris collected during the 1988 National Beach Cleanup. Includes information on Alabama, Florida, Louisiana, Mississippi, and Texas.
202 pages
Contact: Center for Marine Conservation, National Headquarters

Publications and Reports

Cleaning North America's Beaches: 1989 Beach Cleanup Results

Center for Marine Conservation, 1990
Provides national, state, and local results of data on types and quantities of marine debris collected during the 1989 Beach Cleanup in addition to data collected in Canada and Mexico. Includes information on Alabama, Florida, Louisiana, Mississippi, and Texas.
310 pages
Contact: Center for Marine Conservation, National Headquarters

Dealing with MARPOL Annex V - Reference Guide for Ports

National Oceanic and Atmospheric Administration, 1988
Information for marine port and terminal operators on improving refuse reception facilities for shipboard generated wastes. Includes information on the establishment of education programs, advisory committees, defining needs of a port, and recovering costs. This guide was produced based on the results of the Port of Newport Marine Refuse Disposal Project and written by Fran Recht.
132 pages
Contact: NOAA's Marine Debris Information Office

Dealing with Garbage under MARPOL Annex V: Examples of Compliance Approaches used by the Shipping Industry

National Oceanic and Atmospheric Administration, 1989
Identifies approaches and techniques being used by the shipping industry to comply with MARPOL Annex V. Includes case studies of commercial shipping companies, cruise lines, ports, and a barge company. Prepared by A.T. Kearney, Inc.
62 pages
Contact: NOAA's Marine Debris Information Office

Designation of the Gulf of Mexico as a Special Area under MARPOL Annex V

U.S. Environmental Protection Agency, Gulf of Mexico Program, 1990
Provides technical information in support of designation of the Gulf of Mexico as a "Special Area" under MARPOL Annex V. Prepared for the EPA by the Oceanic Society for submission to the International Maritime Organization.
50 pages.
Contact: U.S. Environmental Protection Agency, Gulf of Mexico Program

Educating the Public on the Dangers of Marine Debris: A Report on a Plastics Education Program

Florida Fisheries Commission, 1989
Prepared for Governor Martinex as part of a package on coastal protection measures. Developed to provide recommendations concerning proposed rulings on fishing gear designed to address the adverse effect of monofilament fishing line and nets on Florida's beaches and coastal waterways and other initiatives to help educate the public on the dangers posed by marine debris.
56 pages
Contact: Florida Department of Environmental Regulation

Publications and Reports

Experience in Helping Cruise Lines Comply with MARPOL Annex V

National Oceanic and Atmospheric Administration, 1989
Discusses marine debris education efforts for the cruise line industry and includes information on MARPOL Annex V and beach cleanup data findings of trash originating from cruise lines. Also included are examples of educational materials available to cruise lines. Prepared by the Center for Marine Conservation.
12 pages
Contact: NOAA's Marine Debris Information Office

Florida Coastal Cleanup September 23, 1989: Foreign Debris

Center for Marine Conservation, 1989
Lists number of marine debris items originating from foreign countries collected during Florida's fall 1989 beach cleanup.
3 pages
Contact: Center for Marine Conservation, Florida State Office

Florida's Marine Debris Problem: A Report on the First Florida Statewide Coastal Cleanup, September 24, 1988

Center for Marine Conservation, 1989
Final results of the September 24, 1988, Florida Coastal Cleanup with information on types and quantities of trash collected by zone, and recommendations for solving this problem in Florida.
60 pages
Contact: Center for Marine Conservation, Florida State Office

Marine Debris Survey Annual Report

National Oceanic and Atmospheric Administration and National Park Service, 1989
Tri-annual reports issued on studies being conducted as part of a joint federal effort to study persistent marine debris on coastal beaches. Information is being compiled from eight national parks including Padre Island National Seashore and Gulf Islands National Seashore.
29 pages
Contact: Padre Island National Seashore, Gulf Islands National Seashore, or National Park Service

Mississippi Coastal Cleanup: Summary Report 1989 Take Pride Gulfwide

Mississippi/Alabama Sea Grant Consortium, 1989
Summary of 1989 Mississippi beach cleanup with data on types and quantities of trash collected.
7 pages
Contact: Mississippi/Alabama Sea Grant Consortium

Publications and Reports

Model Plastics Refuse Control and Minimization Plan

National Oceanic and Atmospheric Administration, 1989
Outlines techniques being used by the shipping industry to comply with MARPOL Annex V requirements including formats for plastics control and minimization plans and crew education and training. Prepared by A.T. Kearney, Inc.
47 pages
Contact: NOAA's Marine Debris Information Office

1988 Report of the Interagency Task Force on Persistent Marine Debris

White House Domestic Policy Council, 1988
Report of a multi-agency federal effort to assess the problem of marine debris, identify potential reduction measures, and develop recommendations. Includes specific information for the Gulf of Mexico. A 41-page synopsis of this report is also available. It is entitled "Persistent Marine Debris. Challenge and Response. The Federal Perspective."
169 pages
Contact: National Oceanic and Atmospheric Administration, Office of Chief Scientist

1986 Texas Coastal Cleanup Report

Center for Marine Conservation, 1987
Summary of September 20, 1986, Texas Coastal Cleanup with information on types and quantities of trash collected by zone and recommendations for solving the problem in Texas.
52 pages
Contact: Center for Marine Conservation, Gulf Coast States Regional Office

Persistent Marine Debris in the North Sea, Northwest Atlantic Ocean, Wider Caribbean Area, and the West Coast of Baja California

National Oceanic and Atmospheric Administration, National Ocean Pollution Prevention Program Office, and Marine Mammal Commission, 1988
Includes a 35-page section on the Wider Caribbean region with a discussion on the distributions, economic effects, and hazards to wildlife posed by marin debris. Prepared by Burr Heneman and the Center for Marine Conservation.
150 pages
Contact: Center for Marine Conservation, National Headquarters

Publications and Reports

Proceedings of the Workshop on the Fate and Impact of Marine Debris

National Oceanic and Atmospheric Administration, 1985
Papers presented at this workshop provided the first comprehensive review information regarding the marine debris problem. Although the majority of papers concentrated on the Pacific region, the findings and recommendations of this workshop have broad application. Edited by R.S. Shomura and Y.O. Yoshida. NOAA Technical Memorandum NMFS. NOAA-TM-NMFS-SWFC-54.
580 pages, Order Number PB86-146941, $53 for photocopy, $8 for microfiche
Contact: National Technical Information Service

Proposal for International Maritime Organization Assistance to Implement MARPOL 73/78 Annex V in the Wider Caribbean

International Maritime Organization, 1990
Proposal to station a marine debris expert in the Gulf of Mexico/Caribbean Sea region.
50 pages
Contact: U.S. Coast Guard

September Sweep: Louisiana's 1987 Beach Cleanup

Louisiana Geological Survey, 1987
Summary of 1987 Louisiana beach cleanup with data by zone on types and quantities of debris collected.
30 pages
Contact: Louisiana Geological Survey

Shipping Industry Marine Debris Education Plan

National Oceanic and Atmospheric Administration, Marine Entanglement Research Program, 1989
Comprehensive marine debris education plan for the shipping industry in addition to U.S. ports and cruise lines. Objectives are to increase awareness of MARPOL Annex V and to encourage compliance.
Prepared by A.T. Kearney, Inc.
79 pages
Contact: NOAA's Marine Debris Information Office

Use of MARPOL Annex V Reception Facilities and Disposal Systems at Selected Gulf of Mexico Ports, Private Terminals and Recreational Boating Facilities

Texas General Land Office, 1990.
Prepared by Texas and Louisiana Sea Grants
Contact: Texas General Land Office

Publications and Reports

Ship's Guide to Recent Navy Initiatives for Shipboard Solid and Plastic Waste Management

U.S. Navy, Office of Chief of Naval Operations, 1988
Educational materials and sample plastic waste reduction programs prepared by the Navy for shipboard use on the marine debris problem.
25 pages
Contact: NOAA's Marine Debris Information Office

Survey and Evaluation of Fishing Gear Losses in Marine and Great Lakes Fisheries of the United States

National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Marine Entanglement Research Program, 1990
Includes calculations of lost fishing gear in Gulf of Mexico commercial fisheries and management, research, and funding recommendations to better delineate lost gear and reduce gear loss rates. Prepared by Natural Research Consultants, Inc.
141 pages
Contact: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Marine Entanglement Research Program

Texas Coastal Cleanup

Center for Marine Conservation, 1988
Summary of the 1987 Texas Coastal Cleanup with information on types and quantities of trash collected by zone and update on recommendations made in 1987. Additional information on data collected during Spring 1987 and 1988 Texas beach cleanups, and 1987 beach cleanups in Louisiana, Mississippi, and North Carolina.
105 pages
Contact: Center for Marine Conservation, Gulf Coast States Regional Office

Texas Shores Magazine, volume 20, number 20

Texas Sea Grant College Program, 1987
Issue dedicated to marine debris problem in the Gulf of Mexico.
Contact: Texas Sea Grant College Program

Publications and Reports

The Gulf of Mexico as a "Special Area" under MARPOL Annex V

Texas General Land Office, 1987
Prepared by the Center for Marine Conservation for the Texas General Land Office for consideration by the U.S. delegation to the International Maritime Organization in support of designatin the Gulf of Mexico as a "Special Area" under MARPOL Annex V.
79 pages
Contact: Center for Marine Conservation, National Headquarters

Special Area Designation for the Gulf of Mexico and MARPOL Annex V

Oceanic Society/Gulf of Mexico Program presented as Technical Information at MEPC 30.
Contact: EPA Region 6

Scientific Data and Research Projects

Scientific Data

Entanglement In and Ingestion Of Marine Debris by Sea Turtles Stranded Along the South Texas Coast

P. Plotkin and A.F. Amos, 1989
Contains information on instances of entanglement in or ingestion of debris by sea turtles in the Gulf of Mexico. Presented at the Eighth Annual Workshop on Sea Turtle Conservation and Biology, 24-26 February, 1989, Fort Fisher, North Carolina. Extended abstract available from authors.
Contact: Pamela Plotkin, Texas A&M University or Anthony Amos, University of Texas

Impacts of Ocean Debris on Marine Turtles: Entanglement and Ingestion

G.H. Balazs, 1985
Contains information on entanglement in or ingestion of debris by sea turtles in the Gulf of Mexico
In: Proceedings of the Workshop on the Fate and Impact of Marine Debris, 27-29 November 1984, Honolulu, Hawaii. NOAA Technical Memorandum NOAA-TM-NMFS-SWFC-54. pp 387-429.
Contact: NOAA's Marine Debris Information Office

Mississippi/Alabama Marine Ecosystem Study Annual Report, Year 2

S.R. Gittings, T.J. Bright, I.R. MacDonald, and W.W. Schroeder, 1990
Sponsored by the Minerals Management Service, this research involves 27 stations in the Gulf of Mexico off the Mississippi/Alabama coast. Video surveys of hard and software bottom biological assemblages found at depths of 53 to 110 meters noted sightings of marine debris including monofilament fishing line, discarded longlines, beverage cans, plastic cups, and unidentified scraps of metal.
In: Mississippi/Alabama Marine Ecosystem Study Annual Report, Year 2. J.M. Brooks and C.P. Giammona (editors). U.S. Department of the Interior, Minerals Management Service. New Orleans, LA. OCS Study MMS 89-0095. 1990. 348 pages.
Contact: Minerals Management Service

Trash, Debris, and Human Activities: Potential Hazards at Sea and Obstacles to Sea Turtle Nesting

A.F. Amos, 1989
Contains information on incidences of entanglement in or ingestion of debris by sea turtles in the Gulf of Mexico.
In: Proceedings of the First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation, and Management, TAMU-W-85-006.
Contact: Anthony Amos, University of Texas

Scientific Data and Research Projects

Research Projects

Debris on a South Texas Barrier Island, Manmade and Natural Material on the Beach: Where It Comes From, How It Gets There, and What Is Its Affect on Wildlife?

Anthony Amos and Texas Sea Grant, 1978-to present
Using 12 kilometers of beach on the seaward side of Padre Island, this study began in 1978 and to date involves approximately 1,200 observations to define a relationship between the movement of marine debris and physical oceanographic and meteorologic conditions in this region.
Contact: Anthony Amos, University of Texas

National Seashore Marine Debris Survey

National Marine Fisheries Service, and National Park Service, fall 1988 - fall 1993
In a joint effort between National Marine Fisheries Service and National Park Service, persistent marine debris on coastal beaches is being studied at eight national parks including Padre Island National Seashore and Gulf Islands National Seashore. In this five-year study, tri-annual reports are prepared by each park office and submitted to the Marine Debris Coordinator in Washington, D.C.
Contact: Padre Island National Seashore, Gulf Islands National Seashore, or National Parks Service

Solid Waste Pollution on Texas Beaches: A Post-MARPOL Annex V Study

Minerals Management Service, 1990 to present
This study is being carried out by Anthony Amos, University of Texas Marine Science Institute, to assess the post-MARPOL conditions of a Mustang Island, TX beach over a two-year period, compare that with the two years prior to MARPOL to see if it is "working," and refine the observation techniques to provide a standard method for future beach-litter monitoring.
Contact: Dr. Robert Rogers, COTR, Minerals Management Service

Study of Floatables in U.S. Waters

U.S. Environmental Protection Agency, Initiated February 1989
Samples were taken from the Houston ship channel and Buffalo Bayou as part of this national program designed to determine the types and amounts of floating debris in coastal areas.
Contact: U.S. Environmental Protection Agency, Region 6

The Feeding Ecology of the Loggerhead Sea Turtle in the Northwestern Gulf of Mexico

Texas A&M University and Texas Sea Grant College Program, 1990
Masters thesis work with information on impacts of marine debris on sea turtles.
Contact: Pamela Plotkin, Texas A&M University

Scientific Data and Research Projects

Research Projects

The Relationship Between Sea Turtles and Oil Platforms

National Marine Fisheries Service and Minerals Management Service, June 1988 - June 1990
As a secondary objective of this project, aerial surveys were conducted of large pieces of floating marine debris including plastics.
Contact: National Marine Fisheries Service, Mississippi Laboratories

Workshops and Conferences

Controlling Offshore Sources of Pollution Session of the Regional Symposium on Environmental Quality in the Gulf of Mexico

Center for Marine Conservation, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, Minerals Management Service, The Moody Foundation of Galveston, Texas, and the U.S. Fish and Wildlife Service, 1989

Presentations included:

- Overview of the Marine Debris Problem. K. O'Hara, Center for Marine Conservation
- Regional Efforts Combatting Marine Debris. W. Bettenberg, Minerals Management Service
- MARPOL Annex V: How Will It Work? J. Whitehead, U.S. Coast Guard
- Panel Discussion: MARPOL Annex V
- Challenge Paper and Panel Discussion: Should the Gulf of Mexico be a Special Area? B. Thorne-Miller, Oceanic Society
- Beyond Our Borders: Non U.S. Sources of Marine Debris. E. Bruna, Internat'l Services Co.
- International Controls on Marine Pollution in the Gulf of Mexico

Contact: Center for Marine Conservation, Gulf Coast States Regional Office (for abstracts)

Information Developments and Solutions to Marine Debris in the Gulf of Mexico, Session of the Eight Annual Gulf of Mexico Information Transfer Meeting

Minerals Management Service, 1987

Marine Debris papers presented included:

- Session Overview. V.C. Reggio, Minerals Management Service
- Marine Debris on the Beaches of Padre Island National Seashore. L. Peart, Padre Island National Seashore
- Survey and Findings of Beach Debris on Mustang Island, Texas. A. Amos, University of Texas
- Preliminary Findings for Beach Debris in Louisiana. D. Lindstedt and J. Jones, Louisiana Geological Survey
- Louisiana Coastal Recreation and Tourism Assessment Team: An Innovative University Approach. M. Liffman, Louisiana Sea Grant College Program
- NOAA's Marine Entanglement Research Program: Goals, Products, Information, and Plans. A.R. Bunn, National Oceanic and Atmospheric Administration
- The Offshore Oil and Gas Industry's Campaign to Stop Offshore Littering. W. Kewely, Offshore Operators Committee
- Education and Awareness: Keys to Solving the Marine Debris Problem. K. O'Hara, Center for Environmental Education
- Texas Adopt-A-Beach Program. F.H. Morgan, Texas General Land Office
- Panel Reports: 1987 Gulf of Mexico Beach Cleanup Highlights
  - Texas: L. Maraniss, Center for Marine Conservation
  - Louisiana: C. Fair, Louisiana Coastal Cleanup
  - Mississippi: G. Bishop, Gulf Islands National Seashore

In: Proceedings of the Eighth Annual Gulf of Mexico Information Transfer Meeting, 1-3 December 1987. U.S. Department of the Interior, Minerals Management Service. New Orleans, LA. OCS Study MMS 88-0035. 1988. pp. 41-89.

Contact: Minerals Management Service

Workshops and Conferences

Sea and Shore: Coastal Recreation and Petroleum Development Overview Session of the Seventh Annual Gulf of Mexico Information Transfer Meeting

Minerals Management Service, 1986
Marine Debris papers presented included:

Sea and Shore: Coastal Recreation and Petroleum Development Overview. V.C. Reggio, Minerals Management Service

The Shipshape Debate on Mitigating Marine Litter. R. Blumberg, U.S. Department of State

Stashing Trash Without a Splash. W. Kewley, Offshore Operators Committee

In: Proceedings of the Seventh Annual Gulf of Mexico Information Transfer Meeting, 4-6 November 1986. U.S. Department of the Interior, Minerals Management Service. New Orleans, LA. OCS Study MMS 87-0058. 1987. pp. 323-348.
Contact: Minerals Management Service

The Second International Workshop on the Fate and Impact of Marine Debris

National Oceanic and Atmospheric Administration, 1989
This workshop was conducted to review progress and identify future priorities in addressing the marine debris problem.
In: Proceedings from this workshop are in preparation.
Contact: National Marine Fisheries Service, Honolulu Laboratory

Trash and Debris on Gulf of Mexico Shorefront Beaches Session of the Sixth Annual Gulf of Mexico Information Transfer Meeting

Minerals Management Service, 1985
Marine Debris papers presented included:

Trash and Debris on Gulf of Mexico Shorefront Beaches. V.C. Reggio, Minerals Management Service

National Parks and Seashores: Drums and Hazardous Waste. M. Hancock, Padre Island National Seashore

State and Local Beaches. J.M. Gosdin, Office of the Governor of Texas

Removal, Sampling, and Disposal of Abandoned Drums Containing Suspected Unknown Hazardous Substances from the Beaches of Mustang Island and Padre Island, Texas. G.F. Epler, U.S. Coast Guard

Marine User Group Panel Discussion

Petroleum Industry. J. Burgbacher, GOM Offshore Operators Committee

Shipping Industry Perspective. J. Cox, American Institute of Merchant Shipping

The Recreation & Tourism Perspective. R. Ditton, Texas Department of Recreation and Parks A West Coast Perspective. J. Neilson, Oregon Department of Fish and Wildlife

In: Proceedings of the Seventh Annual Gulf of Mexico Information Transfer Meeting, 22-24 October 1985. U.S. Department of the Interior, Minerals Management Service. New Orleans, LA. OCS Study MMS 86-0073. 1986. pp. 297-314.
Contact: Minerals Management Service

Workshops and Conferences

Workshop on the Fate and Impact of Marine Debris

National Oceanic and Atmospheric Administration, 1984

This workshop provided the first comprehensive review of information regarding the marine debris problem. Although the majority of papers presented concentrated on the Pacific region, the findings and recommendations of this workshop have broad application.

In: Proceedings of the Workshop on the Fate and Impact of Marine Debris, 27-29 November 1984, NOAA Technical Memorandum NMFS. NOAA-TM-NMFS-SWFC-54. 1985. 580 pages. Order Number PB86-146941, $53 for photocopy, $8 for microfiche.

Contact: National Technical Information Service

Marine Debris Education and Information Inventory Form

Product: check appropriate blank

Educational Materials:

Brochure	____# panels	____
FactSheet/Flier	____# pages	____
Newsletter	____times/yr.	____
Poster	____size	____
Sign	____size	____
Slide Show	____# slides	____
Sticker/Decal	____size	____
Video	____# minutes	____
Other (specify)	_____	
Legislation	____ref. no.	____
Public Awareness/Debris Reduction Program	_____	
Publication/Report	____# pages	____
Scientific Data	_____	
Research Project	_____	
Workshop/Conference	_____	
Other (specify)	_____	

Audience directed to: check blank(s)

Commercial Fishermen	____
Commercial Shippers	____
Educators (grades/groups?)	____
General Public	____
Legislators/Policymakers	____
Media	____
Military Personnel	____
Passenger Cruise Line	
employees/crew	____
passengers	____
Petroleum Industry Personnel	____
Plastics Industry Personnel	____
Recreational Boaters	____
School Children (grades?)	____
Scientists/Researchers	____
Port/Terminal Operators	____
Other (specify)	____

Title:

_____

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Sponsor:

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Date:

_____

Description:

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(If applicable)

Cost: **rental fee** _____ **Distribution Area (where in use?):**

purchase _____ _____

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Telephone:

Contact Person:

Other Comments:

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