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The Miami River: Past, Present and Future

by

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This report is the culmination of an internship undertaken to fulfill the requirements so specified for the Master of Arts in Marine Affairs at the Rosenstiel School of Marine and Atmospheric Sciences, University of Miami. During the Spring of 1996, I interned with Dr. Fran Bohnsack of the Miami River Marine Group, a trade association of shippers and other agencies on the Miami River. I followed the footsteps of Dr. Bohnsack, the executive director of the group. This paper records the "ins and outs" of the Miami River to which I was exposed. It describes the past, present, and future of the river. The problems plaguing the river and their potential solutions are explored. Emphasis is also placed upon the individuals and groups involved in river activities. The future awaiting the river is contemplated as different opinions exist as to the projected role of the river. Finally, my role in the river is defined. I was immersed in all that the river is and has to offer, from touring the waterway via a tugboat to attending regulatory meetings to promoting manatee protection and awareness.

Table of Contents

Introduction

The Miami River is the centerpiece of an exotic, unnoticed world; it is an "unruly blue-collar realm, hidden to all but those who work, live, or play on its banks. Even most Miamians are oblivious to the river, knowing enough only to curse it when caught by one of its 10 drawbridges" (Bell, 10). I, a transplant from the Midwest, noticed the brown, winding waterway while traveling to and from South Beach and thought that it was, perhaps, part of the intercoastal or, maybe, one of the many canals that are characteristic of South Florida. Upon mention of the river, most people that I know respond, "There's a river in Miami?"

I answer, "Yes . . . the Miami River." Fed by waters spilling over the coastal ridge and from freshwater springs, the Miami River flows from the edge of the Everglades to Biscayne Bay. It acts as the principal drain of the South Florida aquifer and is designated as a federal navigational channel, regulated by the United States Coast Guard (Malo, 1). The waterway is also a private seaport, and, remarkably, it is the fifth largest port in Florida (Malo, 3).

The Miami River may be one of the shortest rivers in North America, or, at least, the shortest navigable river. The waterway is navigable for approximately five, narrow miles. Marjory Stoneman Douglas dismissed the river in the 1940s as barely an inch long and most unworthy of a book in the "Rivers of America" series being produced at the time (Bell,). Others such as Fran Bohnsack, Executive Director of the Miami River Marine Group, describes the river as "the jewel of our city - a dusty, hidden jewel albeit - but a jewel". It is one and the same.

Beyond its principal functions, the river has many faces: "On the Miami, one can see everything from a sewage pump station to an Art Deco temple and much in between. On its shore are skyscrapers and fishing fleets, condos and cardboard shacks, parks and scrap yards, restaurants and mobile home parks, public housing and historic mansions, seafood distributors and cargo terminals, boat yards and movie sets, luxury yachts and rust buckets" (Bell, 10).

History

The river was not always as diverse and eccentric as the contemporary waterway; in the beginning, the river was much more modest and pristine. Early records describe the Miami River as a crystalline stream with roaring rapids,

swift currents, and steep limestone ridges (Bell, 9). Alligators, crabs, turtles, manatees, and many species of saltwater fish were commonplace (Gaby, 3).

The river was the domain of the Tequesta Indians before Ponce de Leon arrived in 1513 and remained an active part of Native American life, including Miccosukee and Seminole, until the 20th century (Malo, 1-2). Yet, it was with the introduction of the Europeans to the Americas that the Miami River began to run a new course.

In 1856, during the Third Seminole War, the United States Army began cutting a channel through the sandbar near the mouth of the river in order to facilitate the landing of military supplies stored on Key Biscayne. Henry Flagler furthered the alteration of the mouth of the river in 1896 when he cut a nine-foot deep channel from the mouth into deeper waters of Biscayne Bay on a route around Cape Florida (Gaby, 15).

The river continued to be redirected and remapped by artificial causes as the construction of the Miami Canal, a state project, began in 1909 (Gaby, 6). The canal was part of the first effort to drain the Everglades. Initial specifications for the canal were a width of sixty feet and a depth of eight feet running all of the way from Biscayne Bay to Lake Okeechobee. The canal opened in 1912, with completion of the last phase in 1913. The opening of the Miami Canal caused a massive flow of water from the Everglades that continued for three weeks as the water levels dropped to the west (Gaby, 8). As a result, sediment clogged the downstream portions of the river, blocking the entry of several large commercial vessels. To alleviate this problem, Bowers-Southern Dredging Company deepened the Miami Canal to twelve feet and made it ninety feet wide between the junction of the canal and the Miami River at 24th Court and its junction with another canal to the south (Gaby, 11). This project began in 1917 and took over six years to complete. At the same time, another significant project was further altering the Miami waterway: construction of the Tamiami Canal began in 1916 to provide fill for the Tamiami Trail Highway across the Everglades (Gaby, 11).

In 1930, Miami Mayor Reeder argued the need for flood control before the United States Congress (Gaby, 11). He requested a channel 150 feet wide, 15 feet deep, and nine miles long. Representative Ruth Bryan Owen, the first woman elected to the U.S. Congress from Florida, led the effort to obtain approval for this channel, arguing its potential to provide both navigational and flood control benefits. U.S. Congress authorized a

project for deepening and widening the river and canal from Biscayne Bay to approximately 35th Street on July 3, 1930. The project provided for a channel 150 feet wide and 15 feet deep for a distance of three miles above the mouth of the river, 125 feet wide and 15 feet deep to a point of four and one-eighths miles above the mouth, and 90 feet wide and 15 feet deep to a point of five and one half miles above the mouth of the river (Gaby, 11-12).

The deepening and widening of the river that occurred during the early 1930s, as described above, heightened the problem of salt-water intrusion. To minimize the intrusion of salt into the freshwater river, a salinity control structure, or dam, was installed in the Miami Canal in 1945. Two similar structures were created in the 1970s in other parts of the canal and river system (Gaby, 14).

As the city of Miami grew, so did the level of pollution in the river. In 1896, the year Miami was incorporated, a state health advisor suggested that Henry Flagler run the city's first sewer line into the river and the waterway became the city's first "toilet" (Bell, 10; Gaby, 17). By 1920, 10 sewers emptied into the Miami River and three into Biscayne Bay. The situation needed immediate attention when, in the 1950s, forty-one sewers flowed into the bay and twenty-nine into the river (Gaby, 19). In addition, storm water run-off and other sediments carried down the channel further polluted the waterway. Today, sediments including rubber and synthetic materials from tires, carbon from aircraft and land vehicle exhausts, chemicals from agricultural areas, old paint from boats, dirt, trash, and other debris of varying types line the river bottom (Gaby, 21). Of odd note, in the 1980s, headless chickens and other animals killed during Santeria religious ceremonies were added to the pollution in the Miami River (Gaby, 21).

Movement to curb pollution of the waterway began in the late 1950s when the first modern sewage treatment plant was built on Virginia Key (Gaby, 19). All sanitary sewers were routed to the plant where the water was treated and then pumped to the Gulf Stream. Efforts to remove the debris floating in the water and laying on bed of the river began in the 1960s. A clean-up boat, provided for by Dade County, began clearing surface debris (Gaby, 21). Newer vessels have acted in such a capacity as more proactive and comprehensive clean up efforts have continued into the present. Nonetheless, the river is far from resembling its once pristine condition and as much still needs to be done to repair the many years of abuse.

This brief history of the Miami River details the major events that shaped today's Miami River. Contemporary life on the river is a bustling hodge podge of activity. All different types of businesses, individuals, and regulatory agencies interface on the river. They meet in agreement and in conflict. They work together and clash as foes -- old, established river life versus a new vision of what the river could and should be, environmental versus industry, residential versus development.

Contemporary River Personalities

INDUSTRY

The following companies represent the major players in today's river economy:

Bernuth Shipping Agency

Greece has historically been characterized as a naval and maritime power; for centuries, the country has maintained a presence on the world's seas and oceans. Bernuth Agencies, headed by Captain Jordan Monocandilos, continues this maritime tradition on the Miami River.

Bernuth Agencies originated as a stevedoring company in 1972. Four years later, the company began to acquire its own vessels, becoming a shipping line. Presently, Bernuth operates ten container ships, eight of which they own and two chartered vessels. Bernuth also operates their own terminal in order to sail and maintain their vessels, illustrating the independent nature that characterizes even modern river operators.

Bernuth Agencies offers weekly service to over 25 destinations in the Caribbean. This covers most of the British and French West Indies and Guyana and Surinam off the north coast of South America. Bernuth Agencies is exploring opportunities to expand their sailing fleet to meet the growing demands of the Caribbean. They want their new vessels to be made to the specifics of the river, but with a level of performance that has, historically, been difficult to obtain. The size of the river has been a constraint on the size, efficiency, speed, etc. of river vessels.

Coastal Tug & Barge, Inc.

Coastal Corporation's interest in the maritime industry of South Florida goes beyond its operations today. The portion of Coastal Corporation based in Miami was formerly Belcher Oil Company. Belcher started as a paving

company in Miami during the 1930s. Belcher ultimately grew into tugs and docking ships and once owned a shipyard on the Miami River. The Miami River property was recently sold by Coastal. In the 1980s, Coastal Corporation bought Belcher and has continued to maintain a distinctive presence in Florida.

Based in Houston, Texas, Coastal Corporation is a large energy company with much diversity. Coastal owns coalmines in West Virginia. They operate refineries in Alabama, New Jersey, Texas, and Aruba. Tank farms are maintained to hold the residual fuel from their refineries. In South Florida, Coastal has tank farms at Port Everglades and Fisher Island. Natural gas has also become increasingly important to Coastal with their pipelines running from the northeast to Texas. Focusing on the South and Central American markets, Coastal's foreign operations are expanding. Furthermore, the corporation is horizontally integrating with power companies as they move into energy production in San Salvador.

Coastal Tug & Barge, Inc., a subsidiary of the Coastal Corporation, is active in bunkering, ship docking, and some third party tug operations. In the Tampa Bay area, barge operation is also moving sand and rock. Furthermore, with the new dredge *Hercules* in operation off of Dodge Island and the Port of Miami, Coastal received the contract to remove the dredged material by barge. The company works closely with Marine Sales which is the subsidiary of Coastal Corporation that takes the fuel orders.

Coastal Tug & Barge has 130 employees with 100 being directly involved with the vessels. Working on the boats involves living onboard. Employees work two weeks on, two weeks off for six months of the year. Their fleet is comprised of fifteen boats. Four tugboats dock ships at the Port of Miami and the rest are used primarily for bunkering in Florida. They also maintain their own oil spill response team in case of an accident and also respond to third party spills.

Cliff Berry, Inc.

Based in Port Everglades since the 1950s, the Cliff Berry, Inc. (CBI) has grown into a safety conscious and environmentally aware organization. Three terminals located in Port Everglades, Fort Pierce, and Miami offer 24-hour emergency response, waste disposal, training, and specialty services.

CBI operates its own fleet of small boats, trucks, and tanker trailers to respond to oil spills in Florida and the Caribbean. Personnel use vacuum trucks, barges, containment booms, and special absorbents to contain and clean up spills. Emergency response services are provided for ocean-going vessels, vehicles that have rolled over, service stations, and terminals. CBI can remove and dispose of oily waste and contact water, create hazardous waste management programs, and remediate contaminated soil for terminals and service stations. Oil and oily bilge water removal and disposal are also performed for vessels. Oil filters collected from service station and vessels are recycled. Cliff Berry, Inc. provides training in-house or at CBI facilities in HAZWOPER, confined entry, and hazardous waste site supervision.

CBI's Miami River facility, which I toured with Manager Bill Parkes, serves as an oily wastewater pretreatment, processing, and transfer site. On October 16, 1995, the company started up its wastewater pretreatment systems and sent treated water to the sewer for the first time on October 31, 1995. With the introduction of the Miami facility, CBI added 1,218,000 gallons of storage capacity to overall operations.

Merrill-Stevens Dry Dock Company

Merrill-Stevens is an institution in the state of Florida shipping industry and a prominent player on the Miami River. The company was created when Captain John Gilman Merrill opened a small blacksmith shop along the shores of St. John's River, near Jacksonville, in 1866. The company was formally incorporated in 1895 by James Eugene Merrill making Merrill-Steven's the oldest continuously operating company in Florida; it has been in existence for over five generations. Merrill-Stevens eventually expanded into Miami in 1923 (Gaby, 177).

After moving to Miami, the owners developed the yard's capacity to accommodate ships up to 4500 tons, an investment that paid off as the company prospered through the Spanish-American War and World War I. By the time World War II broke out, Merrill-Stevens had grown to be the largest Atlantic shipyard south of Norfolk, Virginia, with a dry dock capable of lifting 12,000-ton ships in a half of an hour. During World War II, over 2000 commercial and military ships were repaired and refitted at Merrill-Stevens.

Big business is the not the only player on the river. Individuals and small businesses thrive in the unique, independent environment of the Miami River. For example, James A. Flood, a marine and aviation artist, lives and works on the Miami River. Capturing the historical appreciation of another era, Mr. Flood and his paintings represent the charming eccentricity that is so much a part of the Miami River maritime culture and environment.

Born in Philadelphia, Pennsylvania, Mr. Flood moved to Miami in 1961 where his childhood love of the waterfront could blossom. After high school graduation, he joined the United States Navy where he served as quartermaster onboard the cruiser *USS Wright* and the *USS Laffey*. He finished his tour in the military serving on the battleship *USS New Jersey* from 1967-1969.

Upon returning to Miami, Mr. Flood earned his degree in Art from Miami-Dade Community College while working as a sailing instructor and deckhand on a Miami River tugboat. He eventually joined Eastern Airlines in 1974, and became a member of the aviation art department until the airline ceased operations in 1991.

Mr. Flood's love of the water and art has resulted in a catalog of over 150 paintings. He has painted the likes of the *USS Tennessee* coming out of Pearl Harbor, the *USS Alabama*, the *Aquitania*, the *Queen Mary*, and his favorite -- the *USS Pennsylvania* from 1936. He has 9 full color prints with 3 upcoming releases. Mr. Flood also does commissioned illustrations, renderings, and models. His work is on display at the Naval Institute in Annapolis, the *Queen Mary*, the Mystic Seaport Museum, and the battleship *Alabama* in Mobile, Alabama. In addition to his painting talents, Mr. Flood is also an accomplished musician and an avid maritime historian.

Max Swartz, a Russian immigrant, began unloading trucks at a Northeast fish house at age eight. He moved to Miami in 1918 and opened East Coast Fisheries. Mr. Swartz became successful at importing oysters and exporting grouper, and Spanish mackerel. The Great Depression took its toll on Max Swartz and East Coast Fisheries; no one could afford the luxury of purchasing imported or exported goods. A 1926 hurricane named "The Big Blow" further disrupted his business. An old Danish ship sank in the Miami River channel, corking it for one month. Ships could not leave nor enter the waterway. In order to survive, Mr. Swartz tried to interest the North with the Florida crawfish

caught in the Florida bay. He renamed then the "Florida lobster" and the industry was born. East Coast Fisheries, run by Mr. Swartz's son, is presently a fish market and restaurant on the northern bank of the Miami River (Bell, 13).

AGENCIES

The following agencies are representative of the more than 60 jurisdictions regulating the Miami River:

Miami River Coordinating Committee (MRCC)

The MRCC is an entity charged by the State of Florida, Metropolitan Dade County, and the City of Miami to act in an advisory role to each of the three governments on issues related to the Miami River. The committee is comprised of political appointees and directed by Ms. Betty Fleming.

South Florida Water Management District

The South Florida Water Management District (SFWMD) regulated the salinity control structures, dams, and drainage canals associated with the Miami River. They are interested in minimizing salt intrusion and planning for and controlling floodwaters. Because the SFWMD believes that the foremost role of the Miami River is to provide flood control, the agency clashes with the U.S. Coast Guard, the river's marine industry, and others over many issues. The river is a federal navigational waterway, regulated by the Coast Guard. Most people believe that navigation is the primary function of the river.

United States Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) is a familiar entity on the river. The Corps has overseen the dredging of the river and most man-made changes to the river system. Today, proponents of dredging the river look to the Corps for help and information. The latest research in geotextile bag use was conducted by Corps scientists.

Metropolitan Dade County DERM

DERM (Department of Environmental Resource Management) is the agency responsible for managing the environmental aspects of the river. Recent focus has been placed upon the river's manatee population, illegal dumping, and the already contaminated sediments laying on the bottom of the river.

United States Customs Agency/INS

Customs and INS act as the river's police. Agents board incoming ships suspected of harboring contraband, drugs, illegal immigrants, etc. U.S. Customs is also involved in creating a program for smaller commercial vessels that would work similarly to the Super Carrier Initiative Program (Letter from Captain D.F. Miller to Senator Bob Graham, 2). Such a program would provide incentives for carriers to become active in intervening with illegal drug smuggling. This program cannot be initiated at the local level, but discussion of this matter has commenced between Washington administrators and local terminal facilities. The proposed Terminal Facility Initiative would work in much the same way as a Carrier Initiative, with Customs providing training and site visits for security of facilities.

United States Coast Guard & the Quality Action Team (QAT)

The Quality Action Team was established by Coast Guard Captain David Miller to deal with the unique problems of the Miami River with respect to enforcement, safety, and environmental conditions. The QAT, comprised of representatives from federal, state, and local regulatory agencies, facility operators, vessel agents, and other concerned parties, meets every two weeks in an attempt to bring focus and organization to resolving traditional problems on the river. I was an active participant in these meetings and was exposed to the following issues: pollution, the lack of maneuverability due to the mooring of vessels, the abandonment of vessels, illegal activities, substandard vessels, and general poor marine practices (Letter from Captain D.F. Miller to Senator Bob Graham, 1).

In early 1996, the QAT addressed the issue of rafting and drafted a rafting policy. Rafting occurs when two or more vessels tie together; rafting usually occurs with one of the vessels moored to a terminal facility or to the riverbank. The policy was created to improve safety and vessel mobility while eliminating problems such as vessels arriving without prior notice, personnel safety hazards, restricted river flow from the salinity dam, breakaways, and irresponsible owners and operators (Letter from Captain D.F. Miller to Senator Bob Graham, 1; Miami River Meeting Minutes, November 21, 1995, 1)

The policy allows rafting on the river under the following guidelines:

1. All rafted vessels must be properly and securely moored in accordance with City of Miami and Dade County's Mooring Code.

2. No vessels may be rafted more than 2 abreast.

3. Vessels may not extend more than 54 feet into the main river without permission of the Captain of the Port.

4. A minimum channel width of 65 feet must be maintained at all times up to the Tamiami Canal and a minimum width of 45 feet west of the Tamiami Canal must be maintained at all times.

5. All commercial vessels must have appropriate fire-fighting equipment on board in accordance with federal standards and City of Miami code.

6. All rafted vessels must provide clear and ready access for land-based firefighters, including means by which to safely and quickly reach outboard rafted vessels. Terminal operators must obtain approval from local fire authorities for such means of access.

7. Vessels may not extend beyond the facility property line onto adjacent properties unless with written consent from the adjacent property owner.

8. All rafted vessels must be removed, to the extent possible, from the federal channel of the Miami River if a flood emergency is declared by the United States Army Corps of Engineers (ACOE). Therefore, all rafted vessels must be capable of seaworthiness within a reasonable time frame.

9. Any obstruction to commercial navigation resulting from enforcement, or lack thereof, of this rafting policy will be grounds for the ACOE to prohibit future rafting at problematic site on the Miami River.

The QAT examined the many problems caused by vessels entering the river without a designated responsible party. Federal authorities cannot board the vessel because they are unaware that the ship is in port. Agents may deny dockage and the vessel will tie up at the first available spot, which may be vacant and not suitable for mooring. Most of these vessels do not meet the USCG 24 hour arrival notification requirement. Furthermore, the ships may be discharging illegal passenger, oil, sewage, or drugs. In response to the problems arising from these vessels entering the Miami River without a designated responsible party, the Coast Guard initiated a cooperative program with the Second Avenue bridge tenders (Letter from Captain D.F. Miller to Senator Bob Graham, 1). The USCG provides the bridge tender with an approved list of arrivals on a daily basis. When a vessel appears without a legitimate destination or without having provided the required 24 hour advanced notification of arrival, the bridge tender notifies the Coast Guard for enforcement actions (Miami River Meeting Minutes, November 21, 1995, 1). The USCG then notifies

Customs and Immigration. This system has led to greater control over the river's users and the agencies are able to provide improved tracking of offending vessels. Radio communication between the vessels and the bridge tender assures proper identification of the vessels and that the requirement of an English speaking person on board is met. With the future replacement of the Second Avenue Bridge planned, the QAT suggested that modifications be made to the design of the bridge to make enforcement even more efficient and successful. The QAT suggested that video monitoring and better lighting he added to the plans.

Gwen Calloway, a gubernatorial appointee to the MRCC, described part of the problem on the Miami River as one of communication. No matter which rules are enforced, language differences remain a barrier to compliance (Stroh, 9). The QAT considered this point and took steps to break down the existing barriers of communication. To overcome communication problems with Haitian vessels, the Coast Guard Marine Safety Office (MSO) translated laws, pertaining to garbage disposal and oil pollution, a check list for vessels under 500 gross tons, and requirements for a Letter of Federal Interest and Privacy Act, into Creole (Letter from Captain D.F. Miller to Senator Bob Graham, 2). These translations were then disseminated to all Haitian shippers working on the river.

Another communication problem on the river is related to the number of agencies that hold jurisdictional power on the river. Over 60 different agencies (local, regional, state, and federal) have jurisdiction over the river, yet the river is controlled by no one. Jim Wellington, bridge tender and employee of Miami River Information Services, says that the river is "like a hospital gown - covered in the front and wide open in back" (Bell, 16). The QAT is urging the agencies which are responsible for law enforcement on the waterway to provide an organizational chart, points of contact, and phone numbers for after hours and weekends. It is the first step in coordinating the different jurisdictions governing the river.

Finally, as hurricane season began in Florida, the QAT discussed the role the Miami River should play in case of a hurricane. The group concluded that, in the past, the river has been mistaken for a hurricane refuge. Instead, the team wanted the public to know that the river needs to be kept free of hazards to navigation (illegally moored vessels, sunken boats, etc.). Letters were sent to marinas, boating organizations, and marine interest groups to establish the fact

that the Miami River will not be a refuge in case of a hurricane. In hurricane conditions, the Miami River is an essential artery of commerce and a base for emergency response vessels.

INTEREST GROUPS

Greater Miami Chamber of Commerce Marine Industries

The Marine Industries Committee's mission is to use the resources of the Greater Miami Chamber of Commerce (GMCC) to support marine industry in Miami. Headed by Teo Babun, a maritime consultant, and Edward Swakon, president of EAS Engineering, Inc., the committee aims to be the umbrella agency that enhances and strengthens the marine industry in Miami.

Marine Council

This thirty year old, non-for-profit corporation sees itself as the guardian of the marine community in South Florida, with emphasis on recreational boaters. The Council acts as the umbrella organization for marine interests, providing a means for individual voices to be heard. In Spring 1996, the Council's Board of Directors led the group in a cooperative effort with other marine entities. Joint meetings were held with other interest groups. Jointly sponsored political forums allowed all marine interests to be voiced and political plans to be heard. The Board of Directors want to make cooperation of marine interests the norm, rather than the exception. Focusing on cooperation, the Marine Council has been the leader in the formation of a Marine Coalition (The Marine Council, 2).

Miami Maritime Arbitration Council (MMAC)

The MMAC was established under the auspices of the Marine Council, the non-profit organization serving marine interests, to provide alternative dispute resolution. Joining New York City and London, Miami will become a major world center for the settlement of international maritime commercial disputes under the direction of this council. The council uses arbitration and mediation to resolve disagreements between recreational and commercial marine interests to avoid the high costs of litigation. The MMAC will also offer courses to certify arbitrators who need not be attorneys.

Marine Life Preservation Society (MLPS)

The Marine Life Preservation Society became a dominant force in marine mammal protection and conservation upon its conception in March of 1994. Recent focus has been placed upon the endangered West Indian Manatee, specifically the rehabilitation and re-release of sick or injured animals. The efforts of this group have been centered on the construction of the Manatee Halfway House and the possible designation of the center as a staging area and launch site for re-release of the animals into the wild.

The Establishment of a Marine Coalition

The idea of a "Marine Coalition" was the brainchild of the Board of Directors of the Marine Council. The Board thought that the creation of a united maritime interest group in this election year would be advantageous. Marine representatives have long thought that their wants and needs have been politically ignored. In bringing together commercial and recreational marine interests, a stronger front would be created. The first event held by this ill-defined coalition was a forum for the City of Miami mayoral candidates in order to voice the opinions of the marine interests in South Florida and to listen to the candidates comments on marine issues. The Propeller Club, a club serving maritime interests, has long been a large, freestanding entity. Under a new president Paul Abott, the Propeller Club is becoming politically active and, as a result, making this Marine Coalition very visible.

The focal institution on the Miami River is the Miami River Marine Group (MRMG). The organization brings together each of the previously mentioned businesses, individuals, and interest groups plus many more. It serves as the closet thing that the Miami River has to a port authority, being highly visible and having a hand in all that effects the development, economy, and ecology of the river.

Miami River Marine Group (MRMG)

Founded in 1989, the Miami River Marine Group is a trade association of shippers and other agencies located on the river. The not-for-profit organization is committed to the idea of the Miami River as a "working river" (Gaby, 179). The group, led by Executive Director Dr. Fran Bohnsack, focuses on public relations, advocacy, education, and promotion of the marine industry and the river on which it depends. The MRMG aims to promote a positive image of business on the river by encouraging practices in the best interest of the river's economic and environmental health. (Gaby, 179)

During recent years, the Miami River Marine Group has taken the lead in seeking solutions to the dredging and pollution problems on the river. They have also tried to ensure that river operators and businesses are not negatively impacted by new development projects such as the proposed Intermodal Center, the planned East-West Corridor high-speed rail project, and the bridge that the county plans to build for the 22nd Avenue overpass. Furthermore, the group has been active in the effort to save the endangered West Indian manatee. Operators have always been viewed as anti-environment and they are working to change that image. MRMG disseminated oversized bumper stickers with the saying "I Slow for Manatees". These stickers adorn most of the tugboats operating on the Miami River. The group has also encouraged terminals on the river to develop voluntary effort to keep watch over the manatees inhabiting the river. Recently, the MRMG has collaborated with the Miami Seaquarium with plans to build a $100,000 hospital and lagoon facility on Seaquarium grounds that will be used for the rehabilitation and re-release of injured and orphaned manatees.

Members of the Miami River Marine Group are as follows: Miami Ship Services, Bernuth Agencies, Inc., Bunnell Foundation, Inc., Cliff Berry, Inc., Antillean Marine Shipping Corporation, Coastal Tug & Barge, Inc., Florida Marine Towing, Inc., Hyde Shipping Corporation, International Maritime Shipping Association, Moby Marine, Inc., 22nd Avenue Marine Terminal, 3300 Terminal (Bruce Schurger), and Precision Environmental.

The main problem facing the MRMG today is a small membership and the limited budget such a membership can provide. The question has been posed as to how to expand the membership group to include non-participants who benefit from the river and the activities of the MRMG. Voluntary and assessment measures have been suggested to achieve this goal.

MRMG's Manatee Halfway House

The 501c.3 project initiated by the Miami River Marine Group is designed to benefit the endangered manatee. Upon completion of the project, the hospital and rehabilitation center for injured and orphaned manatees will be under the direction of noted pathologist and veterinarian Dr. Greg Bossart of the University of Miami. The center will be one of a few such treatment centers authorized by the state of Florida.

Plans involve the creation of a fully enclosed tank on the grounds of the Miami Seaquarium, with above water examination platforms and underwater viewing area. The Manatee Halfway House will provide a protected and natural habitat which would act as a staging area in order to re-release the mammals. A natural environment with little human contact should increase the chance of recovery, improve the effectiveness of treatment, and ease the release of manatees into the wild.

Great need exists for such a facility. In 1994, the Miami Seaquarium brought in 20 injured or orphaned manatees (Sea World, Orlando and Lowry Zoo, Tampa cared for others). Treatment facilities are running out of space and the problems facing manatees are not waning. Death of young manatees is on the rise; a 10 percent increase in the number of dead and orphaned juveniles occurred in 1995 (56) compared to 46 in 1994 (Wright, 5). The year 1996 has also taken its toll on the Florida manatee population. This spring was characterized by a Southwest Florida "die-off' of manatees. By April 1, 1996, over 300 manatee deaths were verified in Florida due to human-related incidents, unusually cold weather, and an epizootic in March. Between March 5 and March 30, 286 manatees died. This dire situation came on the heels of what appeared to be two positive aerial surveys. During a January 9-11 survey, 2,274 manatees were counted. A later survey (in February) totaled 2,639 manatees (Wright and Frohlich, 1). Scientists believe that the cause of the mass die-off in March was due to brevetoxin, a biotoxin associated with red-tide phenomena.

The Miami River Marine Group and the Miami Seaquarium are working quickly to complete the project. The dredging of the lagoon located on southern edge of Seaquarium property is complete. The remainder of the project is stalled due to a pending grant proposal submitted to the Florida Inland Navigational District (FIND). If the project is awarded the grant, the funding will not be available until October. The matching funds for the grant, which are being contributed by Metropolitan Dade County DERM (Department of Environmental Resource Management), will not be available until the FIND money is collected.

The river personalities described above are the main players on the river. Their interactions make up much of the day-to-day life on the river as their endeavors affect both commercial and environmental aspects of river life. As we

quickly learn by examining this day-to-day life, the river is a very diverse and eccentric place. It is a work place, a home, a park, etc. It is also, in many aspects, an unknown.

Commerce on the River

The river has been redirected and remapped for many reasons including transportation, industry, and recreation (Malo, 3). Commercial shipping remains the dominant force on the river. Shallow draft vessels are the "primal source of river life" and "the tugs are their life line" (Bell, 10-11). The towing of cargo ships is a "subtle and skillful operation: ships are towed up river head first, and down river, loaded, stern first (Gaby, 178). It takes two tug boats, one in front for towing and one behind steering, to negotiate bends and narrow passages, often with inches to spare" (Malo, 3). Miami tug operators are thought to be some of the best in the world. The cargo industry presently operates 30 terminals along the banks of the Miami River, up from 18 in 1993. These terminals serve more than 80 ports-of-call in the Caribbean, Central America, and South America (Miami River Special Edition, 3). The Miami River shipping industry carries over one million tons of cargo, worth more than two billion dollars (Beacon Council Report, 1; Miami River Special Edition, 2). The volume of cargo moving up and down the river continues to increase as the standard of living rises in many Caribbean nations (Caribbean Trade Won't Wait for Post-Castro Cuba Boom, CF8). One of the strongest Caribbean markets is the manufacturing market of the Dominican Republic (Caribbean Trade Won't Wait for Post-Castro Cuba Boom, CF8). The Dominican Republic receives most of the apparel and textile trade that leaves the mouth of the Miami River. The Dominican Republic also boasts the world's largest free trade zone as measured by the number of workers. Haitian trade on the river increased after the United States embargo against Haiti was lifted in Spring, 1995. Unfortunately, the economy in that island nation has declined and many Haitian vessels remain in the river, docked along the shore without sufficient monetary means to continue business operations.

Boat building and repair has historically played a large role on the Miami River. Today, Merrill-Stevens Dry Dock and Bertram Yachts continue to maintain a visible presence (Malo, 4). Fisheries are another important industry on the urban waterway. In 1990, an estimated total of 30 million dollars resulted from the sale and distribution of stone crabs, lobster, and mackerel. (Malo, 5)

Haitian Shippers

After the embargo against Haiti was lifted in the spring of 1995, trade increased on the river as small freighters strived to establish a shipping presence on the Miami River. At times, there were so many new vessels on the river, that they had trouble getting through the channel and a shortage of dock space occurred (Viglucci, 5B). Other problems were soon to arise with the heightened level of activity on the river and many blamed the Haitian vessels. Heightened levels of pollution in the river paralleled this onset of Haitian vessels. The United States Coast Guard says that Haitian vessels have illegally discharged oil, dirty bilge water, and human waste and that these practices still continue today (Viglucci, 5B). Other troubles that have been associated with the Haitian trade include: carrying illegal immigrants, drugs, stolen property, and not complying with regulations while docked in the river. On a tugboat trip down the river, I saw one Haitian individual painting the stern of a small freighter while the boat was still in the water, an activity that is against regulation.

Friction exists between authorities, local, established business owners, and the Haitian boat captains (Viglucci, 5B). The first two groups blame most of the Miami River's problems on the Haitian shippers; the Haitians believe that they are being treated unfairly. Haitian boaters say that many operators will not deal with Haitians out of prejudice. "They don't trust the Haitians and that's unfair" (Viglucci, 5B).

Lack of communication, or lack of good communication, is at the root of the problem. Different cultures and languages make communication between the Haitian shippers and other users of the river difficult. Most Haitians working on the river cannot understand English, nor read Creole. At a Quality Action Team meeting, I suggested that regulations and legislation be spoken in Creole and tape-recorded. These tapes should then be disseminated to Haitian operators and captains on the Miami River. Regulatory agencies must understand the culture of the Haitian shippers and be able to proceed with regulation based upon such knowledge. Knowing that Haitian shippers can rarely read or write, taped messages may be the key to educating Haitian shippers and, eventually, lead to effective enforcement.

32nd Avenue Bridge

The bridge to be built crossing the Miami River at 32nd Avenue remains in the Florida Department of Transportation (FDOT) five-year program, despite the fact that too little money has been allocated for acquiring properties for easements. While the bridge offers some benefits for the land portion of cargo shipment, it also severely impinges on riverfront properties in the marine industrial area. Terminals on the river will likely lose warehouse space and some mobility in their access to terminal dockage. Miami River tug operators have also expressed their concern about further intrusion into the channel that the stanchions for another bridge might bring, although FDOT assures that the bridge will not cause new constriction on river traffic.

Construction costs for the bridge have been estimated at $12 million. FDOT is proceeding with the project development and engineering. The project design should be completed in summer 1996. At that time, FDOT will reconsider whether to go ahead with the project. Funding for the final design and engineering has been budgeted, but only $1 million was funded for acquisition of right-of-way property. An appraisal for right-of-way costs estimates that between $14.5-20 million are needed.

East/West Corridor

Public hearings on the Draft Environmental Impact Statement (DEIS) for the Miami Intermodal Center and the East/West Corridor were held in early December. The public's comments were recorded for consideration by the Metropolitan Planning Organization (MPO) which will determine a final route for the proposed East-West rail (Bohnsack, 10).

Two alternatives were submitted. FDOT promised that they, in combination with their consultants, would work with the business owners on the river to arrive at a mutually acceptable solution for either alternative (Letter from Servando Parapar to Fran Bohnsack, 2). Both plans adversely affect the largest shipping terminals on the Miami River. Yet, the public as a whole has a "vested interest" in the economic revenues produced by business on the river, according to Dr. Bohnsack of the MRMG.

Design Proposal for Second Avenue Bridge

The Miami River Marine Group hosted Alvaro Malo, Director of the University of Florida Miami Architecture research Center, and his graduate student Trenton Baughn in February, 1996. Mr. Baughn presented his design for the replacement of the Second Avenue Bridge. His is a unique project in that it integrates the workings of the bridge with the hydrology of the river. The design also incorporates environmental features which will raise the awareness of the river's importance to the South Florida community. The plans incorporate a new river's edge to create a smoother surface and a less angular turn for ships and tugs. The smoothing of the river's edge will also alleviate turbulence and allow a more uniform flow of water. Landward of the bridge, a reservoir will operate the hydraulic system of the bridge. The reservoir will also act as a catchment and filtration system for storm water run-off. Mr. Baughn concluded with an idea for the creation of an extended river walk and an unstructured educational playground based upon the river's hydrology and ecology.

River Environmental Issues

Historically, the river has been "as much understood as it has been maligned, as much overlooked as underestimated" (Miami River Special Edition, 2). Past and present problems on the river range from poor river water quality to poor planning and zoning (inconsistent land use). River problems further include excessive crime, conditions threatening the manatee, suspected toxic and hazardous waste conditions, illegal immigration, drug smuggling, conflicts between recreational and commercial watercraft, and illegal commercial fishing activities. In the past, the river has harbored bootleggers, gunrunners, buccaneers, bordellos, deserters, spies, refugees, and traders. Such characters still exist on the Miami River. With respect to regulation and enforcement, today's strategy is more sophisticated and less obvious than in the past. Agencies are trying to crack down on violations such as rafting vessels, oil spills, drug-related crime, pollution, and theft. Business operators and property owners are beginning to work alongside the agency staff in order to achieve common goals.

Dade County Manatee Protection Plan

Certainly one of the most publicized, continuing environmental issues facing all of the players on the river is that of the plight of the manatee. As described briefly above, actions are underway to help restore the river as a safe haven for these extraordinary, endangered animals. To this end, a citizen's advisory group underwent two years of discussion, including twenty-two meetings, which culminated in the production of the "Dade County Manatee

Protection Plan" (DERM, 1). The creation of this plan was in response to the Florida Department of Environmental Protection (DEP) which had instructed each county with a significant manatee population to develop a protection plan to provide countywide protection for the manatee and its habitat. The plans were also created to provide guidelines for county permitting decisions as they relate to new development (South Dade, Shippers Unhappy About Manatee Protection Plan, 9).

Dade's Manatee Protection Plan (MPP) is comprehensive, including criteria for vessel speed zones, marina facilities and their locations, law enforcement, shoreline and submerged land development, educational programs, habitat protection, human-manatee interactions, and governmental coordination (DERM, 8). The County's plan also addresses the South Florida Water Management District's (SFWMD) efforts to decrease manatee deaths in floodgates and the Miami International Airport's efforts to keep manatees out of its canals (South Dade, Shippers Unhappy About Manatee Protection Plan, 9).

Florida DEP's actions were brought about by the fact that, even though more attention has been paid to their plight in recent years, manatees are under constant threat of extinction. Statewide, most deaths of manatees are human-related, with the largest number being caused by collision with watercraft. Others are killed in the automatic floodgates on salinity control structures. Still more die from entanglement in monofilament line or by drowning in storm drain culvert. Poaching and vandalism remain a problem. Herbicide run-off and dredge and fill operations adversely affect the habitats and food sources upon which the manatees depend (DERM, 27).

Manatee sightings on the Miami River occur frequently, making this legislation important for the river and its users. Susan Markley, of Dade County Department of Environmental Resources Management (DERM), said that five manatees have been killed by vessels in the river (South Dade, Shippers Unhappy About Manatee Protection Plan, 9). Two were crushed, but investigators could not determine how or by what vessels. The crushing of a manatee between a vessel and the shore has happened in other parts of the state and could happen on the Miami River. Yet, shippers on the Miami River argue that no evidence exists that can prove that manatees have been crushed between a ship and the shoreline (South Dade, Shippers Unhappy About Manatee Protection Plan, 9).

Certain regulations from the Dade County Manatee Protection Plan directly affect the Miami River. These regulations are as follows:

1. Expansion of large vessel docking facilities within appropriate zoned areas such as the Miami River must be approved by agencies with permitting interest in the project (DERM Technical Report, 1996).

2. All existing freight terminals and other facilities mooring vessels greater than 100 feet in length should be retrofitted with fender systems or other designs which provide at least four (4) feet of standoff from the bulkhead or wharf under maximum operational compression (DERM Technical Report, 1996).

3. A minimum of three (3) feet of standoff is acceptable in the Miami River with an exemption which applies to a 1600 linear foot narrow area bordered by Bernuth and Universal terminals on the South and Antillean and the former Hyde terminals on the North sides of the river (as long as there is no development or expansion of berthing for terminals to the west of this passage beyond what are already existing terminals) (DERM Technical Report, 1996).

The exemption included in the final provision presented above is to keep the area open to navigation.

Various reactions to the plan have been recorded. Fran Bohnsack, executive director of the MRMG, said "The river is already burdened by many constraints that limit the cargo-carrying industry. Adding another constraint, particularly one that is unjustifiable on the basis of manatee mortality data, is not good government policy" (Semple, 6). She is referring to the narrow portion of the river that, in the end, was exempt from the three (3) foot standoff requirement. Edward A. Swakon, the Marine Council's representative on the citizen advisory committee and president of EAS Engineering, Inc., believes that the plan is the best that can be put forward. It is not an ideal plan from either a boater's or environmentalist's perspective and Mr. Swakon adds that focus should be placed on balance. He said, "We need to make sure that organizations like the water management district become just as much of a player in manatee protection as the burdens placed on boaters and marina operators" (Manatee Plan Won't Hamper Boaters, Developers, Agency Says, 3).

Proposed Dredging of the River

"A river-bottom dredging project has been afloat but tied to a pier of anxiety for about five years" (Markowitz, 1B). The shippers on the Miami River want deeper water; environmentalist support the dredging out of fear that the river's pollution will spread to Biscayne Bay (Markowitz, 2B). Yet, the effort to get the Miami River dredged has been slow and difficult as many obstacles exist. Sedimentation has made the channel, which is supposed to be 15 feet deep, shallow and narrow. The sediments are contaminated with fertilizer, industrial chemicals, and other urban waste that has been washed into the river through storm sewer systems. Illegal practices on the river have also added to this pollution.

The latest report on Miami River dredging ("The Final Consolidated Report for Obtaining and Analyzing Sediment Samples and Bioassay Samples from the Miami River"), produced for the United States Army Corps of Engineers, indicates that sediments in the Miami River contain heavy metals and inorganics (PPB Environmental Laboratories, Inc., 1). Traditional testing explained in the report showed that the sediments from 5 of 6 test sites are inappropriate for classical ocean disposal, thus creating the problem of what to do with the dredged material. Since river sediments are unsuitable for classic ocean disposal, the ACOE conducted experiments to test the effectiveness of a new technology using geotextile bags for disposal purposes. The Geobags, or geotextile bags, were developed by Nicolon Geotextiles and are comprised of double bags made of thick polypropylene and polyester (Markowitz, 1B). The Geobags would be filled with dredged sediments, sealed, and placed under clean sediment at designated sites in the ocean (New Method Could Clear Way for Miami River Dredging, 12).

The testing of the bags consisted of exposing two types of marine organisms to both uncontained river sediments and sediments placed in bags. For one species, no statistical difference between the data sets resulted. This may be due to the sensitivity of the organism to ammonia, not to the fact that contaminated material were leaking from the Geobags and affecting the organism. Further testing is needed to determine the cause of these results. For the second species, a 35.8 percent improvement in the survival rate of the organism occurred with the use of geotextile bags. From this data, one can conclude that the bags are restricting the contaminants in the river sediments and reducing the environment's exposure to the polluted substances (PPB Environmental Laboratories, Inc., 11-39).

Bioaccumulation testing was used to measure the levels of heavy metals and inorganics in several marine organisms after the animals had been exposed to both uncontained river sediments and sediments contained in Geobags. Two data sets resulted. With some of the metals and inorganics for which the ACOE tested, no difference was found between the data sets. This could be due the fact that the resulting levels of bioaccumulation were similar to that which occurred in the organisms when they were exposed to harbor water ("clean" water), or to the fact that the bioaccumulation levels documented were well within the normal range for that particular organism. The tests for copper, mercury, and lead were significantly reduced in organisms exposed to sediments contained within geotextile bags (PPB Environmental Laboratories, Inc., 139).

The outcome of this study is encouraging for the proponents of dredging the Miami River. Geobags appear to be reducing mortality and virulence, and the Miami River may be one step closer to being dredged.

The geotextile bags have been used in three major underwater projects: 500-cubic-yard bags were used to build an underwater dike in the Mississippi River, 1300-cubic-yard bags were used for ocean dumping in Marina del Rey, California, and 4000-cubic-yard bags were used for ocean dumping at the Port of New York (Miami River Sediment Disposal May Get Trial This Summer, 9). For an extended period of time, the geotubes have been used for breakwaters and dikes. Using the Geobags for polluted or toxic sediments is a new technology.

According to Jerry Scarborough of the ACOE, the geotextile process would cut the cost of dredging and disposal from $100 million to $16 million. Yet, the disposal of polluted sediments into the ocean is presently forbidden by the Environmental Protection Agency. Further testing must be done in order to use the geotextile process to dump polluted material. Testing will take at least two years and estimated costs are $300,000.

Hercules and the Port of Miami Dredging

The Dutra Group of San Rafael, California, christened its new Hydraulic Marine Excavator, *Hercules*, in January 1996. The dredge was designed by De Donge of the Netherlands and built by Bollinger Shipyard in Lockport, Louisiana. Liebherr of Colmar, France, produced the excavator. The *Hercules* and its sister excavator *Antone* are the most efficient and accurate dredges in the marine construction industry. These excavators use a high accuracy

positioning system to assure proper working locations and alignment. State of the art instruments provide the operators complete control of bucket digging location, digging angle, and penetration depths. Hydraulic systems on the excavators provide depth control with digging tolerances approximately six inches. Synthetic oil is used for rapid biodegradability and low toxicity. Jack up spuds on the excavators allow operation without anchors and wires, thus providing an unobstructed route for adjacent shipping, the dredging process, and the mooring of barges. Finally, the tremendous digging force of the dredges minimizes the need for blasting to remove hard rock formations. They meet or exceed economic and environmental demands of contemporary construction and maintenance projects. For the next two years, the *Hercules* will be operated by Dutra Construction Company, Inc. of Fort Lauderdale, Florida, as it enhances and deepens the Port of Miami. The presence of the new dredge in South Florida may bring hope to the proponents of dredging the Miami River. The excavation activity at the Port of Miami may bring attention to the effort to dredge the river and dampen the resistance of the regulatory agencies to proceed with such activity.

Coastal Tug & Barge, a member of the Miami River Marine Group, will work closely with Dutra Construction throughout this project. Coastal received the contract to remove and deposit the dredge material.

The Future of the River: Economic and Environmental

Future Role of Cuba

A political shift in Cuba could greatly impact the Miami River (Miami River Special Edition Commerce, 8). Some people estimate that traffic will, at least, double because Cuba would quickly become a transshipment center in the Caribbean (Bright Future Seen for Florida-Caribbean Trade, 17). Initially, raw sugar, nickel, citrus, and seafood would be shipped northwards. Goods such as tobacco, coffee, rum, marble, honey, and cocoa would soon make their way into the United States via the Miami River. The island nation will be in great need of consumer goods and finished products such as machinery and construction equipment, spare parts, furniture, fertilizers, and paper products (Bright Future Seen for Florida-Caribbean Trade, 17). River trade could supply Cuba's needs and wants.

Miami River Dynamic Model

In March 1996, a National Coastal Resources Research and Development Institute endowed Alvaro Malo of the University of Florida Miami Education & Research Center with a grant for his project: Miami River Dynamic

Model: Urban Estuary Ecology Prototype. Mr. Malo proposes to construct a computer generated dynamic model of the Miami River (Miami River Dynamic Model, 2). Information will be collected on natural river systems such as hydrology, water quality, silting, and marine life and on the artificial systems such as navigation, transportation, existing land uses and zoning, and non-water related uses. Malo bases the production of this model on the fact that the natural and artificial systems of the Miami River are of great importance to the ecological, economical, and sustainable future of the Everglades aquifer and Biscayne Bay, the Dade County region, and Metropolitan Miami. He plans for the model to serve as a technical prototype that applies ecological principles to urban estuary planning (Miami River Dynamic Model, 2). The model will present information on the river's past natural morphology, its present condition as a working river, and its future possibilities. Project end users and immediate beneficiaries will be: shipping and marine industries, local and regional residential, recreational, and ecological interest groups, government and non-profit agencies, and local government advisory and reviewing entities (Miami River Dynamic Model, 3).

Dade County Master Plan

The Dade County Master Plan is, for the most part, favorable to the interest of the shipping industry on the river. The plan includes provisions for Dade County to establish a marine industrial and commercial district along the banks of the river, west of 27th Avenue. The suggested district would protect against the proposed East-West Corridor and the Intermodal Center. The plan allows the county to require shoreline stabilization and bulkhead repair where necessary on public and private sites. Yet, the role of the county, according to the Master Plan, in maintaining maritime facilities in the Miami River is limited to facilitator, which may undermine the creation of a port authority on the river. The plan also includes a requirement for the Miami River Marine Group to collect data on ships, tonnage, cargo, and employment on the river. It is important for the MRMG to provide such data in order to maintain some control over maritime interests on the waterway (Memo from Fran Bohnsack to MRMG members, 1).

City of Miami Plans

The City of Miami has its own plans for the Miami River: The Miami Riverside Revitalization Project. (Boyd, A1). Miami City Planner Jose Casanova said that "We're thinking about turning the area into something like San Francisco's Fisherman's Wharf' (Boyd, AI). The City has visions of a promenade packed with fish markets, coffee shops, and apartments. It sees boat slips lining the river. The City hopes that the river area will, one day, be a place

where downtown workers live and walk to their jobs. Miami Planning Director Jack Luft adds, "What we want here is a genuine, working seafood district. Most great cities have one" (Boyd, 5A). The success of this plan will be difficult to achieve though. Many projects in the city are competing for its attention. Plus, most users of the river will object. River operators do not support non-water dependent uses on the banks of the Miami River, especially to tourism.

Miami River Authority Act

The Miami River Authority Act, if it passes, would create a state authority with positions filled by political appointees. Upon creation of a Miami River Authority, a review of all issues pertaining to the Miami River would be conducted. Emphasis would be placed upon the appropriate geographical boundaries for the Miami River Authority (MRA), the duties and powers of the MRA, assessment of the jurisdictional interrelationships among federal, state, regional, and local agencies dealing with the river, and making recommendations to create a port authority.

From an environmental perspective, the act could be strong, with focus placed upon enhancing public health and safety and preventing environmental degradation (with emphasis on water quality). A central authority could be an effective regulatory entity on the river in that it may be able to eliminate communication, coordination, and regulatory problems. The authority may have direct control over the problems. Furthermore, a central agency would probably be more proactive and efficient with respect to problems on the river and have access to greater funding. A port authority would, perhaps, be able to push the issue of dredging the river.

The provision that calls for a comprehensive review of all issues relating to the Miami River would result in updated information. Much of the existing data is old and no longer applies. Updated information could be advantageous to all of those involved with the Miami River.

The Act would meet heavy opposition from most involved in the river's maritime industry. River operators do not want a port authority nor do they unanimously support non-water dependent uses such as tourism. "River people" have historically been very independent.

Many people directly involved with activities on the Miami River do not believe that such an act can succeed. Most of the property lining the river is privately owned; private ownership would come into direct conflict with the provision in the act for the authority to have eminent domain. Captain David Miller, United State Coast Guard, asks whether a Miami River Authority would try to acquire property along the river's banks. He believes that such a task would be difficult. Captain Miller does see some good in the act; some of the duties of a port authority could be advantageous such as the creation of a harbormaster to control traffic on the river. Presently, the Coast Guard and the bridge tenders are acting in a similar capacity. Patricia Burke of the United States Maritime Administration (Marad) voiced concerns about the Miami River Authority Act because the government owns little to no land on the shoreline of the Miami River, yet the act calls for the Authority to be vested with eminent domain. She is fearful that the MRA will go on a property, survey, and acquire it. Many businesses on the river would be forced to leave. Ms. Burke also questions the provision within the act to advance tourism on the river. The river is a federal navigational channel and is important to international trade. Furthermore, the river is home to several U.S.-flagged operations and it is her duty to protect the shrinking United States Merchant Marine.

The issue of whether to create a port authority is not a new one. For approximately 100 years, a plethora of governmental regulations and agencies have tried, unsuccessfully, to tame the Miami River. In response, many people said and continue to suggest that the river needs a port authority to watch over it. In the past, plans have been proposed to bring the Miami River under the authority of the Port of Miami. River operators were concerned that the Port of Miami would treat the river as a stepchild and that the shippers on the river would be priced out of competition (Edwards, 3). The Miami River Marine Group is the closest thing that the river has to a port authority; the group provides river businesses with an avenue to cooperate and work together for common goals. Yet, the MRMG cannot be as effective as the river and its users need the group to be. The MRMG is plagued by a small membership group and a limited budget. Progress is slow and laborious. The MRMG is in the process of investigating how to expand their universe to include non-participants who benefit from the river and the activities of the MRMG. During Spring 1996, I researched the possibility of the creation of a user's fee based on tugboat operations. I spent several days in a Metro-Dade office underneath the Miami Avenue Bridge where documentation regarding bridge openings is archived. When opening a bridge, the bridge tenders record the names of the tugboats and the vessel being guided up the river. I compiled data on the number of one-way voyages the river's tugs made in a given year. Focus was placed on the three

main tug operators on the river: Moby Marine, Florida Marine Towing, and Hempstead. I also researched the number of sailings that the present members of the MRMG do in a week. Based on these two numbers, different fees where examined. The proposed fee would be assessed to all carriers and large vessels on the river. In May, Dr. Fran Bohnsack presented several alternative fees to MRMG members. No decision has been finalized; as with most issues on the river, this is a complicated one and will result in much discussion and many modifications.

My River Role

I came upon the river by chance... I guess as most people do. In searching for an internship to meet the requirements of the University of Miami's Masters of Arts in Marine Affairs, I telephoned a man by the name of Mr. David Ray. At the time, he was President of the Marine Council and organizer of the Miami Maritime Arbitration Council (MMAC). Based on my interest in maritime law, I inquired whether the MMAC would be able to accommodate my wants and needs regarding an internship. He politely declined and suggested that I call Dr. Fran Bohnsack of the Miami River Marine Group. By following his advice, I was awarded an internship with the MRMG and became immersed in river life.

My internship involved shadowing Dr. Bohnsack, the executive director of the group. I followed her every footstep. I attended the board meetings and general meetings of most of the previously described interest groups and regulatory agencies. I also attended social functions such as a Propeller Club luncheon on the *Leeward*, a new Norwegian Cruise Line vessel, and the christening of the dredge *Hercules* at the Port of Miami. Through these meetings and social functions, I was exposed to maritime issues affecting not only the river but all of South Florida. I also met the players involved. In addition, the Miami River Marine Group hosts their own meetings: a monthly information workshop for its members and the marine community. I aided in the preparation for these meetings. For one of the late spring workshops, I arranged for a representative of Dutra Construction Company to speak about their dredging operations at the Port of Miami.

I organized and wrote the Winter 1996 newsletter of the Miami River Marine Group (Appendix). I covered various topics including: the prospects of Miami River dredging, company and individual profiles, the Miami River

Quality Action Team, and the Miami River Inn. I also interviewed MRMG members and drafted profiles of the companies and individuals to be placed on a future WEB site.

I became directly involved in the efforts of the MRMG to raise awareness about manatee protection. I manned the Seaquarium and MRMG booth at the Miami International Boat Show. Information was distributed on the plight of the manatee and money was raised for the Manatee Halfway House. I also toured the Miami Seaquarium with Curator Joan Caron and fed their resident manatees. Furthermore, I answered inquiries sent to the MRMG regarding manatees and the efforts of the group to protect them. I created an informative letter that is sent to school age children to answer their questions and help them with school projects.

In order to see the river and, hopefully, gain an understanding of it, Dr. Bohnsack arranged for me to travel down the Miami River aboard a Moby Marine tugboat. Photographs taken during the trip were used in the preparation of the MRMG newsletter. From the vantage point of a river-going vessel, one is exposed to the true river -- its diversity, its eccentricity, and its functional capacity.

Conclusion

No one knows what the future holds for the Miami River; no one knows the path that revitalization may or may not take. Many obstacles block changes to the ways of the river and the river system itself: dredging, curfews on bridge openings, the presence of endangered manatees, and the political adversity that "river people" usually meet in quantifying their importance to Miami and South Florida. Some believers in the future success of the Miami River exist. In March, 1996, the City of Miami moved 700 workers to its new administration building at the former Florida Power & Light (FL) complex, 400 SW Second Avenue. City leaders hope that their new location will be the center of a redevelopment district. After working on the river and meeting river people, I am a believer in the Miami River; it is a strong body of water. It's a tough river, having overcome adversity and neglect. No matter what the future holds for the Miami River, it will survive. I believe in its future success.

Through the river, I gained knowledge of South Florida history; the river has been an integral part of Miami culture since Native Americans made it their home. Through the river, I heightened my understanding of shipping and the unique characteristics of the maritime community.

My experiences on the Miami River provided me with insight into my professional goals. Upon the completion of my degree, I thought I would pursue a maritime career. Yet, my internship helped me to see that I also wanted to use my educational background in biology. I reaped the most satisfaction from those tasks and activities that incorporated both my biology background and my current exposure to marine affairs. As a result, I investigated opportunities in the environmental field. Through my internship, I found gainful employment with EAS Engineering, Inc., an environmental consulting and engineering firm. Mr. Edward Swakon, President of EAS Engineering, Inc., is a board member of the Marine Council and co-chairperson of the Greater Miami Chamber of Commerce Marine Industries Committee. I have become the company "river expert" and have analyzed several reports regarding the Miami River. Contacts that I made at the time of the internship have been invaluable to my work, especially with such agencies such as the Department of Environmental Resources Management, the South Florida Water Management District, and others.

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