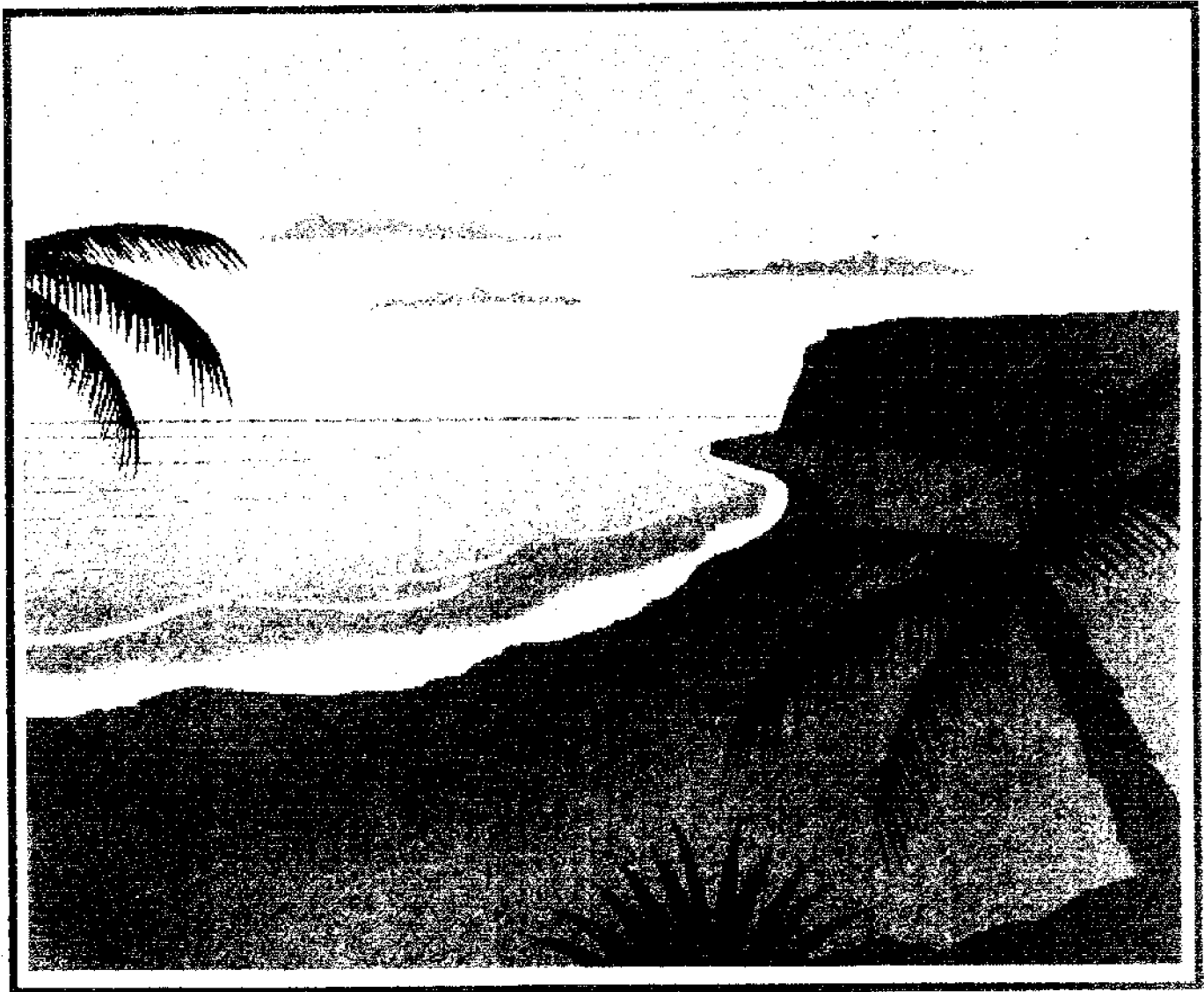


Coastal Zone Impacts of the Dockside Casino Industry: **The Mississippi Experience**



**Proceedings of a Workshop in Biloxi, Mississippi
May 7-8, 1996**

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FOREWORD

In 1995, NOAA's Office of Ocean and Coastal Resource Management, Coastal Programs Division, announced the intention to address a comprehensive technical assistance initiative for Coastal Zone Management Programs, with the goal of transferring data from local or regional coastal experiences to the national arena. Priority focus areas were identified and ranked. First in priority was Cumulative and Secondary Impacts of Development, with a proposed strategy to assist states in developing procedures to assess, consider, and control the impacts of growth and development.

Following a briefing on the initiative and concurrent announcement of the availability of Section 308 funds targeted for the goal of "Furthering the National Dimension," Mississippi Coastal Zone Management (CZM) staff members began assessing the state's ability to support and advance the goals of the initiative through Section 308 funding. Ultimately, this assessment focused upon a first-year action project identified for the initiative — the establishment of a federal and state advisory group to discuss cumulative and secondary impact issues common to many coastal states and territories. Mississippi CZM staff reasoned that the burgeoning dockside gaming industry, which has the potential to affect all of the coastal zone states, fit this task quite well, and Mississippi's casino development experience could provide valuable, transferrable guidance. Over the past 4 years, Mississippi has become uniquely qualified in dealing with dockside gaming impacts. Since March 1992, when voters approved legalized dockside gaming, an explosion of new development has occurred along the Mississippi Gulf Coast. Regional and national attention has focused on Mississippi as it has rapidly grown to one of the top three gaming areas of the country and the premier area for dockside gaming.

Through a special grant proposal, the Mississippi Department of Marine Resources Coastal Zone Management Program requested and received funds to sponsor and host a dockside gaming conference/workshop in support of the OCRM/CPD Technical Assistance Initiative. The Environmental Protection Agency's Gulf of Mexico Program was invited to cosponsor the workshop, and Mississippi State University's Coastal Research and Extension Center served as facilitator. The workshop featured national, regional, and local expert panelists who presented a broad range of issues dealing with cumulative and secondary impacts that can arise from the siting of dockside gaming in a coastal community.

This publication of the workshop proceedings expands the workshop results to a wide audience and fulfills the goal of realizing a national perspective on cumulative and secondary impacts from growth and development.

ACKNOWLEDGMENTS

Many collaborators contributed to the success of this conference. Financial assistance and logistical support were provided by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration through the Office of Ocean and Coastal Resource Management and the Mississippi-Alabama Sea Grant Consortium; the U.S. Environmental Protection Agency through the auspices of the Gulf of Mexico Program; the U.S. Department of Agriculture through the Mississippi Cooperative Extension Service; and the Mississippi Department of Marine Resources.

Gratitude is also expressed to the following agencies and individuals who participated in the conference: Mississippi State Senator Tommy Gollott; Mississippi Gaming Commission; Mississippi Department of Environmental Quality; U.S. Army Corps of Engineers, Mobile District; U.S. Environmental Protection Agency, Region IV; Mississippi Office of Secretary of State; Mississippi Casino Operators Association; University of New Orleans; City of Biloxi, Mississippi; Gulf Central Seafood, Inc.; Gulf Coast Association of Realtors; Mississippi Coast Crime Commission; Mississippi Council on Compulsive Gambling; Gulf Islands Conservancy; Sierra Club Legal Defense Fund; Harrison County, Mississippi Wastewater Management District; Brown and Mitchell, Inc.; Mississippi State Senator William G. Hewes, III; and the University of Maine School of Law. The knowledge and expertise provided by these participants were invaluable.

The mention of trade names or commercial products herein does not constitute an endorsement or recommendation. Any errors of omission or commission are those of the editors.

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INTRODUCTION

Mississippi Dockside Gaming Legislation

Mississippi State Senator Tommy Gollott
District 5 — Harrison and Jackson Counties

The gaming industry is relatively new to Mississippi. The first laws favorable to gaming were enacted in 1989. That legislation allowed cruise vessels on the Mississippi Sound to have gaming paraphernalia on board. Those vessels were required to cruise 1,500 feet from the boundary of the Mississippi Sound. At that time, the vessels were in international waters and gaming could begin. The boats circled in the international waters while gaming occurred and then returned. Because the vessels were licensed by the state of Mississippi, a problem occurred. There was no way to determine how much money the casinos were making in Mississippi and how much they were making in international waters. Therefore, in 1990, legislation made provisions for cruise vessels in the Mississippi Sound and riverboats on the Mississippi River. Regulations provided for cruise vessels underway-making way (meaning that boats could cruise in the Mississippi Sound and return to their ports with gaming on board during that time). Senators Gollott and Dearing introduced the legislation.

Representative Sonny Meredith, chairman of the Ways and Means Committee, expressed concern over the underway-making way aspect of the bill. He believed that dockside gaming would be more advantageous to the state. He feared that vessels entering the Arkansas side of the Mississippi River might be confiscated with all the gaming paraphernalia by the State of Arkansas. The Mississippi House of Representatives was convinced that underway-making way should be removed from the legislation. Both bills returned to the Senate. The first bill on the docket was the bill for the Mississippi cruise vessels on the Gulf Coast. A battle ensued. Jackson County wanted to ensure that construction of the vessels could take place in their county. However, the county wanted to be certain they would not be affected by pollution as a result of sandblasting the vessels. The bill with that provision went into conference. The bill for the Coast, providing for underway-making way also went into conference. The second bill from the House (the Senate bill) had the underway-making way provision removed. This bill passed. Now the stage was set for dockside gaming on the Mississippi River. Both bills passed.

In June of 1990, Governor Ray Mabus called the Legislature into special session. In the special session, the Legislature enacted the Comprehensive Gaming Regulations Act. When the Senate was formulating the gaming regulations, Senator Hannon Miller was appointed subcommittee chairman of the Gaming Act (the Senator was opposed to gaming). The Assistant Attorney-General

of Nevada was invited to Mississippi. He worked with the Mississippi Senate throughout the special session familiarizing the Senate with Nevada's gaming regulations. The Mississippi Senate took advantage of Nevada's expertise in formulating legislation. Special care was taken to include provisions to discourage undesirable people from participating in Mississippi's gaming industry. Senator Miller's expertise and Nevada's experience equipped the Mississippi Senate to propose and to pass effective gaming legislation. The next step was formulating the Gaming Commission through the Gaming Act. Mississippi determined that three people, to be appointed by the Governor and confirmed by the Senate, should constitute the Gaming Commission.

A bonus of the gaming industry was the state's collection of \$33.6 million in fiscal year 1993. In 1994, the revenue was \$94.9 million. In 1995, the revenue climbed to \$128 million. The projection for fiscal year 1996 is \$132 million. Of that \$132 million, \$33 million will fund road construction and infrastructure in the counties that have gaming. The Highway Department can issue \$323 million in bonds. The \$33 million annual revenue will apply to the retirement of those bonds if and when they are issued. The bonds, however, have not been issued for the gaming counties. The present revenues are funding the roads, setups, and any other expenses of roadways in those counties. It is possible that bonds will not have to be issued for the gaming counties because of the incoming revenues.

The projected income for 1997 is \$140 million, an increase from \$132 million in 1996. Of the increase, 25% will fund road construction in the counties that have gaming. In cities and municipalities where gaming exists, taxes on the casino earnings also contribute to the revenues. For example, in the City of Biloxi, legislation provides for an additional 3.2% in local and private taxes. Of this, 20% is directed to education. Another 20% is allocated for law enforcement. Revenues for the city of Gulfport are the same.

The county receives from each vessel 20% of the 3.2%, with 10% allocated to education and 10% allocated to public safety. Then, 40% of the 3.2% is directed to the City of Biloxi for funding the infrastructure. All areas in Mississippi with gaming have similar allocations. In addition, tidelands funds have provided an allocation of more than \$10 million. Tidelands funds provide for the infrastructure pertaining to the seafood industry and to sports fishing and marine-related activities. In the last 2 years,

more than \$800,000 have been appropriated to build fishing banks throughout the three coastal counties as well as in waters outside the State of Mississippi.

Casinos have contributed to enlarging the coffers in many ways. The Convention Center in Harrison County has been expanded as a result of revenues from hotels and motels. The year before the inception of gaming, the 3% hotel and motel tax yielded a total of \$700,000. The current yield of that revenue is \$2.7 million. More hotels and motels are a direct result of the gaming industry. Recent legislation allowed the Coast Coliseum and Convention Center to issue \$10 million in bonds. One-third of the 3% that the Coliseum and Convention Center presently receives, will fund a 70,000-square-foot addition to the Center.

Coastal ports have also benefitted from the effects of gaming. Legislation this year was designed to increase the bonded indebtedness of the Biloxi Port Commission from \$3 million to \$10 million. The commission plans to build a marina behind or in front of the *Imperial Palace* Casino. The 240-slip marina will be funded by the lease from the *Imperial Palace*, with the lease paying for the bonded indebtedness. The Port of Gulfport plans to double in size using monies coming from both gaming and the port itself.

Naturally, tourism is flourishing and is expected to grow. An international airport is projected to be located on the Mississippi Gulf Coast in 15 years, bringing tourists from around the world. Those tourists can enjoy playing at the already established 30-plus golf courses within a radius of 50 miles. With the mild coastal climate, golfing is a year-round pleasure. High-profile fishing also adds to the tourism scene. Completing the charm of Coastal Mississippi is its rich history.

The effect of casinos on unemployment rates has been dramatic. Approximately 15,000 people work directly in the gaming industry. Another 15,000 people are employed in other casino-related businesses. Tunica County has seen a tremendous impact. Before gaming, that county's unemployment rate was between 23 and 25%. Currently, the rate is less than 5%. In coastal Mississippi, the Harrison County unemployment rate dropped from 8.7% to 5.2%.

All in all, gaming has exerted a positive effect on the Mississippi Gulf Coast. With the expansion and building of infrastructure, gaming interests can continue to locate here. The saturation point with regard to casinos probably will not occur for another 10 years. Of the states involved in the gaming industry, it seems certain that Nevada and Mississippi will be the two leaders.

SECTION I: THE REGULATORY AND PERMITTING PROCESS

The Gaming Commission Permit Review Process and Industry Enforcement

Gary McGee
Chief of Investigations
Mississippi Gaming Commission

With the casino industry in Mississippi, a Gaming Commission was important. Before October 1, 1993, the Mississippi Tax commission exercised temporary powers and duties of the Gaming Commission. The Gaming Control Act had been passed by a special session of the Legislature in 1990. In April of 1991, the Legislature appropriated \$300,000 for the overall operation of the Gaming Commission, with 16 positions being authorized. Eleven casinos opened and were licensed; eight manufacturers and distributors of gaming products were licensed. After October 1, 1993, the Gaming Commission was created as a separate entity. The Governor, with the consent of the Senate, appointed three nonsalaried commissioners. According to law, these commissioners are to meet on or after the fifteenth of each month. The Mississippi Gaming Commission meets the first Thursday after the fifteenth of the month and on special occasions when a need arises.

The Executive Director of the Gaming Commission in Mississippi is Gen. Paul Harvey. Gen. Harvey has been an asset to gaming in Mississippi. The Commission operates on an annual budget of \$11 million. Approximately 136 of the 164 approved employee positions are filled. The Mississippi Gaming Commission licensed and opened 23 casinos between October 1, 1993 and August 1, 1994, a 100% increase over the number licensed prior to October 1, 1993. In Mississippi, 29 casinos are now licensed and open; and they employ 27,140 people. Casinos are subject to relicensure every 2 years.

The Governor is at the apex of the organizational structure of the Gaming Commission. The three commissioners are under the direction of the Governor, followed by the executive director and division directors. The executive director of the Commission was authorized to create additional divisions to implement the provisions of the Gaming Control Act. Consequently, Gen. Harvey created the following divisions: Compliance, MIS, Police, Intelligence, Personnel, Administrative Training, Gaming Laboratory, Industry Relations, Research, and Public Relations.

The Enforcement Division and the Investigative Division were established earlier by the Legislature. The Enforcement Division sends its agents out on a day-to-day basis ascertaining that all laws and regulations are being followed in the casinos. Members of the Investigative Division investigate those people who have potential con-

trol over and within the casinos. Examples of the subjects of investigation are owners, officers, surveillance directors, and stockholders. Within the casinos, key employees are pit bosses, shift managers, directors, security directors, or slot technicians.

The purpose of the Gaming Commission is to implement the Mississippi Gaming Control Act. The Commission provides a process for licensing and regulating legalized dockside gaming on the Mississippi River and any of its navigable tributaries, and on the Gulf Coast south of the three southernmost counties. A gaming license is deemed a revokable privilege. The holder of the license has no vested rights in that license. The license is issued to the holder (corporation or partnership). The law authorizes the executive director of the Gaming Commission to investigate applicants and licensees. The executive director then makes a recommendation to the Commission on the suitability or denial of the applicant. The recommendations may have conditions or limitations. After the director's recommendation, the commissioners have the full and absolute power and authority to approve or deny any application. The commissioners can limit, condition, restrict, revoke, or suspend any license or finding of suitability that it has issued. In addition, commissioners can fine any licensed person for violations committed by the casino or its personnel. Along with monitoring the casinos, the Commission also monitors the manufacturers and distributors of gaming products, making certain that they are in compliance with the Gaming Control Act and its regulations.

The legal geographic location for dockside gaming has been discussed often. That location is defined as "in the waters within the state of Mississippi, which lie adjacent to the State of Mississippi south of the three most southern counties in the State of Mississippi." Recently, the Mississippi Supreme Court rendered two decisions, one related to a casino on a bayou and the other on a manmade canal. The Court stated that any river, such as the Wolf, Tchoutacabouffa, Pascagoula; any manmade canal; or other bays are illegal for casino sites. The Mississippi Supreme Court ruled, however, that the Bay of St. Louis and the Biloxi Back Bay are legal sites.

The second legal location for dockside gaming is on the Mississippi River or any of its navigable tributaries. Thus, dockside gaming is legal in the following nine counties in

Mississippi: Adams, Claiborne, Coahoma, Hancock, Harrison, Issaquena, Tunica, Washington, and Warren.

A specific procedure must be followed in applying for a gaming license in Mississippi.

First, the applicant must provide the Mississippi Gaming Commission with a written notice of intent. The information in the notice identifies the exact site, the exact location of the boat at the site, and related infrastructure plans. Maps and pictures must also be included. Approval or disapproval is given to publishing the notice of intent in a local newspaper for 3 consecutive weeks. If approval is given to publication, then gaming application and fingerprint cards are provided.

After the third week of publishing the notice of intent, the applicant submits a written request for a site assessment, and this request is submitted to the executive director. The applicant files the application, a \$5,000 application fee, and two sets of fingerprint cards. Upon receipt of the application, the executive director will notify the board of supervisors of the county of the proposed casino site along with the mayor of that municipality, if applicable.

The Gaming Commission then conducts a hearing to determine whether to approve the proposed site and site development plan for the casino. The hearing will consist of presentations by the applicant, which include the specific location of the property, the current use of any adjacent property, and the location of the nearest residential area, church, or school. The complete site development plan should include all structures planned and the expected completion date. Evidence is submitted that various agencies (U.S. Army Corps of Engineers, Coast Guard, Mississippi Department of Transportation, Mississippi Department of Environmental Quality, Department of Marine Resources, Board of Supervisors, Port and Harbor Commission, Levee Board, Mayor's office, City and County Planning Commission, and Preservation Commission) do not oppose

the site development plan. Following the presentation, the public is provided time to comment on the proposal. After the hearing on the proposed site, the executive director will offer a recommendation to the Commission, which will then approve or disapprove the recommendation. The Commission may request additional information.

The applicant is then subjected to in-depth background and financial investigation. Corporate investigations are also undertaken. Construction usually begins shortly after site approval.

Following this process, a development plan consisting of vessel specifications and design, shore development plans, infrastructure plans, and an operation/implementation timetable is submitted. Detailed descriptions of the games to be played are required. The executive director then makes a recommendation for issuance or denial of a license. If the license is approved by the Commission, the director monitors the implementation of the approved operation implementation timetable and the licensee provides a monthly status report to the Commission detailing the progress. Before final approval can be given, the Gaming Commission makes a final inspection of the vessel and reviews compliance with all federal, state, and local laws and regulations and ordinances before giving final approval.

Gaming is an asset to Mississippi. Jobs created directly by the casinos number 27,140. Throughout the state, 50,000 additional jobs have been created as a result of the gaming industry. Gross revenues generated from gaming were \$122 million in 1992, \$790 million in 1993, and \$1.5 billion in 1994. In 1995, revenues climbed to \$1.7 billion. In January and February of this year (1996), gross revenues were \$287 million. The gaming revenues from casinos on the Mississippi River continuously exceed revenues on the Mississippi Gulf Coast. The economic future of Mississippi is bright.

Wetlands Permitting — Coastal Program Consistency Review

Dave Ruple

Chief of Wetlands

Mississippi Department of Marine Resources

The Mississippi Coastal Program is a joint state and federal tool that has been approved by the State of Mississippi and the U.S. Department of Commerce. This tool provides a mechanism by which the state manages its coastal resources in the coastal zone of Mississippi. The coastal zone of Mississippi is defined by the three coastal counties: Jackson, Harrison, and Hancock. Glade Woods is the Executive Director of the Mississippi Department of Marine Resources, which administers the Mississippi Coastal Program.

The program incorporates all the provisions of the Coastal Wetlands Protection Law that were passed in 1973. In addition, the Coastal Program agencies include: the Department of Marine Resources, the Department of Environmental Quality, and the Department of Archives and History. The wetland permitting activities that accompany most dockside gaming facilities on the Coast are covered by regulative activities that are described in the Coastal Wetlands Protection Law of 1973 and the Mississippi Coastal Program. The Coastal Program was adopted by the state in 1980 as its coastal management policy.

The public policy of wetlands protection (defined in the Coastal Wetlands Protection Law) serves as a foundation and basis by which the Department manages the resources. The guidelines and plans of the policy are described in the Mississippi Coastal Program. The Department seeks to balance the preservation of coastal resources in their natural states with the alteration of those resources for the public benefit. In seeking a balance of development and environmental protection, important goals of the Coastal Program are protection of the environment, the enhancement of certain resources for the public benefit, and economic development of water-dependent industries along the Coast. When the program was initially developed, many sites along the Coast were primarily reserved for those commercial and industrial activities that require waterfront locations for siting.

The advent of gaming has affected this program, and attempts have been made over the past 4 years to accommodate a degree of gaming development while keeping in mind the other developmental needs of waterfront sites on the Coast. The passing of the gaming legislation created a new water-dependent industry on the Coast, so the Department adapted the program to accommodate this industry. Now the Department has permitted 18 casino sites on the Coast. The permitting of those casino sites in some marina-designated areas and industrial areas has created an added pressure for

additional marina space. In some cases, industrial spaces are now taken up by dockside gaming activities. It is important to balance these pressures and seek ways to revise the Program to accommodate future industry.

Wetlands permitting begins with the submission of a permit application to the Department. These permit applications cover a variety of regulated activities that are spelled out in the Coastal Wetlands Protection Law and in the Mississippi Coastal Program. Within the program and the law, certain activities and entities are exempted from needing to secure permits, although activities must comply with provisions of the Mississippi Coastal Program. One of the most important aspects of the program sometimes drawing fire, is the Coastal Wetlands Use Plan. This is a zoning of the public waters of the state along the Coast, establishing use districts allowing for certain activities in certain zones. In addition, a set of guidelines for regulated activities outlines specific ways that certain regulated activities are to be conducted along the Coast. Furthermore, provisions for federal consistency, (any federal action or activity in the coastal zone, whether a license or permit or plan) call for compliance with enforceable policies of the Mississippi Coastal Program. The final permit decisions are determined by the Commission on Marine Resources when that body considers recommendations on a project that is evaluated by the staff of the Department of Marine Resources. Subsequently, the Department staff carries out the recommendations and the wishes of the Commission based on its findings; this would be either a recommendation of denying a permit request or an approval for one.

The Wetlands Use Plan is a tool that has been utilized, not only for casino development along the Coast, but also for overall development. It serves to set aside specific areas for certain types of development. The predominant uses within the use plan are "C" zones, which are for commercial, recreational, marinas; "I" zones, which are for industrial, commercial, and manufacturing water-dependent activities; "S" zones, which are for areas that are leased by the Secretary of State's office; and "P" districts, which are preservation areas. Over the past 4 years, the Department has attempted to utilize the provisions of the Use Plan and the entire Coastal Program in managing the state's resources and in trying to accommodate an orderly development along the Coast.

One very important aspect of the Mississippi Coastal Program and coastal programs in general across the nation are the provisions for federal consistency. The provisions

cause a joint effort whereby all federal actions in a coastal zone have to comply with all of the provisions of the approved state and federal coastal management program.

The Department of Marine Resources staff that deals with casino and other permitting activities has decreased from five to three members. Since the Commission deals with all of the other development and related regulated activities that occur along the Coast the decrease in members has caused pressure. In 1992, approximately 400 actions relating to wetland permits, violations, or wetland determinations were taken by the staff. Last year, that number approached approximately 650. Obviously, the workload has increased dramatically with the increased development along the Coast. When evaluating wetland permits, it is important to look at secondary and cumulative impacts of the dockside casino industry on the Coast. Some areas of particular concern are the dredging that is proposed and the

relative rate at which some of the dredge spoil areas are being utilized. One of the concerns of casinos is the best way to accommodate maintenance dredging activities after the casino barges are in place. There is no evaluation of wastewater treatment. In addition, the displacement of some of the traditional uses in the coastal zone by the casino industry is an important consideration. The issues of storm water runoff, drainage, and drainage patterns within all the cities along the Coast are matters of concern. The increased development along the Coast, with subdivisions and the filling of some nontidal wetlands, affects drainage patterns.

Accommodating this new waterfront industry presents a challenge. However, the tools are in place to achieve a balance between environmental and public purpose wetlands protection that is defined in the Coastal Wetlands Protection Law.

The Water Quality Review Process in Mississippi

Robert Seyfarth

Mississippi Department of Environmental Quality
Office of Pollution Control

The Mississippi Department of Environmental Quality is the state agency that regulates the environmental requirements of the Federal Clean Water Act and the Clean Air Act. Three agencies are within the Department of Environmental Quality. The Office of Geology regulates mining. The Office of Land and Water Resources issues permits for water usage, (surface and ground water usage), and the dam safety program. The third agency is Office of Pollution Control, which is comprised of a number of divisions. These divisions address matters like air pollution, solid and hazardous waste, ground water, surface water (which includes issuance of permits), and issuance of discharge permits for municipalities and industries.

The Water Quality Management Branch handles the development of the state's water quality criteria for surface waters and water classifications and is responsible for the state's nonpoint source pollution program. This agency has worked closely with the Department of Marine Resources on the Coastal Nonpoint Source Program that evolved through the Coastal Zone Management Act. The Federal Clean Water Act requires states to conduct a water quality certification program. The Act also requires states to certify that federally-permitted activities, which may result in a discharge into waters of the state, will comply with applicable discharge limitations, water quality standards, and other requirements.

Over the years, the agency has gradually developed a process of reviewing projects. The type of federal permit that is most frequently dealt with is the dredge-and-fill permit issued by the U.S. Army Corps of Engineers. Regulations in the Department clearly define the review process. A number of things are considered in the review.

First, the agency looks for feasible alternatives to what is being proposed. Although all projects are reviewed in a like manner, the agency does determine if an alternate location is feasible. Perhaps things can be done to minimize the impacts of the project, with particular regard to the footprint that may impact wetlands or waters. After that determination is complete, other effects are analyzed to attempt to determine what can be done to mitigate those impacts. Likewise, the agency evaluates the direct impacts of the project (the effects of the construction of a project) and attempts to determine the secondary impacts of the project in terms of the water quality standards or classified uses.

Next, compliance with the water quality standards and classifications is analyzed. Also, the agency determines the degree of physical, chemical, and biological impacts of the project. Are there going to be any impacts to circulation

patterns or water movement that may create some water quality problems, such as stagnant situations? In particular for casinos, the agency conducts an evaluation of the basin in which the vessel may be sitting looking for any water quality problems related to the design. Will an alteration to the natural ecosystem occur that will cause problems? Is the project consistent with any adopted water quality management plans that are in place? For example, across the state, numerous wastewater plans have been developed that contemplate regional wastewater systems. Consistency with those plans is important. Another area of concern and importance is storm water management. Because casino projects propose large paved areas for parking and other impervious type surfaces like roofs, storm water becomes a significant issue. In addition, the regulations allow the Department to evaluate other factors necessary to protect water quality.

Many factors influence permit denial. Regulations specify factors that may trigger denial of water quality certification. Denial of water quality certification is significant because the federal agency (in this case the Corps of Engineers) cannot issue a federal permit. As a result, the project cannot be built. One instance that might trigger denial would be a project's altering of the ecosystem. Another example is waters not supporting designated uses, or a feasible alternative existing that the applicant could use that would reduce impacts to water quality. Furthermore, denial could occur if a project were to have adverse impacts to rare, threatened, or endangered species or to any habitat or outstanding resource waters. Likewise, if the project caused adverse cumulative impacts, or if the project did not adequately address the nonpoint source runoff during construction or storm water management, a permit would be in jeopardy. The project not receiving required wastewater permits would certainly trigger denial. Finally, denial would occur if the project would cause significant environmental impacts.

For casino projects, several things have been particularly important in the review for water quality. First is the avoidance of wetlands. At this point, only about 0.3-acre of wetlands has been filled along the Gulf Coast. The small figure is a result of the diligence of the state and federal regulation agencies in avoiding development in wetlands. However, most of the easy sites have been developed. The avoidance of wetlands will become a more critical issue as more projects are initiated.

Another area of concern is wastewater treatment. Because very large developments with land-based features

(such as hotels) are being built and planned, the agency must ascertain that the capacity to treat the wastewater exists. It also must ensure that the development does not affect water quality standards. Finally, the impacts of dredging and disposal of dredge material are concerns applicable particularly to casino projects.

Casino development has affected the workload of the agency employees. Two full-time workers review these projects, and until the advent of gaming, two employees could review all Section 404 projects statewide. These very large casino projects are on fast schedules. When very large industries locate in Mississippi and undergo a permitting and a review process, it generally takes months and months

for the facility to be built. Eventually the industry operates. However, the casino industry is on a different timetable. The construction takes place 24 hours a day 7 days a week. Construction is completed quickly. The speed of construction has created difficulties for the agency in checking and verifying the conditions of certifications.

Because of the increase in workload, the Legislature has been very kind to the agency this session. The legislators approved an increase in the number of positions in the agency, particularly in the area of monitoring Mississippi waters. Efforts to accelerate the monitoring process should lead to better water quality in the coastal community.

The COE Review Process

Ronald A. Krizman
Regulatory Branch

U.S. Army Corps of Engineers, Mobile District

The U.S. Army is indirectly involved in gaming permitting in the State of Mississippi. In the early days of the country, the Corps was the federal agency that surveyed and mapped navigable waters of the United States. Later, the Corps began maintaining navigable waters and even built them. In the late 1800's, Congress passed a law that required that anyone doing work in navigable waters in the United States, must first have a Department of the Army permit issued by the Corps of Engineers. As a result, the Army became involved in its first regulatory mission. Then, when the National Environmental Policy Act of 1968 and the Clean Water Act of 1970 came into being, the Corps' mission in the regulatory arena was increased.

Today, the Corps' activities are really fourfold. One activity is the evaluation of the Department of the Army permit applications. Another is the making of decisions on those particular permits. The third is the investigation and resolution of any violations of several laws, sections of which the Corps administers. The fourth activity is making wetlands and navigability determinations.

The Mobile District of the U.S. Army Corps of Engineers is one of 30-plus districts spread throughout the United States and overseas. In every way, the Mobile District is one of the largest of the Corps' districts. The regulatory boundary within the Mobile District encompasses the State of Alabama south of the Tennessee River watershed, as well as the eastern one-third of the State of Mississippi, including 98% of its coastal area. Any casino industry that comes into the coastal area of Mississippi has to apply to the Corps of Engineers for a permit. The casinos that are operating or locating on the Mississippi River in navigable waters will be working with either the Memphis or the Vicksburg Districts. Section 10 of the River and Harbor Control Act of 1899 is one of the basic laws that the Corps administers. Any work in, over, or under a navigable water dictates a Corps permit. Some types of work that normally occur in the navigable waters and require a permit are: dredging, bulkheading, and building piers.

The Corps becomes involved in areas outside of navigable waters because of Section 404 of the Clean Water Act. The Corps is responsible for the permitting through Section 404 of that same act, which states that any dredging or filling of waters in the United States requires a Department of the Army permit issued by the Corps. The term "waters in the United States" is a more encompassing term than "navigable waters." Navigable waters are those associated with interstate commerce. The Mississippi Sound and the Mississippi River are considered navigable waters. The

waters of the United States include not only those navigable waters, but also the tributaries, sloughs, and even wetlands that may be found behind one's home. These wetlands fall within the jurisdiction of Section 404 of the Clean Water Act. Therefore, casino builders who locate in coastal Mississippi need not only a Section 10 permit for locating a casino that floats on navigable waters but, also a Section 404 permit for some of the amenities (parking lots, hotels, golf courses, etc.) that may impact other "waters of the United States," including wetlands. Presently, wetlands are probably one of the most controversial aspects of the whole Corps permitting program.

A particular soil, the hydrology keeping the soil wet, and vegetation growing in the wet soil are the criteria for wetlands. These kinds of areas are considered jurisdictional wetlands of which a Corps permit would be required either to fill or excavate.

The first of the three criteria is vegetation. If the vegetation includes plants that would typically grow in a wet soil and these are the predominant vegetation, the criterion is met for that category. Cypress trees and lizard tail vegetation typically grow in wetlands. Another typical wetlands site contains pitcher plant bogs, mulberry bushes, and pines.

Another factor in determining wetland jurisdiction is whether the soil is a hydric one; that is, are the spaces between the soil particles typically filled with water as opposed to air. If the soil develops anaerobic conditions, then the second criterion to consider the area a jurisdictional wetland is fulfilled. The Natural Resource Conservation Service, formerly called the Soil Conservation Service, publishes soil maps that delineate the various types of soil found within an area. The soils are delineated in those maps as hydric or not. Therefore, looking at soil maps published by the Natural Conservation Service often determines whether a site is likely or not likely to be wetland.

The third and most difficult factor to determine is the hydrology. Hydrology keeps the soil wet and the wetland plants thriving. There are some definitions or some criteria used to determine whether the hydrology is met. However, hydrology determination is somewhat of an inexact science because it is viewed as a spot-in-time as opposed to an overall year-round look at any particular site. If the three criteria are met, the Corps designates the area to be a jurisdictional wetland, and any development must be accompanied by a Corps permit.

There are 36 various "Nationwide Permits." The permits relate to any work performed within a wetland area that individually or cumulatively has a very insignificant

impact. Those Nationwide Permits are issued by the Chief Engineer's Office, in Washington, DC, and typically are valid throughout the United States. Many of them are aids to navigation and fish and wildlife activities. It is not always necessary to apply to the Corps for permission to use these permits. For example, the placement of a crab trap or crab pot in navigable waters is a structure within navigable waters being used for a purpose. Therefore, one of the Nationwide Permits covers that kind of activity to prevent the Corps from being inundated by permits for crab traps. When a road project involves a road crossing (and less than 200 linear feet of road would cut across a wetland) a Nationwide Permit would apply. Thirteen of these 36 permits—actually 14 of 37 now—require advance notification. The Corps must be informed of the intent to use these 14 particular Nationwide Permits. The Corps is allotted 30 calendar days to inform the applicant whether the project meets the criteria of the Nationwide Permit program. Those Nationwide Permits can be used for both Section 10 and Section 404.

Another type of permit is the "Regional Permit." These are for projects that have more impact than projects covered by Nationwide Permits. For example, there is a Regional Permit covering up to 2,500 cubic yards of dredging, as long as the dredged material is placed at an upland site. In that case, a "General Permit" or "Regional Permit" can be used. In Mississippi, a working agreement with the Mississippi Department of Marine Resources allows the issuance of these permits in the name of the Corps. A one-stop permitting process occurs by the applicant going to the Mississippi Department of Marine Resources. These permits are for minor impact projects, either in navigable waters or in wetlands. The timeframe for issuing these permits is 10 to 14 days.

Another type of permit is called the "Letter of Permission Permit" used when a navigable water only is involved. An example is a commercial pier or something similar that would impact only other navigational users. Issuing those types of permits is coordinated with the various state and federal agencies, as well as with the users of the navigable water in the area. Issuing a Letter of Permission takes from 2 weeks to a month.

The larger permit and the most controversial one is the "Individual Permit." The Mobile District has a policy stating that any new casino siting will initially be evaluated as an Individual Permit. These large projects can cause big impacts. Individual Permits must be published with a 30-day public notice explaining the proposal. Federal and state agencies, as well as the general public interested in any of the resources, comment on the particular public notice recommending either denial, modifications, or expressing concerns.

Public hearings are possible depending upon which issues arise during the public comment period. If the District Engineer feels that a public hearing is needed to better answer concerns, a hearing is planned. An environ-

mental assessment (EA) is developed to determine exactly what the environmental impacts of that particular project will be. If there are significant environmental impacts, an environmental impact statement (EIS) would be made before a permit decision occurred. Finalizing an EIS is a lengthy procedure. The formality of holding meetings and public hearings takes time. Finally, when a decision is made by the District Engineer, the EPA (which has the federal oversight for the Clean Water Act) has the authority to veto the Corps' decision. A veto seldom occurs. In fact, in the last 18 years since the Clean Water Act and the Corps became involved in that Act, only one instance in the Mobile District involved the EPA vetoing a permit decision by the Mobile District Engineer.

Another law administered by the Corps is Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, which is often termed the "Ocean Dumping Act." If a dredging project does not have a place for disposing material except in federal waters, a Corps permit is needed for the transportation of the material from state or state waters into the federal ocean waters.

Some changes in Corps permitting have occurred recently. The number of Nationwide Permits has increased in the last 2 years. Existing Nationwide Permits expire next January. The Chief of Engineers office in Washington will publish new Nationwide Permits before the existing ones expire. Furthermore, additional new Nationwide Permits will be published at the same time. Excavation of "waters of the United States" requires a permit today. Until 3 years ago, a wetland could be excavated digging 50 feet deep, and a Corps permit would not be needed if the material was not allowed to fall back into the existing wetlands. As a result of a Department of the Army settlement of a lawsuit, regulation of excavation was begun. Thus, a Section 404 permit is required not only to fill wetlands, but also to excavate wetlands. Regulation of pilings has changed in the last 2 or 3 years. In the past, pilings outside navigable waters were not regulated by the Corps. Now, however, pilings can be regulated. Because people went to extreme lengths trying to avoid needing a Corps permit, parking lots were being built on pilings. The Corps now regulates structures built on pilings that would normally have been placed on fill material.

The Clinton Administration has been responsible for a number of regulatory initiatives. While Mr. Bush was president, a "no net loss" goal for wetlands existed. While President Clinton has a no net loss goal, he has added an additional goal: "higher quality wetlands." There is an Administration goal to expect a permit decision within 90 days unless certain conditions arise. Exceptions might be: endangered species issues, resource problems, or the need for an EIS. Otherwise, the President's goal is a 90-day permit decision. Today, the number of days spent on a typical permit is probably about 118 to 120 overall. That figure should be reduced to 90 days. Currently, the only appeal from a Corps District Engineer's decision is through a federal court. President Clinton will be establishing an appeal

procedure for two things: a permit denial from the party who was denied the permit, and wetland jurisdiction determinations. Today when engineers perform a wetlands identification on someone's property and state that it is jurisdictional wetland, a permit is needed to impact those wetlands. Right now, the only way to avoid that decision is to appeal to federal court. However, under the new appeal procedure it will be appealed to the Corps District.

Flexibility in permit decisions is helpful to the Corps. Not all wetlands are created equal. A low-quality wetland does not require spending much time determining whether there are alternatives to impacting those low-quality wetlands. Wetland criteria in the past have been the basis for controversy, especially in the early 1990's. Different federal agencies had various definitions of a wetland. The Corps is the federal agency that delineates wetlands. At times, the EPA and Fish and Wildlife Departments did not agree with the Corps because they had their own criteria for determining a wetland. Therefore, in 1993, the Clinton Admin-

istration declared that all federal agencies will use the same (Corps) wetland criteria. As a result, some of the controversy has dissipated.

Finally, the Clinton Administration has proposed and encouraged the use of mitigation banking. After trying to avoid and minimize impacts to wetlands, the next step is compensating for those wetland impacts to meet the goal of no net loss. That compensation is called "mitigation banking" and it is something that the Mississippi coastal counties are looking forward to, to prevent tiny mitigation sites that will probably have little chance of succeeding. However, a large area of wetland creation or wetland improvement used for mitigation would assist the permitting agencies and the recipient of the permit.

The goals of the Corps' regulatory program are to protect the waters in the United States and to provide for clearly definable development making fair, reasonable, and timely permit decisions.

EPA's Role in Wetlands Permitting

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Rapid development in coastal Mississippi has caused impacts on the state's infrastructure, its citizens, and on the state's environment. The effects are both good and bad. The Mississippi Legislature legalized dockside gaming on the Mississippi River and along the Mississippi Gulf Coast. Because both the EPA and the Corps have regulatory authority over waters of the United States, friction between the groups sometimes occurs. The 404 Permit Program is a conflict resolution process considering environmental issues, weighed alongside the public's interests. The Clean Water Act passed in 1972. The Act was a result of a continued degradation of our nation's waters. The degradation was a result of insults to the environment. One of the biggest examples of that degradation was the Cayahoga River, an Ohio river emptying into Lake Erie at Cleveland, that in the 1970's was depicted in newspapers in flames.

Objectives of the Clean Water Act are the restoration and maintenance of the chemical, physical, and biological integrity of the waters. That mission statement has caused great joy and much consternation since its inception in 1972. EPA was created before passage of the Act in 1970. The waters of the United States are defined as the: navigable waters, interstate waters, intrastate waters, tributaries, territorial seas, and wetlands. There is an overlapping jurisdiction between state statute and gaming statute in the Federal Clean Water Act authority. In the early 1990's, the rationale was that the dockside casino was to be sited in certain areas that overlap Corps jurisdiction, but there would also be secondary development coupled with the footprint of that casino. That thinking caused great consternation throughout the federal family because evaluating the footprint of the casino is one thing, but secondary and cumulative impacts of upland development to ensure that casinos remain, cause additional concern. Casinos should be evaluated on a broader scale.

One of EPA's roles in Section 404 is reviewing permits that the Corps has accepted. EPA, Fish and Wildlife Service, NMFS, and several other agencies review and make specific recommendations to the Corps of Engineers. Section 404 guidelines were written by EPA in 1975 and updated in 1981, creating specific guidelines that must be followed to be in conjunction with the Corps' compliance for a permit. These are some of the guidelines to which every casino, operator, or anyone applying for a Section 404 permit must adhere. However, under President Clinton's plan, additional flexibility is provided by issuing Nationwide Permits.

The first step in the permitting process is the evaluation of possible alternatives. In the beginning, friction exists

between the casino industry and federal regulators because regulators investigate areas that can be quite sensitive in nature. The stage is set for a dispute when the job of regulators is to grant a permit, deny a permit, or recommend another site for the casino. After alternative sites are evaluated, regulators evaluate the effects of the discharge to other environmental standards. Bucking water standards and using a toxic discharge in fill material are in violation of the Clean Water Act. In addition, an assessment is made in relation to significant degradation to the waters of the United States. If a project might cause significant degradation to waters, the permit is going to be denied. Regulators look at assessment of appropriate steps to minimize impacts of the discharge.

Because of continuing development on the Coast, efforts to minimize and mitigate impacts have special significance. If EPA, NMFS, or Fish and Wildlife Service believe that a project does not comply with the guidelines and the Corps does not agree with that decision, another interesting conflict resolution process called the Section 404(a) elevation process is utilized. In 1993, a new memorandum of agreement between the agencies (Fish and Wildlife, the Corps, and EPA) was formulated. In the Section 404(a) elevation process, a dispute over a particular project results, documenting and evaluating problems with the environment. If a permit has unacceptable adverse impacts, EPA's 404 procedure is set into motion.

If a discharge, an excavation, or any kind of secondary cumulative impact associated with the project has impacts on the inshore water supplies, shellfish beds, fishery areas (including spawning and breeding areas), wildlife areas, or recreational areas, EPA will be compelled to go to our 404(a) authority. This authority may be used before and after the fact. This very time-consuming project usually has a short timeframe. Political pressures intervene. However, Congress has left this seldom-used procedure in place. EPA and the Corps jointly administer the enforcement program of Section 404.

On the Mississippi Gulf Coast, EPA has conducted two enforcement actions against casinos. One involved environmental remediation processes. The other one resulted in a penalty. EPA enforcement in Tunica County involved three enforcement matters (three penalties including environmental restoration). A significant penalty was issued by the Vicksburg Corps of Engineers against a casino. The casino industry on the Coast has tried to do right by complying with Section 404. Direct impacts to wetlands have been minimal. However, secondary and cumulative impacts have been significant.

The Mississippi Public Trust Tidelands Lease Program

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In the State of Mississippi, the Secretary of State is also the land commissioner; therefore, public lands, except agency lands, are under his administration. One of the two great land trusts that the state owns is the public trust tidelands and submerged lands. (The other is the Sixteenth Section School Land Trust.) Since these tidelands and submerged lands are publicly owned, compensation must be paid when some private exclusive use is made of these lands. The Secretary of State established an office here on the Coast in 1988, and thereafter adopted rules for the administration, control, and leasing of public trust tidelands. This tidelands lease program was in effect in March of 1992, when casino gambling was approved in Harrison County.

Between August 1992 and August 1994, 10 leases were executed for casinos. Regulations specify that the leases be granted only to the adjacent upland owner or his assignee, so the applicant for the lease must own or control the adjacent uplands. The policy has been to preclude any new commercial leases off publicly funded sand beaches in the coastal counties. The policy has had the effect of confining additional development to the previously disturbed or impacted areas, ports, and harbors along the Coast and the area of downtown Biloxi, including the Broadwater, the old Sea & Sirloin Steak House, and Point Cadet.

The applicant must submit an application, an application fee, and a survey, which shows everything that is to be placed on the waters and waterbottoms to be leased and on the adjacent uplands. Every lease requires the lessee to abide by all applicable state, federal, and local regulations or statutes; any zoning ordinances; and any governmental regulations that may apply to the activity.

The lease process is usually triggered by the receipt of the public notice of the proposed project from the Department of Marine Resources. The office responds by advising that a lease will be required for the use. The Department is notified when a lease application is received and proceeds with its permitting process. In addition, the office coordinates with the Department to ensure that a lease is not authorized for an activity that is not permitted by the regulatory authorities. The lease is not issued until

after all applicable permits have been obtained by the applicant.

Next, a site-specific appraisal for each of these leases is obtained. The appraiser uses a three-part approach. First, he arrives at a value based upon direct comparison of the property, return on value of the property, and percentage gross casino revenues of the property. The appraiser then reconciles these three figures to arrive at fair market rental value. Finally, this figure (which was determined by independent appraisal) is nonnegotiable. The figure is presented to the lessee, and in each instance, the figure has been accepted and the lease executed.

Other terms of the lease are negotiable to a certain extent. If there are provisions that the lessee would like to include, they are included if possible. Some provisions are statutorily mandated. Although the law allows a term of up to 40 years, terms of the leases have been limited to 10 years, with one instance of 15 years. A statutorily mandated rent review and an adjustment every 5 years is included as a provision of each lease. Public access to the leased areas is required if the lessee is able to provide it. In addition, the lessor recognizes that the lessee can take reasonable measures to protect the security of his property. The lease may be terminated upon the suspension or cancellation of the casino license. The state secures an indemnity and hold harmless provision in each of the leases. Moreover, liability insurance is required of the lessee.

Although the lease program was in place prior to the passage of casino gambling on the Coast, the revenues, as one might expect, have increased dramatically with the 10 casino leases. The revenues from the tidelands are spent as directed by statute. The revenues are used first for the administration of the Public Trust Tidelands Act and, secondly, to replace any lost tax revenues. To date, none have been lost. Finally, the balance of the lease revenues is disbursed to the Department of Marine Resources. Mississippi law provides that the DMR use these monies for new and extra programs of tidelands management including preservation, conservation, public access, and public education. Recently, the Legislature has made the fund expenditures part of the DMR appropriation process.

Recommendations for Changes in Permitting Casinos in Mississippi Coastal Wetlands

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In 1994, NOAA's office of Ocean and Coastal Resource Management issued a report that was part of its ongoing evaluation of state coastal management programs. That 1994 report was somewhat critical of the way the State of Mississippi permitted casino development within the coastal zone. In particular, the NOAA evaluation expressed concern regarding how the state was allowing casinos in certain areas that were designated in the formal coastal program for other uses, such as commercial fishing ports, recreational marinas, and water-dependent industries. In addition, the report expressed some concern regarding the procedures that were used to allow adjustments in the Coastal Use Plan. The procedures were deemed inadequate and the report suggested that the state re-evaluate its current regulatory program to see if any changes were warranted.

Upon that recommendation, the Department of Marine Resources contacted the Mississippi-Alabama Sea Grant Legal Program at the University of Mississippi Law Center. The Department of Marine Resources asked whether or not the legal program would be interested in taking on the project of evaluating the current regulatory structure and providing some recommendations. The Sea Grant Legal Program accepted the challenge and, in April 1996, submitted its findings.

The recommendations of the legal program can be divided into two basic categories. The first category is composed of entirely discretionary recommendations. The reason that they are discretionary is that the state in these areas is in general compliance with existing federal and state law. Therefore, the recommendations may clarify or improve certain aspects of the management of the coastal zone, but changes are not absolutely required. Examples in this first category include a recommendation that the Commission on Marine Resources more diligently ensure that all applicants provide detailed descriptions of all associated and secondary developments that are likely to occur. The Commission should then make sure that these impacts are fully considered in all of the permitting decisions that are ultimately made.

Another recommendation in the discretionary category encourages the state to re-examine the jurisdictional definitions within the coastal program. For example, some confusion exists regarding whether or not a recreational marina that is dredged from an upland area does or does not fall within the jurisdiction of the Coastal Program. The lan-

guage is cloudy and needs to be clarified and tightened. Yet another discretionary recommendation encourages the Commission to better define water-dependent activities and water-dependent industry. This issue is discretionary because broad leeway has generally been granted to states like Mississippi to make the determination of what is defined as a water-dependent activity or industry. There is probably no legal problem with the way the state currently defines water-dependency.

Most people acknowledge that casinos have to be viewed as water-dependent activities because the Mississippi legislation has required gaming to exist only on floating structures. However, water-dependent status does not mean that casinos should be placed without limits all along the Coast. For example, casinos should not be located on sites suitable for water-dependent industry. Sites suitable for water-dependent industry are those sites that are located adjacent to navigable channels, which are suitable for commercial water-borne commerce. Casinos do not need a position adjacent to a navigable channel that would support water-borne commerce. In fact, those locations are very limited in number. They are unique. Allowing casinos on those sites prevents other industries that are truly water-dependent from locating there. Consequently, the Commission on Marine Resources should re-evaluate the definitions of activities that can be allowed on sites suitable for water-dependent industry and close any loopholes that may allow casinos to be placed on industrial sites. Similarly, the Commission should tighten the definition on water-dependent activities to ensure that nongaming activities such as theaters, child care facilities, and hotels are not placed on floating structures over the state's submerged water bottoms. Generally, those services are already prohibited from being located on floating structures. However, there have been a growing number of requests to situate those kinds of activities on vessels. The policy therefore needs to be tightened and clarified.

The second general category of recommendations comprises those that are not discretionary. They are not discretionary because they will bring the state into compliance with existing state or federal law. An example of a nondiscretionary recommendation would be for the state to re-define the "commercial" designation within its Use Plan in the Coastal Program. The Use Plan is similar to a zoning map. The entire coastal zone is mapped and certain zones are

delineated where particular activities can take place and other activities cannot occur. Most casinos are located in these commercially designated zones. The Coastal Program allows in those commercial zones, according to express language, seafood processing, commercial fishing ports, recreational marinas, and associated development.

Nowhere in the Coastal Program are casinos or casino-related development mentioned. Clearly, there is a difference in the impact between a commercial fishing port or a seafood processing plant and a casino and all the related casino development that is adjacent. Casinos were placed in the commercially designated zones because they were the most suitable locations at the time. Many of the casinos have been placed on what were once seafood processing plants or commercial fishing facilities. These sites may, in fact, be uniquely suitable for casinos. However, the state cannot ignore the express language within the Coastal Program. If the state wants to have casinos within this commercial designation, it should amend the Coastal Program to allow casino development within that designation. If the state does not choose to do that, there is a possibility that a legal challenge may arise at some point in the future, with someone challenging a permit saying that the state is allowing an activity that is expressly prohibited within the Coastal Program.

Another nondiscretionary recommendation is that the Commission on Marine Resources provide full written findings of fact and law whenever it renders a permit decision. This requirement of full written findings is clearly required under the State Coastal Wetlands Protection Act, as well as in Administrative Procedures within the state. The requirement, in fact, was the reason why a recent decision by the Commission on Wildlife, Fisheries and Parks was overturned by Chancery Court in Harrison County. The Commission failed to make formal written findings when it made a permit decision.

The last few nondiscretionary recommendations will probably be viewed by some observers as controversial. The first is a recommendation that the Commission on Marine Resources clarify its requirements for adjustments in the Coastal Use Plan. On several occasions, casinos have requested adjustments in the Use Plan to allow a casino to locate within a zone that had been previously designated as a zone that prohibited casino-like activity. There is no express requirement within the Coastal Program that a test be used requiring an applicant to either show a mistake in the original zoning plan or a change in circumstances of the neighborhood or the neighboring area before they grant an adjustment. However, this so-called "mistake or change in circumstance rule" is one of the most well-entrenched com-

mon law rules in the State of Mississippi. The rule has been applied on dozens of occasions by the State Supreme Court in the zoning context, and although the Supreme Court has not yet ruled on this issue in the context of adjustments to the Coastal Program, a Chancery Court in Harrison County has done so. Recently in regard to a casino site on the Biloxi Back Bay, the court approved the "mistake or change in circumstance" test. As a result, the Commission on Wildlife, Fisheries and Parks applied the test and found that because there was a mistake in the original zoning, an adjustment to the Coastal Program could be made. The report recommends that the Commission on Marine Resources adopt the test as well because it is widely perceived that the State Supreme Court will require the test if it is confronted with this issue in the future.

Finally, the last nondiscretionary recommendations involve a state statute known as the "One-Stop Permitting Act." This act requires that all agencies with related or interrelated jurisdiction or authority cooperate to the greatest extent possible in processing and issuing permits. The purpose of the One-Stop Permitting Act is to avoid the situation that was quite common several years ago in which an applicant had to go to several agencies to get a permit. This was viewed as inefficient, inconvenient for the permit applicant, and a waste of money because many duplicate expenses by various agencies occurred.

Currently, there is little cooperation or coordination between the State Gaming Commission and the Commission on Marine Resources. In particular, there is not the kind of coordination that is required under the One-Stop Permitting Act. On the contrary, in some instances, the Gaming Commission will grant a preliminary permit based on its own very specific criteria, even in those circumstances where it is very unlikely that the particular preliminary permittee will be able to receive a permit from the Commission on Marine Resources, the U.S. Army Corps of Engineers, or the Secretary of State's office. Rather than streamlining and coordinating the permitting process, the current approach pits one state agency against another. If the Gaming Commission makes a preliminary decision, it puts undue economic and political pressure on the second state agency. Certainly, this is not the intent of the One-Stop Permitting Act. In fact, the two agencies should be working together, information should be shared, public hearings should be consolidated rather than held separately, and a single application process should be developed. If these steps are not taken, there is a chance that potential litigation will occur to force agencies to comply with state law. Mississippi should evaluate ways to implement these recommendations.

SECTION II. CUMULATIVE AND SECONDARY IMPACTS OF DOCKSIDE GAMING DEVELOPMENT

Economic Impacts

Direct Effects of the Dockside Casino Industry on the Coastal Economy

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Direct effects of the dockside casino industry on the coastal economy have been positive. There are some negative aspects: the effect on infrastructure and the crime rate. However, the problems are caused by an increase in tourism, more residents, and more construction. The increase in crime is in large part attributed to gang and youth criminal activities, as well as the fact that we have 50,000 more tourists on the Gulf Coast than before gaming. Therefore, a comparison of crime statistics now with pre-gaming crime statistics will reveal an increase without question. The positive aspects, though, seem to outweigh the negative factors.

In 1973, the economy of Biloxi was depressed. Someone with a college degree did not have many options. Many college graduates moved to other areas where an industry and a lifestyle were more attractive. Then, when dockside gaming came to the Coast, it gave people who left this area because of the depressed economy, the opportunity to return.

Some basic information about gambling will be helpful in understanding the industry. Gamblers, in fact, are really just a slice of America. They are above the national average in education, income and employment; gamblers have a median income of \$41,000 a year with 19% of them holding college degrees. Forty-four percent have white collar jobs, and more than half of them are women.

What is America's attitude about gaming? Studies have shown that in 1995, 91% of those surveyed said that gaming was an acceptable form of entertainment. Only 9% said that gaming was not acceptable for anybody. Of the 91% who believed gaming to be acceptable, 61% responded that gaming is acceptable for them. Thirty percent said that it is acceptable for other people but not necessarily for them. Therefore, the conclusion is that many people in the United States do not necessarily feel that gaming is for the morally corrupt.

"Casino penetration" is the number of households that make casino visits each year. It has grown steadily since 1990, when other states began legalizing gaming. Seventeen percent of all households had gambled in 1990. That number grew to 27% in 1993. By 1995, 31% of all households in the United States had gambled at some point.

How popular is gaming in the United States? In 1995, the number of U.S. casino visits was 154 million. That is a 23% increase over 1994 and three times the visits in 1991. Of the 154 million people visiting casinos in 1995, 58% of them went to places other than Las Vegas and Atlantic City. They went to casinos that were convenient for them. The average gambler likes the convenience of a local casino. He does not want to travel halfway across the country. In 1995, gaming visits even surpassed visits to amusement parks. Furthermore, the total number of all spectators present at sports events in 1995 (including baseball, NFL, NBA, NCA, NHL, and golf tours) was only 25 million more than the number of those visiting casinos. Gaming is growing in popularity as an entertainment option in the United States today.

The gaming industry employs nationally, directly and indirectly, more than a million people. Casino employees alone received over \$7 billion in salaries and bought homes, cars, paid taxes, and got off welfare and Aid to Families with Dependent Children.

Nationally, looking at various spots where gaming has been legalized over the last few years reveals some very positive figures. Of course, the negative factors exist also. In Joliet, Illinois, crime has increased and infrastructure problems exist. On the other hand, property values have increased 23%. In Illinois, tax revenues from the 10 riverboats reached \$236 million in 1995, surpassing the legislature's projection of \$20 million. In Missouri in 1995, gaming provided \$55.9 million in tax revenues specifically for the education system. In Louisiana, the 11 riverboats in

1995 paid taxes of \$204 million. Of the \$40 billion earned by the casinos nationally, \$1.5 billion were paid in tax revenues to the states and local governments where casinos exist. Those are positive aspects that cannot be denied. The casino industry increases capital investment, (e.g. \$525 million by *Golden Nugget* in Biloxi). Casinos increase numbers of jobs.

In Mississippi, 29,000 new jobs have been created by this industry. Of course, the tax revenues to the state and local government are increased. Mississippi has been positively affected by gaming. Mississippi's present governor was elected when this industry was in its infantile stage and he was in the Governor's Mansion throughout the growth of gaming in Mississippi. The Governor stated that he had inherited casino gaming. Mississippi's economy was stagnant before gaming. This industry played a great part in stimulating the economy. The industry rose to the challenge with no hint of corruption or scandal. That is, in large part, due to the Mississippi Gaming Commission, Gary McGee, and his staff.

Mississippi's governor stated that the Mississippi gaming industry has created 29,000 direct jobs and 20,000 indirect jobs. The casino companies are building and investing in Mississippi. More than 70% of the casinos' customers come from out of state, so money is not simply recycled within our state. Mississippi is second in the nation in casino square footage and third in gross gaming revenues. The Governor stated that the free market is a wonderful apparatus. He continued saying that the strong will survive for the greater good of the industry. Lastly, he said, "Let the casinos thrive and watch the success." This response was from a governor who enjoyed the benefits of what he calls the "Mississippi miracle," the incredible turnaround of the state's economy in the last 4 years. The Governor gives credit for one-third of the Mississippi miracle to the gaming industry.

The Harrison County Development Commission (a county of a fixed population of about 183,000 and Metropolitan Statistical Area of about 350,000) projects a 5.3% job growth, which includes about 11,000 new jobs in this county since 1991. The Commission projects \$700 million in new construction costs during 1996 and 1997. That construction figure is not restricted to the casino industry.

Casino Magic is investing about \$30 million in its property over the next year building a hotel, and a whole new entry-way. Eventually, the casino will construct a very high-end shopping mall with a high-end hotel on top of that. The *Golden Nugget* and *Imperial Palace* are under construction, and at the same time many businesses and new businesses are being built.

The Development Commission projects hotel occupancy trends at 70%-plus. That is figured at \$60 per night totaling \$83 million in sales in 1995 and an 8.7% increase over 1994. In 1995, apartment occupancy ranged from 90 to 95%, with an average monthly rental of \$416. Office occupancy levels are at 90% or higher. Restaurant sales totaled \$165 million in 1995, a 4.3% increase over 1994. Average sales price of residential real estate in Harrison County has risen from \$68,500 in 1992 to \$84,000 in 1995. That is a 23% increase in sales price of residential real estate since the advent of gaming.

The University of Southern Mississippi Division of Business Administration's Mississippi Gulf Coast Economic Report indicates that the periods of rapid growth in 1993 and 1994 on the Mississippi Gulf Coast reveal that the economic variables examined appear to point toward a stabilization of economic activity in 1995, in contrast to the rapid growth periods of 1993 and 1994. The economic thread that seems to be running through the past growth appears to be in large part, a result of the gaming industry. Although not shown in this report, annual average employment from 1992 to 1994 in the service sector or gaming sector increased by an unprecedented number from 15,600 to 29,300, a growth of more than 87%. The largest portion of this new employment was located in the gaming industry. An increase in jobs tied directly and indirectly to this industry has made a major impact on the coast economy. The gaming industry in Mississippi has been beneficial to Mississippi. It seems that this industry is here to stay, and the properties in the year 2000 are going to be larger. While there will be fewer casinos, they will be a department store of entertainment. They will offer something for everyone within every budget. In the year 2000, Mississippi will continue to see an increase in all economic indicators. At some point in time, Mississippi will be up there with some of the best economic states in the country.

The Impact of Casino Gambling in New Orleans

Janet Speyrer

Director, Division of Business and Economic Research
University of New Orleans

The Louisiana Legislature allowed a land-based casino in New Orleans in 1992; the casino actually opened at a temporary 76,000-square-foot site on May 1st of 1995. Because of poorer than expected performance and other factors at the time, the casino downsized to 62,000 square feet and laid off about 500 workers. Continued poor performance and an increase in costs at the permanent site (the Rivergate, at the foot of Canal Street) caused *Harrah's Casino* to declare bankruptcy on November 22, 1995. The casino generated \$88.7 million of revenue for the period that it operated. Actually, *Harrah's* (because they were getting \$59 per admission) was still earning about \$2,300 per square foot per year in revenue. So, one question is "why did it not perform up to expectations?" What kinds of things might have caused the project to be sustainable in the long run?

One problem was that the taxes were much higher at that location than in any other place in the country. The tax on the win was 25% of gross revenues at the temporary site. For the permanent site, which would encompass more than 200,000 square feet at the foot of Canal Street, the tax was going to be a minimum of \$100 million and about the same rate beyond. Therefore, the tax rate at the permanent site has been estimated to be between 40 and 47% at a performance level consistent with the kind of performance that was occurring at the temporary site (but increased because of the increased gaming space).

Another problem was that, in the legislation, *Harrah's* was not allowed to offer any free food. Hotel rooms were also disallowed. In the casino business, complementaries are important, but were excluded because the existing tourism industry in New Orleans was strong and Louisianans did not want to upset that balance. As a result, the legislation was very restrictive for this casino. These reasons for failure are only part of the story, however. First of all, the temporary casino site was on Basin Street. Basin Street is not on the main path of tourists. It is actually very close to a subsidized housing development in an area that has not been one of the best kept, historically, and not one of the newest and most tourist-oriented areas of the city. The permanent location at the foot of Canal Street was a more desirable location. In fact, many people wondered why *Harrah's* even bothered to open at the temporary site. The temporary site was not *Harrah's* choice. They were forced to open a temporary site at the old Municipal Auditorium on Basin Street in order to get the operational license for the permanent site.

One other problem was that the New Orleans convention

visitors who were coming were not planning ahead to gamble. When asked if they were planning to gamble, if they brought money to gamble and, ultimately, if they did gamble, tourists answered, for the most part, "no." Some tourists might visit the casino to play, but it was not something they planned ahead to do. Visitors who do not plan ahead to gamble cannot, in general, extend a stay that would lead to positive economic impact. In addition, these tourists were not, generally, big players.

It is also true that having clusters of activities like those in the Biloxi-Gulfport area allows people to move from one casino to another enjoying a variety of gaming entertainment. In New Orleans, people do not come to hear one jazz singer or one jazz group but to hear a variety of jazz music on the whole. People do not go to Branson, Missouri because of one country singer, but rather because of groups of them. People want to have a variety. Moving from the land-based casino in New Orleans to one of the riverboats was not convenient because of the distance.

One other problem was that most of the people who went to *Harrah's* casino were residents and existing visitors, not new visitors, and there were not as many visitors as residents. About 65 to 75% of the people who visited *Harrah's* temporary site were residents. And the fact is that the residents, especially the higher income suburban residents, tend to frequent the riverboats in their neighborhoods or go to Mississippi instead of going downtown to a casino. Another problem resulted from the long regulatory delays. People just underestimated Mississippi's growth. New Orleans was playing catch-up at the time because Mississippi was already offering hotels and other kinds of entertainment. New Orleans just "missed the boat," literally, on entertainment and hotels. At the same time, many felt that the investment that was going into the downtown area was not justified based on the numbers. Instead of the casino getting 65 to 70% of visitors (as planned) and the remainder residents, the casino had been experiencing the reverse.

When analysts looked further into casino performance, several other findings were noted. The revenue was off; the numbers were only less than half of the projected figures. Also, the number of visitors was off; only a third of the original projected number visited the casino. The implication is that the market may not have been sufficient to support the huge capital investment that was being called for at the gigantic Rivergate site. Alternatively, *Harrah's* may have just overestimated the activity at this temporary site.

River City Casinos (two boats) were operating downriver from the downtown area. The original investment called

for \$40 million per boat. However, the operation ended up spending \$280 million on two boats and went broke in less than 9 weeks. Again, the investment could not be supported by the local gaming market. In the riverboat industry, originally 15 riverboat licenses were allowed in Louisiana as a whole with nine in the New Orleans area. This industry was governed by some interesting rules. First, all boats (except the ones on the Red River) had to sail. The boats had to be new and contain a maximum of 30,000 square feet of gaming space. The tax rates were high, with 18.5% of gross revenue going to Louisiana and \$2.50 or \$3.00 per passenger (or 6% of net gaming proceeds in the West Bank of Jefferson Parish) going to the local governments. The tax rate can be between 25 and 35% on a given boat, depending on its revenue per passenger. Legislation allowed for those boats to begin operating in 1991. The first boat, the *Star*, started operating in October of 1993. This was followed quickly by *Player's International* in Lake Charles.

It is interesting to note that the New Orleans area was originally scheduled to have nine boats. Five boats were scheduled to be in New Orleans, and four boats would operate in the surrounding parishes. Looking at New Orleans now, one can see only four boats remaining in the area, with only two in the city: one downtown (*Flamingo*), and one at the lakeshore site (*Bally's Belle of New Orleans*). The *Treasure Chest* is in Kenner and the *Boomtown Belle* is on the west bank of Jefferson Parish. One other important fact is that the *Flamingo*, which started as the *Queen of New Orleans* with 20,000 square feet, expanded to 30,000 square feet, because of good initial performance. However, the *Flamingo* downsized to 20,000 square feet in January of this year. Figures for the *Flamingo* show that revenue per square foot actually increased in the first quarter of this year.

The total revenue for Louisiana riverboats alone was \$1.05 billion in 1995. In the coastal Mississippi area, revenues were \$716 million. New Orleans' revenue exceeded that of the Coast, even with all of the Coast's highly-clustered activity. Mississippi's river casinos earned another \$1 billion. Thus, the total revenue figure is \$1.7 billion for Mississippi compared to \$1.05 billion just for the riverboats in Louisiana. Some believe that this shows that the Louisiana market is very strong, because this Louisiana revenue figure does not count the \$89 million in revenues from *Harras's*, or the revenues from the three operations on Indian reservations that are also doing very well and expanding at this time. To show that the trend does continue, in the first quarter of 1996, the riverboat casinos in Louisiana made \$303 million, while all of Mississippi made \$461 million in casino revenues.

Some problems do occur in comparing revenue per square foot per year on boats that have to sail with boats that are dockside. In particular, a problem occurs when comparing boats that have to sail and that have a maximum square footage of 30,000 with boats that are unlimited in space. However, there is a sense in which the Louisiana

riverboats and the New Orleans riverboats really were not doing as poorly as many had thought. These revenue-per-square-foot figures do not tell the whole story, but certainly reveal some interesting facts. First of all, the most healthy boats were those operating in Shreveport and then those in Lake Charles. Shreveport faced slightly different regulations; but both Shreveport and Lake Charles were attracting significant numbers of Texas visitors. Estimates show that up to 85% of gaming visits come to these areas from Texas. This is an important factor; it means not only positive casino performance but also positive economic impact because money is coming from outside the state. The Lake Charles numbers are slightly lower (than in Shreveport) because the casinos there face substantial competition from the nearby *Grand Coushatta Casino* on an Indian reservation. The *Grand Coushatta Casino* is actually land-based and some people are going farther to the Coushatta Indian reservation to gamble instead of staying in Lake Charles.

The future of gaming in New Orleans is uncertain. First the bankruptcy proceedings continue. There is a question of whether a casino can operate profitably at the Rivergate site at the foot of Canal Street given the high taxes and the big existing debt, the restriction on free food, and restrictions on hotels. At this point, the Legislature is not inclined to give the gambling industry anything. Gov. Foster has not only offered a statewide referendum on gambling but also said that he would support the anti-gambling movement. Therefore, it doesn't seem very likely that concessions will be given. The question is not just "Can the casino operate profitably at the Rivergate site?" but "Can a casino at the Rivergate site do for the State of Louisiana and for the local economy what it was predicted to do?"

The second issue is the multipart referendum in the fall. One part deals with whether or not to allow *Harras's* to open. Even if the vote is "no," *Harras's* may be here for 30 years or more because that's the way the contract reads. If the contract is upheld in the Courts, *Harras's* may be allowed to stay even if it is voted down. Many people suggest that the vote will not be negative, but that there is some question about the economic viability of the project. Another part of the referendum on the ballot will be whether to have riverboat gambling. This vote will take place in 43 parishes, including those with riverboats and the surrounding parishes. Many people thought the referendum on riverboat gambling was a "done deal" that there was definitely going to be riverboat gambling because of the boats' positive impact on the parishes where they operate. However, it is unclear what impact the vote by those in surrounding parishes will have. Even if the vote is "no," riverboat gambling can continue until the casino licenses are up (2 to 4 years).

Another issue for the future is the fact that as of May 1, 1996, a single board governs all gambling activities (riverboat gambling, video poker, land-based casinos, the lottery). However, there are currently no approved commis-

sioners. Consequently, many people who are operating in the industry wonder what they are supposed to do in the meantime. Getting people appointed to this kind of board takes quite some time.

Dean Tim Ryan, of the College of Business of the University of New Orleans, and Janet Speyrer have been asked to head a panel of people from different universities to study the impact of casino gambling activity in New Orleans. This study is being commissioned by the City

Planning Commission but paid for by the gambling interests of each riverboat and land-based casino. Six major universities with more than 30 researchers are involved. The studies are ongoing and will be finished soon. The studies include the effects on tourism, existing businesses, minorities, the revenue and expenditure of the local government; pathological gambling and its impact on social agencies and churches; crime and the criminal justice system; and real estate values and land use.

Economic Impacts from the Municipal Perspective

David Staehling

Director of Economic Development & Cultural Affairs
City of Biloxi, Mississippi

To say that the gaming industry has been a natural catalyst for the City of Biloxi is a tremendous understatement. A more inherent economic catalyst could not have come to the city. The casino industry categorically touches every element of the city, including wholesale retail trade; food, beverage, entertainment, and lodging industries; and particularly housing (single-family, multi-family, and commercial). The amount of development for a city of fewer than 50,000 people is unprecedented anywhere in the United States of America. In the first 3 years of development, since the advent of dockside gaming in August 1992, \$400 million in development has occurred. Today, \$600 million in new development is underway. This trend is not expected to stop in the next 10 years. All of the market conditions are paramount to underwriting a casino development. Conditions show much upside potential.

Biloxi prepared a waterfront plan, which focused on preservation enhancement. The plan evaluated the land-use element pertaining to that plan and incorporated an array of land uses that would support comprehensive redevelopment. At the time of formulating the plan, all the land on the outer perimeter of the peninsula was very distressed. Long-term economic decay existed with no real upside potential for redevelopment. Although this plan focused on preservation enhancement, it also focused on market analysis in land use as it pertained to the city and its future. This plan was adopted and ratified by the City Council, and it became ordinance. The other element that really helped the casino initiative was the fact that Biloxi has been a gaming destination since the 1850's. A successful casino industry existed until 1964, when the federal government shut it down. Consequently, the idea did not cause a social problem.

The development process occurs with a change in land use from a lower-value use to a higher-value use. Of course, all of the geography delineated for gaming was on the waterfront district and was the most distressed property of the city. Consequently, a convergence from the lowest possible land use into the highest possible land use occurred. A high quality of development comes with this industry. The industry has presented tremendous opportunity for the city. However, the city held certain things sacred. The heritage, cultural values, and the character of the city have always been very important in the underwriting process in this development. The totals are a billion dollars of development in a 3½-year period, \$400 million complete, and \$600 million under development right now. This development was a tremendous task for the city. Another factor was the

fact that the City of Biloxi had 30 to 40 years of deferred maintenance at the time this development occurred. The deferred maintenance included the areas of water, sewer, drainage, police, fire, education, and recreation. This was not the fault of any administration. The city simply had no money. At best, it could barely maintain its basic services. In 1992, the city could not buy tires for the police cars. Now, police cars are being bought in volume. Needless to say, the revenue that came with this industry has been significant. A 3.2% diversion comes from the state to the city and county. Twenty percent of that fund goes into the school system; 20% of it goes into public safety, fire and police; and 60% of it goes into the general fund for the city.

To make the proper investment of the public dollars, the city had to evaluate the transition that had really occurred in terms of the market forces imposed on the city and what could be expected in the future. The city commissioned a professional consultant firm with a tremendous background in land use planning that focused on the discipline of real estate development and had a detailed knowledge of the technical operation of a municipality, particularly as it pertained to water, sewer, drainage, and transportation. The purpose of the study was to help the city focus on spending tax dollars wisely. As a result, a needs analysis in the city was undertaken. The analysis considered the capacity required to take on the new development with the population increase, growth trends, and economic development.

The elements of this comprehensive plan focused first on a base map system. A base map system is a parcel-by-parcel delineation of all the land in the city. It also focused on setting up this base map system in a high-tech electronic format, a GIS system, that would set up attribute tables and assign the appropriate attribute values as far as all the information and data that affect land use, water, sewer, drainage, land-use improvements, and anything the city needed in terms of doing the proper analysis and studies and making choices on the development process. Included in that system was all the hydric soil within the city to make sure that the wetland delineations and impact analysis were done properly. Land-use inventory was important, with the city evaluating undeveloped land and looking at market forces to determine what would be the best future land use for that particular land.

The transportation factor is a major element. On a normal weekday, 10,000 to 15,000 people not from Biloxi come to town. On the weekend, 150,000 visitors are here. Traffic has increased dramatically. The city is dealing with many

agencies to help people get from one destination to another as quickly as possible with the least inconvenience.

The other element of focus was the goals and objectives element of the plan. The city commissioned the best polling corporation in the southeastern United States, MRI Corporation, and consulted a tremendous sampling of the population in terms of attitudes and behaviors related to perceptions of the problems in the city. In addition, the poll asked how people thought the city should resolve those problems.

First, the people wanted to be safe. They wanted total security and wanted to be able to get from one destination to the other safely. They also wanted very little increase in crime. Over the last 3 years, the city has invested more than \$30 million in public safety, particularly in the police department. Fifty new police cars were bought, and 60 new police officers were hired. The city invested heavily in education and training, and has the best-paid police officers in the State of Mississippi. People apply for positions in the police department from six or seven different states.

The budget has increased from \$4.5 million in 1992 to \$14 million this year. In 1995, the city had a 24% reduction in crime (rape, murder, robbery, larceny). The only increase in crime was traffic crime; primarily accidents. Certainly, with 150,000 visitors on weekends and an extra 10,000 or 15,000 during the week, more fender benders will occur. More DUI's have been noted, and the city has doubled the size of the DUI task force. The net result of the reinvestment has been a 24% decrease in crime.

The other biggest concern based on the polling was water, sewer, drainage, roads, and transportation. Forty million dollars have been invested in that particular public works element of the community. The comprehensive plan will indicate where the priority matters are. Fortunately, Biloxi is in very good financial condition. Most of this work has been done on a cash budget basis. Upon completion of this plan next month, the city will take many long-term capital projects that are required and put them in a long-term financing program (bonds) and complete them quickly.

Underwriting a casino development involves certain procedures. First is a predevelopment conference with all of the architectural engineers and design personnel, as well as the people representing the executive management ownership of the corporate entity. The city has a master plan process. It is about a 35-page document that underwrites all the disciplines needing to be addressed for the city to underwrite the project. In addition, the city requires the entity to coordinate all of the applications and all the submissions (the Corps of Engineers, the EPA, DMR, all the flood plain applications with FEMA, and FEMA construction requirements). The city requests that submitted site plans be presented to scale, delineating all of the projects.

Two analyses occur. The land-use analysis occurs when applicants want a zoning change, or they have a number of variances that they want for the development project itself. Then, there is the impact analysis. All the elements of ser-

vice provided in the city: police, fire, education, transportation, water, sewer, drainage, and recreation are evaluated. The city decides what the cost will be for development. Once that cost is established, the gaming entity and the city then participate in the impact cost. Casinos pay on the front end. The *Golden Nugget* is the largest casino outside of Las Vegas and Atlantic City. The City of Biloxi declared at the beginning of negotiations that the corporation will provide the city with the capital needed to make sure that the city has the proper capacity to handle the development in its entirety on a short-term and a long-term basis.

One of the most talked about issues is our wastewater management system. Needless to say, wastewater management is a concern of Mayor Holloway and the administration. The Keegan Bayou treatment facility, which handles all of East Biloxi, where most casino development is located, has been upgraded. Currently, the plants treat about 6 million gallons of wastewater per day. A new construction project will increase the capacity to 8.5 million gallons a day, leaving room to expand to 12 million gallons a day if the need ever arises. This project will be completed in about 20 months. The Keegan Bayou plan currently meets all of the requirements of standards set forth by the federal government. Stricter requirements are on the way, but the new facility will be able to meet them.

Overall, the casino industry has been an environmentally friendly industry. The city has been performing smoke testing of its sewer lines in east Biloxi to determine if any leaks exist in the old system. Millions of dollars in infrastructure work is being done to repair the inadequacies, particularly on the casino row area. Another important reason for smoke testing is to find points of infiltration where rainwater gets into the system. Rainwater does not need to be treated.

The City of Biloxi is working closely with the Harrison County Wastewater Management District analyzing the impact of the food and beverage industry. The gaming industry has a significant part of the food and beverage industry in each of its facilities. Outside the gaming industry, the food and beverage industry has had a good experience in increasing their growth.

Several contractors perform consultant analyses looking for problems. The analyses focus on minimizing the size of screen openings in the sink and floor drains to allow minimal amounts of grease and wastewater to be discharged into the system. Restaurants must remove all the food that can be physically removed through the garbage disposal system as well as implement proper housecleaning techniques to prevent excess solids getting into the system. Restaurants should install and increase the size of their grease traps to allow sufficient capacity for the amount of volume that is being handled through the operation.

The city has recently received approval from FEMA for a hazard mitigation grant that was applied for 6 months ago. The grant will focus on a comprehensive stormwater draining analysis for the city. The focuses of that analysis will be inspecting inventory; determining the adequacy of all exist-

ing drainage pipe structures, major ditches, channels, box culverts, bridges and the various flood frequencies; and analysis of existing stormwater flow with existing and future land use.

Extensive field surveys will be conducted to determine the size, location, and flow lines of major pipe systems, including cross-sections, streams, and open channels where necessary. Particular emphasis will be in the area where the city experienced flash flooding in the last 2 years. Mitigation measures will be developed and imposed, including construction costs to alleviate those problems identified in the underwriting study of the problems. In addition, the city will have a stormwater drainage impact

analysis that segregates the city into districts. When a development occurs in the city, an electronic floor map will demonstrate what needs to be assessed with that development.

Another element is updating our mapping system, which has been addressed through the city's comprehensive planning process. One of the problems of stormwater drainage analysis is the watershed effect and existing gravitational flows. Many of the areas normally seen that historically have been retention/detention areas now have parking lots and rooftops on them. Water is also appearing in some areas that had no problems before.

Economic Dislocation of the Commercial Fishing Industry

George Sekul
Gulf Central Seafood, Inc.
Biloxi, Mississippi

Biloxi abandoned the seafood industry when dockside gaming came. Very little thought was given to what was going to happen when the casinos took over the front beach area. Neither congressional leaders in Washington, the Governor, nor local supervisors and politicians thought of the impact.

One exception was Supervisor Bobby Eleuterius and some of his staff. They convened a seafood industry task force. This task force was astounded about what was to happen to the City of Biloxi's seafood industry. A search was undertaken to find a place where some commercial fishing docks could be located. Soon most waterfront property owners felt they had a potential casino development site. One particular area was owned by the city and the Biloxi Port Commission. Those groups thought that casino developers would buy their property.

This particular property is being considered again after 2 years. Three 270-foot piers will be built for commercial docking spaces. These will not be used for offloading, nor to get ice or fuel, but the piers will be a place for the boats

to tie up. It will be called "Lighthouse Fishing Pier." It was financed by the tidelands tax, which the casinos have paid for the most. The state relegated a half a million dollars to the Port Authority in Biloxi. That money will be used to build this facility.

One after another, seafood processing plants were sold to gaming interests. The seafood industry is not completely gone in spite of the casinos buying most seafood plant property. It is estimated that between 40 and 50 million pounds of shrimp are processed in Biloxi every year. It is hoped that the planned piers will provide our fleets (our transient fleets as well as our local fleets) a place where they can secure their boats and feel safe about leaving them at night. It probably would have helped with planning if the city had asked for a place to accommodate the seafood industry earlier. That time is past. Now the Coast is looking forward to the three docks that are being built. There is still additional space there; the city owns 5 or 6 more acres. There is room to expand (if tidelands lease money could be used). Perhaps the commercial fishing fleet can be revitalized.

Social Impacts

Response of the Mississippi Coast Housing Market and Property Values to Coastal Development Trends

Woody Bailey

Gulf Coast Association of Realtors

Most real estate agents along the Coast will agree that the casino experience has been favorable and exciting. In 1992, the average sales price of a house was \$68,483. By 1994, the figure climbed to \$83,621. That is a 22% increase in the existing market. For 1995, the prices leveled to roughly \$84,000. The total number of residential sales were 1,708 in 1992, and 2,366 in 1994 (which brings the figure up 38%). However, in 1994, a big upturn occurred in the market. In addition, some pent-up demand influenced these numbers and the number of people moving into the area.

In 1995, the residential sales declined to 2,008 (15%). Sales ratios have also increased. In other words, what does a house sell for? What is it listed for, and what does it actually sell for? The ratio rose steadily from these numbers from 1990 to 1994 and went from 91.9 to 95.7%. That is the "sold to listed price ratio." Then in 1995, that figure went to an even 95%. So, despite the drop in residential activity, the ratio has remained quite strong.

In 1991, the number of residential real estate agents in our area was 441. In 1995 that number of agents rose to 659. Many people entered the real estate business during

that time frame. In 1991, they sold 735 new homes in three coastal counties. In 1992, the number rose to 1,154. Then in 1993, the number was 1,719. The peak occurred in 1994, when it was 2,122. Then in 1995, the number dropped to 1,678, bringing a softening in the market. In the first quarter of 1996, total sales in the three-county area was 484. Annualized, that figure would be 1,946. The number is approaching the 1994 level. Many people sense a new wave of activity.

Of course, the *Golden Nugget* and *Imperial Palace* affect that activity, with additional people moving into the area with those two casinos. The year 1996 appears to be a good year, with promise of approaching the 1994 banner year. When gaming came to the Coast, many people felt they had more opportunities in the job market. Therefore, many residents felt they could move to a bigger home or build a new home. The psychological impact and the improvement in the marketplace affected the real estate business. Overall, real estate has been favorably affected by gaming. The long-term outlook (barring any problems nationally regarding interest rates) looks good for the Gulf Coast.

Casinos and Crime: What the Statistics Reveal in Coastal Mississippi

Bob Waterbury
Executive Director
Mississippi Coast Crime Commission

The Crime Commission deals with 10 crimes, three of which are crimes that the FBI does not worry with. Everyone is concerned with violent crimes such as homicide, rape, robbery, and assaults. Those are the four types evaluated to determine trends. Property crimes are also tracked. These are the ones that juveniles are highly involved in (65% of the crimes are committed by juveniles). Burglary is one of the property crimes. Larceny/theft is another. And auto theft is the other. Auto theft is kept separate and distinct. Those are the seven crimes that the FBI reviews, and they receive information on a voluntary basis. The Commission added three other crimes that included arson, which is a fast-growing crime, drugs, and DUI.

People do not like to tell others what their crimes are, how many there are, and what is happening in their locale. It took the Commission 6 months to finally get 10 chiefs of police, three sheriffs, the highway patrol, and the FBI to share their statistics. Now, television stations, radio stations, and print media, eagerly await the report each month detailing what the crimes are, the numbers, and the trends.

The first year raw data were submitted voluntarily was 1993. Over 23,000 crimes were reported in 1993 from the three coastal counties. Crime, for the first 8 months in 1993, was almost identical with the first 8 months of 1992. It went to 30,964 in 1994. Statistics show a 29% increase in crime on the Coast comparing 1993, when the casinos started, to 1994, when they were finished. In 1995, total crimes on the coast numbered 31,067. That is a big number, but not much bigger than 1994 (one percent, in fact). The crime increase has stopped.*

The census in 1990 showed 312,000 people in the three coastal counties. Another U.S. Census Bureau analysis in 1994 showed the population went up to 335,449. Before casinos came to the Coast in 1992, the population was decreasing, unemployment was high, roads had problems, nothing was really moving. In 1995, Harrison County had 20,457 of the 31,067 total crimes. Gulfport and Biloxi are the two biggest cities on the Mississippi Gulf Coast. Gulfport is the second biggest city in the state and will eventually become the biggest. Biloxi will be number two or close to it. Gulfport last year had 9,374 crimes, by far the largest number. Biloxi had 7,712. That's 17,086 just in those two cities from the total of 31,000 for the whole three

counties. Fifty-five percent of all the reported crimes come from these two cities. Those two cities with 55% of the crime have only 35% of the population, and that's what a lot of people like to attack Gulfport and Biloxi on.

What are the leading crimes on the Coast? Larceny/theft comprises 41% of all the crimes on the Coast. Juveniles are highly involved in that type of crime. Number two is the fastest growing crime—assaults (16%). Number three is burglary, both residential and commercial (15% of all the crimes on the Coast are burglary). Number four (14%) is DUI, driving under the influence. The fifth leading crime in numbers is drugs (8%). Those five crimes represent 94% of the total crimes on the Coast—29,090 crimes of the 31,067 reported last year.

From 1993 to 1995, crime went up 30% percent on the Coast. That is partly because of better equipment for our law enforcement, higher salaries, more enforcement personnel, and more arrests being made. Biloxi now has one of the best salary structures in Mississippi. Mississippi has some of the best law enforcement in the world with the poorest salaries. Gulfport had 65 law enforcement people just a few years ago before gaming, now there are 165. Those people are out there now going after drugs and DUI's, therefore the numbers of arrests are increasing.

What are the causes for the crime increase on the Coast? Number one, wherever you have a population increase, many tourists, and a lot of people, you are going to have a crime increase. What is number two? More gangs, more peer pressure, and more involvement in gangs. Number three is drugs. Sixty-five percent of the crime is committed by juveniles. Seventy percent of all the people in prison in Mississippi come from single-parent families. The worst cause of crime is family deterioration. Many kids do not respect parents and teachers, the police, or anybody. This is not just the Mississippi Coast. This is universal.

*EDITOR'S NOTE: Subsequent to Mr. Waterbury's presentation and prior to printing this document, there was an increase in certain types of crime that contradicts his premise that "the crime increase has stopped." There was no way this could be foreseen and underscores the problems inherent in tracking crime statistics.

Coastal Hazards Mitigation

Jerry Mitchell

Director of Planning and Policy

Mississippi Department of Marine Resources

For our purposes here, "coastal hazard" concerns evacuation of boats. The issue of moving some of these casino boats in the event of a storm or catastrophic event, such as a hurricane, really came forward in 1992, when Hurricane Andrew crossed the Florida Peninsula and passed south of the Mississippi Coast. The Bureau of Marine Resources (BMR) was not really concerned about casino boat evacuations. There were only three casino boats operating at the time in coastal Mississippi. Most all these boats were river-type that had steerage, propellers, and motors so they could be easily moved around. So, during Andrew, they were moved to the Back Bay of Biloxi, Gulfport Lake, and the Industrial Seaway.

Later, a number of additional casino boats came on line; some of the riverboats were phased out and replaced by restored barges that were more than 50,000 square feet in size. The BMR was approached by the Harrison County Civil Defense Council, the City of Biloxi, and the City of Gulfport to address evacuation of casino boats and barges, not only the three riverboats operating at the time but those larger boats that were coming on line. The BMR approached their funding source (NOAA) and asked for help with planning the movement of casino vessels in the event of a hurricane. A study was undertaken and finished in July of 1994, looking at a number of different movement scenarios. There were nine or ten boats at the time. One option was for the vessels to remain in place. Another option was evacuation to a remote site outside of the Back Bay of Biloxi. A third option was evacuation to the Industrial Seaway. Some of the boats had designed their mooring structures to withstand 155 mph winds with 15-foot storm surges at their sites. Some of the other boats would go to the high sea. The Mississippi Gaming Commission requires that each vessel have a hurricane evacuation plan as part of the permit application or permit approval. Therefore, most all the boats had a hurricane evacuation plan.

Evacuation sites in the Back Bay of Biloxi for the eight or nine vessels that should be moved, were examined and a

number of other problems became evident. Coast Guard approval to move these vessels is required. That takes time, preplanning, and careful execution. Barges with no propulsion need to have a tug and crew to be moved, and these often come from distant sites. The Highway Department will not raise the lift spans on the bridges when winds are more than 30 knots. Those were some of the earlier considerations.

Also, there is a resident population in coastal Mississippi of more than 300,000 people. The consideration of evacuating these 300,000 people in addition to possibly 100,000 tourists compounded the situation. The highway bridges need to be open to move the vessels, and if the bridge is open, the resident and tourist population cannot evacuate. All these situations had to be worked out in advance of an evacuation. The BMR had to coordinate the evacuation with that of the Highway Department, the county Civil Defense, state Civil Defense, the Emergency Management Agency, and the Coast Guard.

The disruption of electrical power in coastal Mississippi was also a potential problem, with the power lines extending across the Back Bay of Biloxi. When de-energizing electricity to municipalities and homes, traffic signals (that are needed to evacuate the coastal population) would not function.

Approximately 32,000 commercial and recreational vessels would also need to be moved to safer waters. If a casino vessel was grounded or sank in the channel, it would play havoc with evacuation of these vessels as well as other casinos. Should casinos be required to evacuate to sites on Back Bay or the Industrial Seaway, there is a greater risk from problems caused by the evacuation than from the actual storm threat (regardless of the hurricane's eventual strength.)

Essentially, what was determined was that removal of the vessels in an orderly fashion to protected waters was a virtually impossible task. On June 30, 1994, the Gaming Commission voted to require the use of permanent moorings as a license requirement for each coastal casino.

The Incidence and Social Costs of Gambling Addiction in Mississippi

Rob McKinley

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Most people can gamble for fun and recreation. Some people can't. Prevalence estimates across the country show that problem and pathological gamblers range from a low of 1.7% in a 1989 study conducted in Iowa to 7% in a 1995 study conducted in Louisiana. The number of lifetime problem and pathological gamblers increased in Iowa from 1.7% in 1989 to 5.4% in 1995 (Volberg, 1995). The rapid expansion in the availability of legalized gambling in Iowa appears to have substantially contributed to these increases. The last nationwide prevalence study was conducted in 1974 and showed that 68% of the respondents wagered in one or more types of government-approved gambling (Kullick and Kaufmann, 1979). Mississippi State University studied a sample of 1,500 American adults across the United States in 1995 and found that 61% wagered in one or more types of government-approved gambling (Cosby, 1995). Because studies have been few, accurate information on statistics as to how many real problem and pathological gamblers are in Mississippi is not available.

Approximately \$482.6 billion were wagered in the United States in 1994. Gambling industry gross revenues were estimated at \$40 billion during the same year. This compares with recorded music gross revenues of \$12 billion, theme park gross revenues of \$6.1 billion, and film and box office gross revenues of \$5.4 billion (Harden and Swardson, 1996).

The gaming industry has done positive things for Mississippi. It has created approximately 30,000 direct and 30,000 indirect jobs (Krutcher, 1996). The industry has generated a substantial amount of tax revenue and created numerous capital investments. Bob Mahoney, a restaurant owner in Biloxi, Mississippi has been quoted as saying of the gaming industry, "We knew it was going to be good, but we didn't know it was going to be this damn good" (Smith, 1996).

A recent *U.S. News & World Report* economic ranking of the 50 states ranked Mississippi as number eight. It reports that the billion-dollar-per-year gaming industry has touched off an economic boom. A good example of this is Tunica, Mississippi, which was touted by The Reverend Jesse Jackson in a 1985 *Jet* magazine article as "America's Ethiopia," with poverty comparable to that of a third-world nation. It was judged as the poorest county in the poorest state in the nation (Cheers, 1985). The main industry in Tunica prior to legalized gambling was agriculture, which

paid approximately 65% of their taxes. The unemployment rate was estimated at 26%; when gambling came in it decreased to 4.5%. U.S. Highway 61 runs down through the Mississippi Delta from Memphis to Tunica to Vicksburg and beyond. Prior to legalized gambling, the car count from Memphis to Tunica averaged about 3,500 a day. In January 1995, that amount increased to 23,000 per day. The number of hotel rooms in Tunica County jumped from 40 in 1994 to 1,500 in 1995. Retail sales in the fiscal year ending June 1994 jumped 299% from the previous year (Ragland, 1995).

There are approximately 30 casinos and 130 bingo halls in the State of Mississippi. In 1995, gross revenues totaled \$1.72 billion. The state is ranked second in casino square footage in the United States behind Las Vegas, Nevada.

Gambling is an ancient and universal human activity with origins dating back as early as 3000 B.C. in ancient Babylonian civilizations and Chinese cultures. Dice were introduced in approximately 300 B.C. and loaded dice have been found at excavations at Pompeii. In Lydia, dice were given in times of famine to distract people's minds from hunger. Roman soldiers cast lots for Christ's robes and invented roulette by upending a chariot wheel. In Colonial times, gambling was condemned as an immoral act; however, early Americans continued to bet on horse races, dog and cock fights, and lotteries. Society supported an antigambling rationale, but gambling continued to be a popular activity. In early America, colonies employed lotteries to finance roads, bridges, schools, and hospitals. As the 19th century progressed, horse racing was established on the East and West Coasts and gambling laws were tightened. The first casino in the United States was opened in the middle of the Nevada desert by Bugsy Segal in 1931. That first casino was in Las Vegas, presently known as the gambling mecca of the world. In 1984, New Jersey legalized casino gambling in Atlantic City. In 1989, Iowa passed a law allowing riverboat gambling on the Mississippi River and, in 1991, had it's first riverboat casino (McGurrin, 1992). Mississippi legalized dockside gambling in 1990, and the state's first casino opened in 1992.

It is estimated nationally that 3 to 5% of adults are considered pathological or problem gamblers. The essential features of pathological gambling are: a continuous or periodic loss of control over gambling; a progression in gambling frequency and amounts wagered and the preoccupation with gambling and in obtaining monies with which to

gamble; and a continuation of gambling involvement despite adverse consequences (APA, 1994). Many people view pathological gambling as a behavioral disorder since there are no external signs and symptoms of the illness such as red eyes, slurred speech, alcohol on the breath, or track marks on the arms. This view, however, is erroneous. It has kept many people from seeking the help they so badly need.

To the contrary, there are many components associated with pathological gambling that are very similar to the symptoms associated with alcohol or drug addiction. These include cravings, withdrawal symptoms such as restlessness, irritability, depression, anxiety, and increased tolerance (e.g. needing more of the substance [money] or activity [gambling] to get the desired effect). There also appears to be a physiological response (e.g. increase in adrenalin, endorphins) that would suggest the action phase in gambling is similar to the rush or high that is obtained when using cocaine or other drugs. This "action" is what the gambler becomes addicted to and seems to provide some explanation for the occurrence of physical withdrawal symptoms that gamblers experience during initial abstinence. Pathological gamblers in the desperation phase are not gambling because it is fun, they are gambling to overcome a craving that is beyond their mental control.

Pathological gambling is a four-phase disease. The initial phase, called the winning phase, is usually marked by a big win or series of wins. This solidifies the mindset that the gambler can do it again. They will pursue this false hope until they lose everything they have. The second phase is called the losing phase. It is marked by unreasonable optimism, increased preoccupation with gambling, prolonged losing episodes, and chasing (going back the next day or the next week to try and recoup losses). The third phase, called the desperation phase, is marked by bailouts (borrowing from family or significant others in an attempt to get out of debt, increases in amount and time spent gambling, inability to pay mounting debts, and illegal acts). The fourth phase, called the hopelessness phase, is when the gambler often becomes hopeless, depressed, and even suicidal and can face divorce, loss of job, and complete emotional breakdown. Hopefully, this is when they seek help, if they seek it at all, when there is often no money to get help.

Fortunately, there are many resources for help available, such as Gamblers Anonymous, Gamanon, treatment centers, state mental associations, state councils on compulsive gambling, and The National Council on Compulsive Gambling. Many times, problem or pathological gamblers need treatment. The most common form of treatment is done on an outpatient basis. This treatment usually involves a gambler participating in educational sessions about pathological gambling, group therapy with other pathological gamblers, education on and participation in Gamblers Anonymous groups, taking a financial inventory, and beginning financial restitution. Treatment also includes getting the family involved in the treatment process, attending

Gamanon meetings, helping the gambler to see their dishonesty, defenses, and various manipulations, and working toward reconciliation. The other form of treatment, inpatient or residential, involves basically the same educational components but is indicated when the gambler needs a safe place in which not to gamble; or when their symptoms are more severe such as suicidality, depression, anxiety or other psychiatric problems that need supervision. Other addictions, such as alcohol or drugs, and previous unsuccessful attempts at outpatient treatment can also warrant the need for inpatient treatment.

We all have a responsibility in seeing to it that our family, friends, and loved ones get the help they need. If you have questions, you can call the Pine Grove Recovery Center at 1-800-321-8750 or the National Council on Problem Gambling at 1-800-522-4700.

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Environmental Impacts and Demands on Infrastructure

Nonpoint Source Pollution Effects of Dockside Gaming

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The economic and financial gains that have been realized in coastal Mississippi with the advent of dockside gaming are well documented. Little attention, however, has been paid to the cultural or environmental impacts that have also resulted from the dockside gaming industry. As such, the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management funded a project through the Mississippi Department of Marine Resources to assess the status of one important environmental impact — nonpoint source pollution in the Mississippi Sound. Because both Mississippi and Alabama recognize the benefits that the resources of the Sound have to both states, they teamed together and coordinated an effort to evaluate the overall problems and to ultimately implement a regional management strategy to work toward resolving these problems.

This project is part of a larger, more comprehensive study the coastal zone management agencies of Mississippi and Alabama are conducting. The purpose of the project is to evaluate and document types and sources of nonpoint source pollution that result or potentially result from the gaming industry. The study is not intended to collect new data or information, but rather to utilize data and information that already exists. The object is to assess where we stand, document the status of the problem, and identify the gaps or holes in the data. The intent is that this information, or lack of information, will become part of the management plan being developed jointly by the coastal zone management agencies of Mississippi and Alabama.

Specifically, the objectives of the project are to (1) assess water quality conditions pre- and post-dockside gaming, (2) document the use of stormwater management practices, and (3) evaluate the effectiveness of existing stormwater management practices.

Nonpoint source pollution is recognized nationwide as a major contributor of contaminants to rivers, waterways and inshore waters. Nonpoint source pollution has no distinct point of discharge that can be controlled through programs such as the National Pollutant Discharge Elimination System. It is a diffuse flow that enters waterways by surface

runoff or percolation through soil layers. Common sources of nonpoint pollution include agriculture (both crop and livestock farming) silviculture, stormwater runoff, failing individual septic systems, surface mining¹, landfills, and hazardous waste sites.

In coastal Mississippi, stormwater runoff and failing septic systems are the dominant forms of nonpoint source pollution contributing to the degradation of the environment. Stormwater runoff occurs when pervious surfaces e.g., native soils, are paved or built on and become impervious surfaces. When rainwater falls on an impervious surface, sheet wash carries pollutants such as oil, grease, antifreeze, etc. to nearshore waters. Herbicides and pesticides from lawns and golf courses, when used in excess, are also carried in runoff waters adding nutrients and toxins to nearshore waters. Failing septic systems are problems for individual homeowners as well as for the environment. Individual homeowners are concerned because a failing system may cause sewage to back up into their homes. Environmental concerns exist when the native soil is not properly treating the sewage and untreated or partially treated sewage enters the water table, potentially contaminating private drinking water wells, rivers, bayous, or nearshore waters.

Historically, the object of stormwater management was to convey floodwater away from a developed area. The purpose was to prevent flooding within residential areas or business communities. Little consideration was given to what was occurring downstream. The focus was to channel the floodwaters out of the area as quickly as possible. It is now widely recognized that stormwater management has many other important functions.

When a stormwater management system is designed, installed, and is operating properly, it not only serves as

¹ Active mines are now considered sources of point pollution. The mines are required to manage all runoff on-site. The discharge from that runoff is considered point source and is regulated accordingly. Old or abandoned mines, however, are exempt from these regulations and are commonly sources of nonpoint pollution.

flood storage but also as a pollutant remover and sediment trap (as wetlands and floodplains do naturally).

In Mississippi, the statutes regulating stormwater management are weak. Stormwater management is only required during the construction phase of new developments where the land disturbance is greater than 5 acres. Anything less than 5 acres does not require stormwater management. Requiring stormwater management for the construction phase only means that the stormwater management is temporary. As soon as the development is completed, stormwater management is no longer required. However, if the development is impacting a wetland area, a Section 401 Water Quality Certification is required as part of the regular wetland permitting process. This provides a mechanism for the Mississippi Department of Environmental Quality to condition the Water Quality Certification to require stormwater management practices. But when a project occurs outside of a wetland area, there is no authority to implement or enforce stormwater management practices after construction is completed.

Many communities and municipalities are starting to develop their own stormwater management requirements. They realize the importance of retaining and controlling stormwater on-site. The first half-inch of runoff must be temporarily retained and treated. The first half-inch of runoff contains more than 90% of the pollutants washed from impervious surfaces. In proper stormwater management, that first half-inch of runoff is separated out and treated, the remainder of the runoff is retained for nutrient removal and sediment control purposes. These waters are then slowly released back into the environment.

The casinos in coastal Mississippi have all complied with existing rules and regulations concerning stormwater management. The question is, however, are the rules and regulations enough and are they effective? Not all stormwater management practices function equally. Schueler et al. (1992) presented a technical assessment of the capabilities of several common stormwater management practices. The ability to remove pollutants, any environmental concerns, or any special considerations concerning each stormwater management practice was assessed.

Grass swales are the predominant stormwater management practice utilized by the majority of the casinos. A grassed swale is basically a channel covered with grass that conveys runoff waters. The grasses help to remove pollutants and sediments in the runoff waters. Grass swales make an effective stormwater management practice in lieu of curb and gutters in single family residential areas or possibly along medians of highways, but the effectiveness to handle the runoff of large impervious surfaces such as parking lots is limited. Grass swales provide minimal treatment of runoff waters. The degree of treatment depends on the conveyance time through that swale. Pollutant removal and sediment trapping are increased if check dams are installed to retain or slow the flow of water. The environmental concerns are minor, there is little destruction or impact.

Grassed swales should be incorporated as one element of a stormwater management system rather than the sole stormwater management system.

Detention basins are another type of stormwater management used by several of the casinos. A detention basin is an impoundment that traps and ponds water for a designated period of time with slow release back to the environment. The pollutant-removal capabilities are minimal. In some of the detention ponds, however, wetland plants have started to establish, allowing the nutrient and pollutant uptake to increase. The detention basin's pollutant removing capabilities are low to moderate. That, of course, would increase with the increased detention times and the presence of wetland plants for pollutant removal. There are few environmental concerns unless the detention basin is built in a wetland area. Detention basins are a recommended practice particularly if wetlands are incorporated into the design.

A retention basin is an infiltration reservoir or basin that provides complete on-site storage and treatment of a specific volume of stormwater runoff. One of the casinos has incorporated this kind of stormwater management into the overall design of its landscaping plan and created a park-like atmosphere complete with fountains near its RV camping area. This system provides complete on-site storage and treatment of most of the runoff waters. The retention basin's pollutant removal is considered moderate to high. The environmental concerns are few provided it is not constructed in a wetland area.

Modular parking pavement is another type of stormwater management that several casinos installed. Modular parking pavement consists of concrete grids or other structural units alternated with pervious fillers such as sod, gravel, or sand. It provides a hard, tough surface that can be driven on, but remains somewhat permeable to rainwater. Unfortunately, field observations showed that the modular pavement was installed only along the perimeters of the parking areas. The majority of the parking area was solidly paved with concrete. Runoff from the large concrete areas was flowing over grassed swales or directly into discharge pipes. The modular pavement appeared to be filtering rainwater only, it received none of the runoff from the parking areas.

An exfiltration trench provides below-ground retention of stormwater for slow release into the soil. Stormwater runoff is temporarily stored in a trench filled with coarse aggregate and allowed to exfiltrate through the trench walls for disposal and treatment into the native soil. One casino utilizes this type of stormwater management. An exfiltration trench that has been properly designed and installed can be a fairly effective stormwater management practice. Pollutant removal capabilities of exfiltration trenches are presumed moderate. However, at one of the casinos surveyed for this study, the exfiltration trench is located adjacent to the beach. The groundwater elevation is near the surface and may even fluctuate with the tide. The treatment capabilities of this type of system in that location are questionable. The risk of groundwater contamination is high.

Exfiltration trenches are commonly recommended with pre-treatment. If there is preliminary treatment of runoff filtering through an exfiltration trench, the quality of discharge should be improved.

Another significant source of nonpoint pollution to Mississippi's nearshore waters is failing septic systems. Failing septic systems allow untreated or improperly treated sewage to enter adjacent water bodies. This source of pollution is not a direct result of the casino industry. Any industry that results in the increased level of residential and commercial development that is currently being experienced along the coast would cause this type of pollution to increase. The Mississippi Coast does not have the infrastructure (municipal treatment systems) necessary to support the rapid growth. Therefore, people are dependent on individual septic systems. If the systems are not functioning properly, untreated or improperly treated sewage enters the groundwaters and adjacent waterways.

The most common type of individual septic system is the septic tank with underground absorption field. The tank serves as primary treatment where solids are separated from liquids. A clarified liquid is then discharged from the tank to the drain field where it slowly percolates through the soil. The degree to which the effluent is purified is dependent on the physical and chemical characteristics of the soil and the elevation of the groundwater table. Coastal plain soils inherently are not good for this type of treatment, yet it is the treatment method most often utilized.

Soil suitabilities for the three coastal counties were determined based on soil profile data and groundwater table elevations from county soil surveys. The soil suitability categories are (1) suitable (those soils capable of supporting underground absorption), (2) marginal (soils that may or may not be suitable), and (3) unsuitable (soils that inherently have characteristics that preclude them from being effective). Soil suitabilities for underground absorption within the three coastal counties are low.

In Hancock County, 50% of the soils are considered unsuitable because of high groundwater table elevations and the prevalence of wetlands, marshes, and peat soils. Thirty-two percent of the soils in Harrison County are considered unsuitable, and Jackson County has more 57% per-

cent of its soils classified unsuitable. Suitable soils are lowest in Hancock County at only 8%, whereas, in Harrison and Jackson counties suitable soils reach almost 40% and 35%, respectively.

Marginal soils are high in Hancock (41%) and Harrison (28%) counties and relatively low in Jackson County (8%). If marginal soils turned out to be unsuitable for underground absorption, more than 90% of Hancock County would be unable to support an individual septic system. Yet, based on 1990 census data almost 50% of its residents are dependent on septic systems. In Harrison County where there are more extensive municipal collection and treatment facilities, 19% of the households are dependent on individual systems. In Jackson County, 27% of the households have septic systems. These numbers are extremely conservative because the census does not reflect the tremendous growth in population currently being experienced along the coast.

The conclusions from this study are:

- (1) The dominant sources of nonpoint pollution are stormwater runoff and failing septic systems.
- (2) All existing casinos have complied with existing rules and regulations governing stormwater management.
- (3) The stormwater management techniques implemented by the casinos were designed to manage increased flow associated with parking lot development; there are minimal pollutant removal capabilities designed into the structures.
- (4) There is no baseline water quality data to compare pre- and post-casino development. Numerous studies have been conducted throughout Mississippi Sound and up the coastal rivers, but there have been no systematic or comprehensive studies that can be used as baseline data.
- (5) Although stormwater management practices are required at casino development sites, there are no requirements to monitor the water quality at the outfalls of the structures to determine the effectiveness of the system.

Zoning and Land Use Changes in Environmentally Sensitive Areas: Citizen Concerns

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The Mississippi Gulf Coast is a unique and dynamic waterfront community that once was called the "Riviera of the South." The coastline of Mississippi is approximately 70 miles long, with undeveloped barrier islands located just south of the shoreline. The Bay of St. Louis is a large undeveloped bay on the western end. Biloxi is located on a peninsula with a bay on its east and north sides. On the east end of Mississippi's coastline is the Pascagoula River, with its large mouth and vast wetlands. The Mississippi Gulf Coast is a hidden treasure that is being discovered because of the phenomenal growth and development in the last 3 years. The development, however, is affecting the natural resources and beauty of the Coast.

Achieving the balance between growth and preservation is difficult. People have been attracted to the area because coastal Mississippi has the natural resources to sustain the economy and offer a pleasant atmosphere for its residents. Now, the new casino industry has posed challenges for those who appreciate the natural beauty of the coastline. The Mississippi Coastal Program is the state's plan that was implemented to balance the needs of development with the needs of the environment. Because of continued efforts to obtain adjustments and changes to the Coastal Program, it is beginning to leak like a sieve. And so are other local, state, and federal laws, which everyone thought would protect our quality of life and control development.

The local zoning, state, and federal laws have not served as adequate protection of the noncommercial areas, or the natural beauty and resources of Coastal Mississippi. After lengthy debates and many public hearings, local zoning

ordinances were drafted to regulate casino development. These ordinances dealt with sign sizes, height requirements, parking lots, landscaping, setbacks, and other details. In spite of the ordinances, most casinos have asked for and received variances to the zoning laws.

At the state level, the Coastal Management Plan and the Wetlands Use Plan are charged with protecting wetlands and directing development towards areas suitable for commercial and industrial development. However, developers who do not have property in a zone designated for commercial development continually request changes to the Use Plan. They request that general-use districts be changed to allow casinos. General-use districts are designed for residential and recreational activities.

Casino developers seek that land because the property is less expensive, and casino resorts need large tracts of land. State and local agencies, as well as federal agencies such as the U.S. Army Corps of Engineers, are not considering the cumulative and secondary effects of these developments; rather, they are looking at project-by-project development. This tunnel vision approach is hurting the Mississippi Gulf Coast.

While the Mississippi Coast needs commercial development, a balanced approach to growth and development with consideration of the natural environment is important. That environment which sustains seafood, wildlife, fisheries, flora and fauna, and people has been responsible for attracting residents and visitors for 300 years. It is time to address the impacts of this tremendous growth and development before it is too late.

Concerned Citizens to Protect the Isles and Point

Nonnie DeBardeleben
Pass Christian, Mississippi

As plans were being made for casino development in coastal Mississippi, each municipality was required to establish zones where the casinos could locate on the beaches. Although legalized gambling was no longer an option, municipalities could fail to designate areas for development. Therefore, all the cities on the coast from Biloxi to Bay St. Louis decided on their own zones for development. It was assumed that the state and the federal regulations in the permitting process would limit the proliferation of development outside these established commercial areas.

Initially, the casinos did locate in the designated areas. However, as the availability of commercial and industrial areas have declined, the more recent operators have begun to seek casino sites and site approval in areas that have been considered appropriate only for residences, marshes, wetlands, and estuaries — the areas that have made the Mississippi Gulf Coast unique. These specific locations were naively assumed by citizens to be either unappealing sites for casino development or areas that would be protected by the Coastal Use Plan. In the Bay St. Louis area, four permit applications are pending. Only one of the four permit applications is in an area with a commercial designation. The entire rim of Bay St. Louis is designated general use for residences, estuaries, or marshes.

Localities considering the development of the casino industry in their areas should formulate a way to both preserve the uniqueness of the communities and to allow the industry to thrive at the same time. When enabling legislation is drafted, the rights of the individual citizens and residents should be considered. Residents of Mississippi concerned about the environment have discovered that the power of casino money has prevailed. No agency will accept the responsibility for defining the circumstances that warrant a variance. Instead, permits and variances are issued one-by-one in a piecemeal manner, without consideration of the overall cumulative effects of the industry on the future of the Gulf Coast. With one permit and one variance, minimal long-term effects occur. However, the cumulative effects of all the permits, in conjunction with the secondary effects of the upland's development, reveal an infrastructure under stress.

Groups like the Concerned Citizens to Protect the Isles and Point organized because the industry that first was

designed to locate in commercial areas began expanding into the specific areas that made the Gulf Coast special. Those special areas are predominantly residential, recreational, or environmentally sensitive.

In 1993, the Concerned Citizens was created to oppose a specific casino site in the midst of a residential area at Henderson Point in a community that has existed since the early 1800's. The position of the organization is not anti-development. However, the organization does oppose unsuitable commercial development in areas designated general use by the Coastal Use Plan. The problem faced by Henderson Point citizens is the possible granting of precedent-setting variances and permits. Although the casino developer in the area withdrew the application, and Henderson Point was unofficially declared an "unsuitable site," there is no final legal designation to protect Henderson Point.

The organization will continue to object through the permitting process to any precedent-setting permit that could adversely affect Henderson Point. In hearing after hearing, developers initiate more innovative and creative methods to circumvent the specific issues that the Coastal Zone Plan was created to protect. Communities considering legislating this industry should consider a method that will allow a commission to deny a permit without being constantly challenged.

In Mississippi, the Gaming Commission has the authority to deem a site unsuitable. However, the Commission has only exercised that authority once. In addition, the Gaming Commission does not consider the Coastal Use Plan in designating a site for a casino, in spite of the fact that the Coastal Use Plan has legal status. It would seem logical that an allocation in an area that is designated a preservation area in the Coastal Use Plan should constitute an automatic denial of site approval by the Gaming Commission. However, the Gaming Commission addresses only the legality of the site according to gaming law.

Communities considering gaming legislation should think of the future. Evaluating licensing procedures and actual gaming legislation is not adequate. Communities should take the necessary steps to ensure that the citizens' quality of life and the cultural heritage of the area will be preserved.

Cumulative Impact Concerns

Bob Dreher

Sierra Club Legal Defense Fund

Beyond the theoretical concern about the effects of the growth and development of the casino industry on the quality of life and natural values, a legal matter looms. A lawsuit is pending in the Federal District Court for the District of Columbia. The litigation focuses on the use changes and siting of casino facilities in unsuitable residential neighborhoods and undeveloped areas.

The Environmental Protection Agency has stated that the cumulative effects of casino development along the Mississippi Gulf Coast are profound and will forever change the Mississippi Gulf Coast. One casino in particular wants to locate north of the Bay of Biloxi in an area that is closer to I-10 to attract business from travelers. To locate in that area means using a site that is in a general use district, involving wetlands and a pristine area.

The agency responsible for studying the environmental effects of issuing 404 Permits for casinos is the Corps of Engineers. Because some coastal dredging is necessary in placing barges in their sites, this body has issued 404 Permits for each casino in existence. The dredging effects of the casinos along the established waterfronts may be minimal. Although the commercial use changed, the current commercial waterfront had limited natural values. However, even the limited values deserve protection. In contrast, the Back Bay of Biloxi and the Bay of St. Louis are relatively pristine areas. In issuing permits and evaluat-

ing proposed permits for these areas, the Corps of Engineers has limited its evaluation to the effects of the dredging in locating a barge and the effect of any fill that may be involved. That has been the extent of the involvement of the Corps of Engineers.

The issues not investigated by the Corps of Engineers are the basis for litigation. The Corps has not focused on cumulative effects of future projects. Instead, the Corps has considered only the loss of wetlands that has occurred from existing casinos. With each individual casino, the Corps has ruled that each individual impact has been minimal. Citizens fear that areas of high wetland value will be developed later and will cause incredible damage to the environment. In the federal lawsuit, which challenges the first permit to be issued for a Back Bay area, the Corps asserts that casinos pose no threatening cumulative effect to the natural environment. The Corps also admitted that it did not consider future casino projects or secondary impacts, like golf courses and hotels. The federal lawsuit challenges the Corps' failure to consider these impacts. The natural aspects threatened include water quality, migratory birds, and fishery values (95% of the commercial fishery of the Gulf Coast originates in nursery areas in coastal estuary wetlands). Careful planning could prevent damage to the natural environment.

Wastewater Treatment Infrastructure Expansion Requirements

Baxter Wade

Executive Director

Harrison County Wastewater Management District

The Harrison County Wastewater Management District is divided into five service areas. Each service area includes a wastewater treatment plant. Seventy-five percent of the casinos in Harrison County are in the service area of the Keegan Bayou Plant, one of the smallest plants in the county and the second oldest plant in the state. Initially, the casinos were small riverboat operations. Then, the *Grand Casino* in Gulfport opened with dimensions the size of a football field and a wastewater discharge of a quarter of a million gallons a day. The need for enlarging the wastewater treatment system was obvious.

The estimated cost of developing the first stage of enlarging the system was \$40 million. The fact that the casinos are dockside and tied to the county only by ropes caused apprehension in allocating funds to accommodate an industry that could easily leave. However, after a 2-year period, the \$40 million was budgeted for expansion of the system.

The casino industry is accompanied by ancillary development associated with the casinos. Long Beach, Pass Christian, and Gulfport and the area north of it are growing rapidly. Businesses that offer services to the casino industry are responsible for much of the growth. The additional growth, obviously, adds to the need for wastewater treatment expansion.

Treatment of casino waste poses some problems. Along with volume, the strength of the waste is a factor. Overloading a wastewater treatment plant is caused by too much wastewater or wastewater that is too strong. Strength is measured in terms of BOD (biological oxygen demand). The average household contributes wastewater measuring approximately 130 in BOD. The presence of the large casinos caused the BOD loading to go up, and problems occurred with the collection system delivering the wastewater to the treatment plants.

BOD, suspended solids, and oil and grease affect the function of the system. Oil and grease cannot be treated.

Furthermore, oil and grease clog up sewer lines in an attempt to reach the plant. The area has a grease trap ordinance. In addition, it has a sewer use ordinance. The limit on the sewer use ordinance of BOD is 400 milligrams per liter. The oil and grease limit is 150 milligrams per liter. The first site testing of a casino revealed at least a 26,629-milligram count per liter of oil and grease. The laboratory quit tabulating at that point. The BOD was 4,700. The TSS was 4,500. Of all the casinos tested, the lowest BOD count was 1,600; the lowest TSS count was 1,210. BOD limits should be 400, and oil and grease limits should be 150.

One solution to the problems was the development of a "grease police department" to check to see that industries do not exceed the oil and grease limit of 150. If the limit is violated, a fine is levied. Because BOD levels are harder to control, a deal was made with most food establishments, including grocery stores, restaurants, and casinos, to allow establishments to buy higher limits of BOD not to exceed 1,000 milligrams per liter. These surcharges offered latitude without abuse. Fines and surcharges exceeding \$168,000 collected have helped to operate the plants and keep them in compliance with regulations until larger facilities could be built.

This small Keegan Bayou treatment plant designed to treat 3.4 million gallons a day is actually treating 5 million gallons a day. Seven operating casinos discharge waste into this plant.

In an effort to keep up with the growth, the wastewater treatment plants will be expanded as quickly as possible. Construction will begin on the Keegan Bayou Plant in July. The contractor will receive \$2,500 a day for every day that the project is finished ahead of schedule. In contrast, the same amount will be deducted daily if the project is not completed on time. The growth in the economy is a result of the gaming industry. Wastewater treatment plants will keep up with the growth of the Gulf Coast.

Engineering Solutions to Environmental Perturbations Associated with Dockside Casino Development

Larry Lewis
Brown and Mitchell, Inc.

The engineering and environmental consulting firm of Brown and Mitchell, Inc. has worked with casinos along the Gulf Coast since 1992. The involvement of the firm has varied, depending on the issues associated with the dockside casino development. In some cases, the firm has provided both the civil engineering and environmental consulting services; in other instances, the firm has been involved with only the environmental issues.

When considering the effects of dockside gaming on the environment, one must consider both the living and nonliving parts of the environment. One must also evaluate the effects in terms of primary or secondary impacts and the duration of impacts (i.e. short-term, long-term, or cumulative).

Based on recent assessment of the environmental perturbations associated with dockside casinos, it appears that the major impacts relate to water quality. The solutions to potential water quality impacts as well as solutions to other impacts are discussed here.

Because casinos require large areas of impervious surfaces for parking and because of the high annual rainfall on the Coast, stormwater management features are extremely critical. Engineering designs have been developed to detain and retain stormwater runoff, as well as incorporating impervious pavers in selected areas of the site to provide for site drainage. Grassed swales and raised inlets have been effective in providing for detention and natural treatment of stormwater. In some cases, stormwater has been routed to natural depressions and ponds to allow for treatment and storage of stormwater prior to discharge. Some of the ponds have been vegetated with emergent aquatic plants and decorative fountains have been installed to provide additional treatment.

Dredging and maintenance dredging can also affect water quality. Some dredged material may not be suitable for open water disposal and upland disposal is required. Casinos have minimized dredging to reduce the cost of upland disposal and designed vessels that do not require deep water.

To date, casinos have caused minimal impacts to wetlands. Sites have been selected in areas that avoid wetlands, and special designs have been used to avoid filling of shallow water bottoms. Filling of water bottoms has been avoided by constructing pile-supported structures that go over the water without filling the water or water bottoms.

Other measures to reduce impacts to the coastal environment include landscaping features, traffic safety features, and design features that complement the natural scenic quality of the Mississippi Gulf Coast. One of the most interesting approaches to protecting the natural environment was an effort to protect several live oak trees that would have been otherwise destroyed at a casino hotel site. The trees, which were more than 150 years old, were carefully prepared and moved by an urban landscape consultant to new more protected areas of the site.

It is obvious that dockside casinos can cause impacts to the coastal environment. To date, care has been taken to avoid major impacts to the environment. Impacts have also been limited to minor impacts because most of the sites developed to date are sites that have been previously developed. As the casino sites continue to grow, and as previously undeveloped sites are developed, the impacts will increase. While current regulations appear to be adequate to require certain environmental safeguards, consideration should be given to developing more comprehensive guidelines to assist casinos in preparing site plans.

Highway and Transportation Needs in Coastal Mississippi

Mississippi State Senator William G. Hewes, III
District 49 — Harrison County

The introduction of the gaming industry in Mississippi has affected the infrastructure of each community where casinos are located. Highway and transportation needs are not unique to the Mississippi coastal communities. Both east and west and north and south transfers are needed. Challenges exist in relieving the pressure of heavy traffic, not only in securing funding but also in time needed for completion of these big projects.

In order to relieve the pressure from U.S. Highway 90 and Pass Road, another east-west corridor is needed (Figure 1). Some investigation has focused on the area near the railroad line that would span the entire stretch of the coast. Problems involve funding and rights-of-way with the railroad. A north-south route, to be tied in with Interstate 10, is needed to relieve traffic pressure and to serve as an evacuation route. Three north-south corridors were presented to the last legislative session. Only one was approved and construction will begin soon.

The rate of growth in counties with gaming has been phenomenal. In 1991, a traffic count on a road that is the direct route through Desoto County from Memphis to Tunica was 380; in 1994, 4,000. The count increased by 953%. Consequently, accident rates on all the congested roads have risen dramatically.

On the Coast, most statistics deal with Highway 49, Highway 90, or Interstate 10 in the counties of Hancock, Harrison, and Jackson (Table 1). The increase in traffic coming from Louisiana and Alabama is significant.

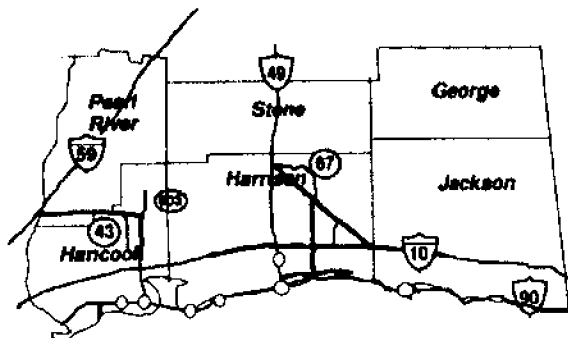


Figure 1. Counties impacted by casino traffic on Mississippi Gulf Coast (Mississippi Gulf Coast Gaming Program).

Table 1. Mississippi Gulf Coast Traffic Counts.

	1991	1994	Increase
Harrison County — US 90 @ Jackson Co. Line	22,130	37,000	67%
Harrison County — US 49 @ Stone Co. Line	10,460	13,450	29%
Harrison County — I-10, 2 mi. E. of US 49	34,730	42,210	22%
Hancock County — I-10 @ Louisiana Line	24,680	32,000	30%
Jackson County — I-10 @ Alabama Line	25,830	33,480	30%

Although, the accidents rates on the coast are not as high as those in the Tunica area, numbers of Coast accidents have risen (Table 2). The infrastructure on the Coast is better developed than that of the other growth areas.

Three years ago the Legislature decided to focus on roads in high impact areas instead of following the routine road program. The high impact areas are Tunica, Philadelphia, and the Gulf Coast. The funds to these areas will be approximately \$325 million in bonds with an appropriation of approximately \$32 million a year for a 7-year period.

In addition, the Legislature has authorized the Department of Transportation to undertake a study to determine a number of issues with regard to future growth. In November, the Department of Transportation must have prioritized the areas of greatest need for road construction. The study will consider evacuation routes, traffic congestion, accident rates, alternative modes of travel, and existing intermodal and commercial travel structure (road, rail, air, and water).

Considering tourism-oriented and gaming-related activities, it is not surprising that coastal roads are heavily traveled. Though it will be expensive and will take time, it is important to meet the challenge and invest as quickly as possible in efficient and safe roadways.

Table 2. Mississippi Gulf Coast Traffic Accidents.

	1991	1994	Increase
Hancock County — US 90	181	266	47%
Hancock County — I-10	88	78	-11%
Harrison County — US 49	637	1,019	60%
Harrison County — I-10	297	465	57%
Jackson County — US 90	859	1,230	43%
Jackson County — I-10	163	435	167%

SESSION III. DEVELOPING THE "BIG PICTURE PARADIGM" — MOVING AWAY FROM INCREMENTAL MANAGEMENT

Methodologies and Mechanisms for Management of Cumulative Coastal Environmental Impacts

Barbara Vestal

Associate Director, Marine Law Institute
University of Maine School of Law

Three factors distinguish Mississippi's dockside casino gaming development from most other coastal development. The first factor is the speed at which development is occurring. The magnitude of the funds involved is the second distinguishing factor. For example, in Mississippi, the tidelands lease fee for a casino may be \$200,000 to \$700,000 per year. In other states, the annual lease fee for a marina may be in the range of \$3,000. The third unusual factor is the high degree of apparent consensus among residents that casino development has been good; it is generally perceived as a major catalyst for economic development in a formerly depressed area.

Despite the apparent success to date, it is important to focus on where Mississippi should go from here. If 29 casinos are good, does it necessarily follow that 35 or 40 or 50 are necessarily better? Some local officials suggest coastal Mississippi has yet to see the upside limit; they envision growth for another 10 or more years. I would like to sound a more cautionary note. It seems to me that the people of coastal Mississippi should be wrestling with very difficult issues of sustainability and the impacts of incremental growth.

There are numerous examples of rapid growth destroying the very thing that brought people there in the first place. But experience over the last 20 years has taught us that governments can put reasonable limits on growth.

So the critical question is when will casino development become too much of a good thing? And more importantly, how does one identify that point before it has already been exceeded? How can casino growth be managed to reap the economic benefits while protecting a unique cultural heritage such as the traditional waterfront industries. And how can the environment be protected from significant degradation? Finding the right balance is complicated by the fact that traditional water-dependent uses, cultural heritage, and environmental quality are typically not adequately protected if one relies only on the private market to make resource allocation decisions.

Mississippi's casino gambling is now at a critical juncture. This is the time to undertake an analysis of the cumulative impacts. This analysis should assess the impacts not

only of more casinos, but also the impacts of more hotels, more retail malls, and widened roads associated with that casino development.

There are at least four reasons why is this a good time to stop and look at the big picture. First, very simply, there is still time to develop a management strategy. It is not too late.

Second, the easy sites have already been developed. The old seafood processing sites and already disturbed waterfront parcels have been redeveloped. Casinos are now eyeing sites on the Back Bay, an area of residences and previously undisturbed wetlands. These wetland sites present much more difficult environmental issues, and conscious decisions need to be made about whether casinos and related development should be permitted on those sites.

The third reason for doing the analysis now is that this may be a politically opportune time to make a midcourse correction in the state legislation. The enabling legislation set up a very difficult situation by declaring casinos to be water-dependent uses and requiring them to be water-based. It funneled them into the most environmentally sensitive lands in the state. And apparently that was done for no good policy reason except that it was an incremental drafting change, from "underway-making way" to "stationary but still floating."

It may be possible to amend the law so that future casinos would no longer be considered water-dependent uses and could no longer be water-based. New casinos would have to be constructed on less environmentally fragile uplands. Of course, a whole new set of environmental regulations would be required to identify which uplands would be appropriate. Tightening the siting regulations in this way might hold a certain attraction for at least two groups: citizens concerned about the environment and casino industry representatives who are concerned about oversaturation of the market.

Finally, this is an opportune time to stop and analyze cumulative impacts because a little planning now may help preserve local character. Mississippi and Nevada may be well ahead of the curve now, but as other states see this success and try to emulate it, keeping market share may depend

on retaining the local character and the natural beauty of the place. If casinos all look alike, patrons will be inclined to go to the one closest to them. Mississippi may need to plan to retain the uniqueness of its coastal area to keep a competitive advantage for its casinos.

Thus, for all of these reasons, it is important to analyze and manage cumulative impacts of continued casino-fueled development. One might question the precise definition of "cumulative impacts." There are actually many slightly different variations, depending on the context. For this paper, cumulative impacts are defined as "the overall impact on the environment which results from the incremental impacts of various activities when added to other past, present, and reasonably foreseeable future actions." So cumulative impact assessment evaluates a combination of development activities to determine what impact they have on the environment when one considers the development that has already taken place, development that is taking place simultaneously, and development that it is reasonable to believe will take place in the future.

Figure 1, from the Canadian Environmental Assessment Research Council, illustrates different ways to experience cumulative effects. They can be impacts from one process (e.g., an increase in impervious surface area from the construction of one single family home after another) or from two or more processes affecting the same resource (e.g., increase in impervious surface area from construction of a marina parking lot; shading of aquatic vegetation from construction of a dock; habitat disturbance from increased recreational use of waters; propeller dredging of shallow bottom; discharges into the water from recreational boats).

The impacts can be simply additive if they are so close in time or in space that the effects overlap (Pathways 1 and 3). Or there can be magnification or synergistic relationships where the actions interact to produce something more complex than simple addition of incremental impacts (Pathways

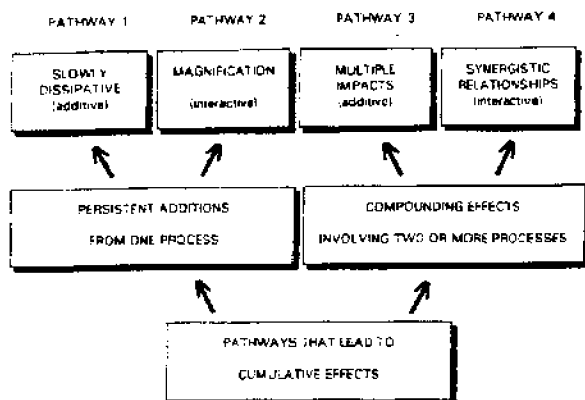


Figure 1. Basic functional pathways that contribute to cumulative effects. Source: Peterson, et al., Cumulative Assessment in Canada: An Agenda for Action and Research, Canadian Environmental Research Council 5 (1987).

2 and 4). Some scientists try to define cumulative effects so they are limited to only Pathways 2 and 4; environmental legislation typically does not make that distinction. For regulatory and management purposes, all four of these pathways can result in cumulative effects.

Because of a concern about continuing environmental degradation, practitioners are increasingly stressing consideration of cumulative impacts. For the last 20 or more years, major development has been reviewed using a site-specific approach, with the assumption that if the impacts on that single site were not too bad, the development would be acceptable. As a society, we have been willing to accept a little degradation at each site, and generally have not looked beyond the site to see how that "minimal" impact from one site combines with "minimal" impacts on other sites in the ecosystem. We have also accepted the idea that development below a certain threshold did not need to be reviewed because the impacts would be minimal, without really thinking about how all those minimal impacts might combine to affect ecosystem function.

But many environmental managers have concluded that this approach is fundamentally flawed. Numerous small actions and choices can together gradually alter the structure and function of an ecosystem. It is insufficient to look only at direct, site-specific impacts. We cannot ignore how all of those "minimal" losses combine to affect the ecosystem as a whole.

The solution is not to do away with traditional environmental assessment of direct impacts but rather to broaden the assessment to consider cumulative impacts as well. Environmental managers have to look at impacts over time — past, present, and future — because the environment is a dynamic system. The scope of analysis must expand beyond the immediate site to consider the effects over a larger ecological community. And most critically, instead of focusing on the proposed disturbance, the assessment should focus on how the proposed action will affect valued environmental functions. Finally, the process should not stop with assessment; managers must develop a management plan based on the assessment.

These concepts are summarized in Figure 2, a conceptual framework developed by Evan Vlachos in which "new emphasis" corresponds to cumulative impact assessment. Instead of focusing on a species, cumulative impact assessment looks at the ecosystem. Instead of being a snapshot at one time, it looks at how the system evolves over time. And instead of being segmented, it attempts to take a holistic approach. Cumulative impact assessment is not intended to replace analysis of direct impacts, but is intended to supplement it so it more fully considers the full range of environmental impacts. Instead of just inventorying how many of a particular species will be affected on the site at the time of construction, cumulative impact assessment looks at the broader picture. It requires a determination of how the site fits into the larger ecosystem. The managers must assess whether the proposed development is likely to affect larger-

Established Procedures (Traditional)	New Emphasis (Alternative)
<ul style="list-style-type: none"> • Species oriented • Linear/extrapolative • Causal • Individualistic/segmented • "Snapshot" • Hierarchical/classificational • Structural 	<ul style="list-style-type: none"> • Community/ecosystem-oriented • Non-linear/nonmonotonic • Interactive/mutual causation • Holistic/integrative • Evolving/dynamic • Contextual/relevance selective • Functional

Figure 2. Conceptual frameworks for impact assessment. Source: Vlachos, *Assessing long-range cumulative impacts. In Environmental Impact Assessment, Technology Assessment and Risk Analysis*, 68 (1985).

scale ecological processes, particularly when one takes into consideration development that has already taken place, current development, and development likely to follow. It requires a determination of which ecological functions are most valued by society (e.g., migratory bird habitat, water quality suitable for recreational activities, commercially important fisheries, biological diversity) and how this proposed development might affect those valued functions.

An example may make this more concrete. In New England, a couple of federal resource agencies and some state coastal programs have discussed the need to apply heightened cumulative impact analysis and management strategies to review elevated walkways and piers on vegetated wetlands. These agencies are concerned about a proliferation of large docks (some proposed to be up to 800 feet long) that serve individual homes. Instead of allowing dredging to obtain a sufficient depth of water, some regulators had fallen into a pattern of approving raised structures over wetlands to span seaward to reach a depth of water sufficient to dock a boat. When evaluated on a site-specific basis, these applications were generally approved because they were found to have only a minimal impact. But now that many have been built and it is foreseeable that more will follow, some regulators are beginning to worry about cumulative adverse impacts. These new docks present particular problems because most of the sites adjacent to open water have already been developed. These new sites tend to be on marshes, a significant distance from open water. The possible cumulative effects of concern to reviewers include: shading of submerged aquatic vegetation, leading to diminished density of the vegetation, erosion, and loss of function; habitat fragmentation, particularly affecting migratory waterfowl that need an unobstructed distance to land or take off; increased human disturbance; and enhanced access for predators.

These regulators have not reached any easy answers on

where and how to draw the line. They are looking at concepts such as requiring common community piers, denying a private pier application if it is within a certain distance of a public facility, or revising construction standards to require mesh construction to minimize shading.

Different state and federal agencies have developed their own guidance on how to consider and minimize cumulative effects in a host of development contexts. In general, influencing decisions on the grounds of adverse cumulative impacts seems to be most difficult for agencies like the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, perhaps in part because those agencies are merely recommendatory to the actual permitting agency, the Army Corps of Engineers. These federal permit reviewers tend to be operating in a vacuum; it may not "feel right" to allow continued degradation with each site, but they don't really have any institutional help with drawing the line.

More successful initiatives have been developed by state coastal programs because they can approach these questions from a prior planning, management, and goal-setting perspective rather than solely from a regulatory perspective. For example, New York State's Coastal Management Program has a program for advanced designation of areas of significant coastal fish and wildlife habitat using an ecosystem analysis to identify important habitat areas. The designation includes a supporting narrative, which identifies actions that, if allowed, would degrade the habitat, such as construction of walkways and docks. The first set of habitat designations was approved as part of the Coastal Management Program, thus allowing the state to review federal actions, such as Corps permits, for consistency with the state program. In one instance, a private owner proposed to construct a 795-foot elevated walkway and dock in a designated habitat. It received all federal and state permits, but the coastal program successfully used federal consistency provisions to object. The preplanning to designate important habitats and identify the type of development that would cause unacceptable effects was critical to the state's ability to draw the line against continued incremental degradation.

Cumulative impact assessment is not relevant only to multiple small developments. It is also commonly required for multiple large projects such as multiple hydropower projects in a single watershed, issuance of multiple oil and gas leases, and the construction of multiple large-scale recreational facilities, such as marinas, in a relatively small area.

Thus, in concept, cumulative impact analysis is an important supplement to traditional environmental impact analysis. The much harder question is whether it actually can be done. In making the transition from theory to practice, there is a very real danger of getting overwhelmed by the interconnections and range of issues to be considered.

The Marine Law Institute, working with the National Marine Fisheries Service, with funding from NOAA's

Coastal Ocean Program, studied this question over the last couple of years. We concluded that some agencies have made significant gains in the way they assess and manage incremental impacts. To be sure, there is no single methodology or set of methodologies that will work in all situations. But there are evolving methodologies that can serve as models, and gradual progress is being made on several fronts.

Cumulative impact assessment shouldn't be such a foreign concept. Many agencies already have the express legal authority to consider cumulative environmental impacts in making permitting decisions. In fact, some are required to consider cumulative impacts. These agencies include the U.S. Army Corps of Engineers, agencies that are preparing Environmental Impact Statements, and many state coastal permitting programs. However, despite that authority, many of these agencies have limited their focus to direct, site-specific impacts, and given only very cursory review to cumulative impacts.

Within states, cumulative impacts are considered a few different ways. Approximately nine state wetlands permitting programs require some consideration of incremental impacts. Florida is probably the leader in its wetlands legislation. Florida has frequently used cumulative impacts as a ground for permit denial or for imposing conditions on approval. That state has detailed guidance on types of projects to be included in the cumulative impacts assessment, applicable geographic boundaries, and how to project reasonably expected development.

Mississippi is probably more typical in its provisions. Mississippi's Coastal Wetlands Protection Act establishes protections for coastal wetlands and their ecosystems, to preserve them in a natural state, "except where a higher public interest consistent with public trust purposes would be served" (Miss. Code Ann. 49-27-3). The regulations specify factors to be considered in reviewing permit applications. Figure 3 is an excerpt from that provision. One of 13 factors to be considered is "precedent-setting effects and existing or potential cumulative impacts of similar or other development in the project area." It also requires consideration of "the full extent of the project, including impacts induced by the project, both intended and unintended but reasonably anticipated." Even though Mississippi has these provisions, like many other states, if there is no additional guidance on how to apply these provisions, their use tends to be cursory at best.

Some states require consideration of cumulative environmental effects through mini-NEPA statutes; incremental effects are considered in determining whether a state environmental impact statement is required, and in evaluating those impacts. California, New York, and Washington State take this approach. Many more states use nonwetlands coastal development permitting or statewide comprehensive planning systems to get a handle on cumulative impacts.

One of the primary federal programs that requires con-

2. Decision Factors

... In evaluating the public interest and making recommendations, BMR shall consider and make findings on the following:

(a-c omitted)

d. Precedent setting effects and existing or potential cumulative impacts of similar or other development in the project area;

e. The extent to which the proposed activity would directly and indirectly affect the biological integrity and productivity of the coastal wetlands communities and ecosystems;

f. The full extent of the project, including impacts induced by the project, both intended and unintended but reasonably anticipated;

(g-m omitted)

Figure 3. Mississippi's coastal wetlands cumulative impact standard. (Mississippi Coastal Wetlands Protection Law, Rules, Regulations, Guidelines, and Procedures, Section 2, Part I.E.2 Basic for Decisions.)

sideration of cumulative impacts is the 404 Water Quality Program administered by the Army Corps of Engineers. The 404 Guidelines (Figures 4 & 5) state the Corps will allow no discharge into the water unless there will be no unacceptable adverse impact, either individually or cumulatively. The Guidelines acknowledge that cumulative effects of small effects can result in a major impairment and they place an affirmative duty on the Corps to gather information and consider it in permit decisions. Additional regulatory guidance letters also address consideration of cumulative impacts in permit decisions. However, various studies have concluded that despite the Corps' legislative mandate, it rarely undertakes more than a very cursory cumulative impacts assessment. There is some regional variation.

In a few instances, the Corps has been aggressive in using its cumulative impacts authority to deny a permit, and it has been upheld. One such example involved the Fox River in Illinois, an area already extensively developed for recreational boating. Fox Bay Partners proposed a 512-boat recreational marina, which would include a health club, restaurant, and parking facility.

The Corps denied the permit, finding there would be a significant, cumulative adverse impact. It considered marinas, boat launches, and private boat docks already permitted, and similar foreseeable future projects. Its principal concern was the increase in large power boat traffic and the likely effects on the aquatic ecosystem. The Corps was upheld on appeal. Its findings were buttressed by an EIS.

[d]redged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystem of concern.

40 C.F.R. § 230.1(c) (1993).

Figure 4. U.S. Army Corps of Engineers 404 Guidelines dealing with discharge into the water.

which found that the existing boating activity was “too overpowering” for the aquatic environment. About the same time as the decision, the Corps adopted a policy of “no net gain,” allowing new boating facilities only as older facilities for a similar number of boats were removed from the area. This is a relatively rare instance, but shows that courts will uphold denials based on cumulative impacts if they are well documented.

If state and federal agencies are mandated to consider cumulative effects, one might wonder why they tend not to do it. One of the **major problems** is that it is very difficult to do through **end-of-the-line permit decisions**. Most environmental degradation is gradual; there is no straw that causes the system to crash. Scientists and permit reviewers cannot draw arbitrary lines; the community needs to establish minimum standards and goals through resource-focused comprehensive planning. Then permit decisions can be made that are consistent with those goals.

In addition to a misplaced reliance on permitting, our survey of environmental managers identified several other areas that present problems for cumulative impact assessment and management (Figure 6). The first problem they identified is an absence of easy-to-use, widely accepted methodologies. Such a simple solution will probably never be achievable. Instead managers have to customize from several models that vary, depending upon the agency mandate, agency resources, time constraints and goals. For example, some models are designed to consider cumulative impacts in permit reviews when the reviewer has to comment within 30 days and can only use a site visit and existing data.

Another model, EPA’s synoptic approach, is designed to use existing data to produce maps that allow a comparison of relative environmental risks of allowing development in one landscape subunit as opposed to another; it is designed

(g) *Determination of cumulative effects on the aquatic ecosystem.*

(2) Cumulative effects . . . should be predicted to the extent reasonable and practical. The permitting authority shall collect information and solicit information from other sources about the cumulative impacts on the aquatic ecosystem. This information shall be documented and considered during the decision-making process concerning the evaluation of individual permit applications, the issuance of a General permit, and monitoring and enforcement of existing permits.

40 C.F.R. § 230.11(g) (1993).

Figure 5. U.S. Army Corps of Engineers 404 Guidelines on determination of cumulative effects.

to help with setting priorities on how to use limited planning and review resources.

A U.S. Fish and Wildlife methodology is more of an ongoing process, which uses sophisticated models and multi-agency collaboration, such as in the Chesapeake Bay Estuary. Another model, developed by a group of wetland scientists in Louisiana, uses a landscape conservation approach to reverse the incremental decline in wetland

- **the absence of practical, widely-accepted methodologies**
- **limited scientific knowledge about causes and effects**
- **a narrowed interpretation of agency responsibilities**
- **the absence of socially-established goals for the resource**
- **jurisdictional constraints which impose inappropriate geographic and subject-matter limits on impact assessment and management**
- **uncertainty about the defensibility or fairness**

Figure 6. Historic difficulties of considering cumulative impacts in regulatory reviews.

function of bottomland hardwood forested wetlands by securing corridors to reconnect forest patches.

There are no simple solutions; environmental managers have to use creativity to determine how they can reach their goals with available resources. But much recent work has been done which can provide some guidance.

The second problem identified by environmental managers is limited scientific knowledge about causes and effects. There is always a gap between what scientists will say they know and what environmental managers want to know. There are, however, at least two scientific trends that bode well for cumulative impact assessment:

(1) Scientists are placing more emphasis on ways to extrapolate from very detailed data in ways designed to simplify the complexities. Examples include more emphasis on indicators of ecosystem health, use of indicator species or guilds, and the synoptic approach for wetlands assessment. These techniques are designed to avoid decision-making paralysis caused by believing there is never enough information on which to act.

(2) There is a growing availability and affordability of powerful tools to collect, manipulate, and depict data, such as GIS systems, remote sensing, and computer models of estuarine processes.

A third problem, identified through the comments of environmental managers, is narrowed interpretation of agency responsibility. It seems as though until 1990 or so, there was a self-fulfilling prophecy involving the defensibility of aggressive use of cumulative impacts standards. Agencies were not aggressive and predicted courts would never support denials based on cumulative impacts; the courts were never put in a position of reviewing agency denials so did not rule such denials were defensible. Agencies tended to voluntarily utilize less than their full authority. It is only in the last several years that the courts have had the opportunity to develop a parallel body of case law addressing how aggressively agencies can use cumulative impacts concepts. In either case, our study found that since the judicial review is usually for an abuse of discretion, the agency will generally be upheld whether it approves permits after a cursory cumulative impacts review or denies the application on the basis of well-documented adverse cumulative impacts.

The fourth problem environmental managers wrestle with in trying to manage cumulative impacts is an absence of socially-established goals for the resource. Permit reviewers cannot just rely on their own comfort level to determine when one more is too many. Similarly, scientists cannot pick a point on the continuum as being unacceptable. Socially-established resource goals are necessary to draw the line below which the resource may not be degraded. If society sets that line higher than existing conditions, restoration or improvement is required.

The best goals are positive and very long term, such as to restore the functioning of particular wetlands within 50 years. It keeps in perspective that progress will be gradual.

It stresses the need for continued movement in the right direction; it emphasizes the importance of not allowing any movement away from the goal, even though it might be minimal.

A fifth problem facing environmental managers is inappropriate jurisdictional constraints. These can be geographic constraints, such as political boundaries, which have no relationship to ecosystem boundaries. Or they can be jurisdictional constraints; for example, the agency may only be allowed to consider the impacts from structures to be constructed below mean high water, but may not consider the water impacts of associated upland facilities. There are a myriad of planning efforts that attempt to span these boundaries such as various watershed protection approaches, including the National Estuary Program.

A final problem environmental managers face in efforts to consider adverse cumulative effects is uncertainty about the defensibility or fairness of doing so. There is frequently a misperception that it is somehow unfair or illegal to deny a permit application when a similar use has already been permitted. Some people assert that if an agency allowed the first and second, it can't very well deny the tenth — or the twenty-fifth. Although case law varies from state to state, our study found it was unusual for courts to take this restrictive position. Most courts hold that agencies retain the flexibility to respond to changed environmental conditions and have the right to incorporate lessons learned from prior experience, so long as they comply with due process requirements. Thus, if there is an environmental problem, after appropriate legislative or rule-making processes, review standards can be tightened up. Similar later projects can be reviewed under the new standards, and evaluated in light of the then existing environmental conditions, as they may have been changed by the earlier projects.

To summarize, we concluded that environmental managers can increase the likelihood of effectively addressing incremental environmental effects by focusing on the following factors:

(1) **Adequate Definitions of Key Terms.** As there is no common usage in the literature, each statute must define key terms such as cumulative impacts, effects, and reasonably foreseeable, and provide guidance on how to measure them.

(2) **Consideration of Multiple Types of Impacts.** The assessment must consider not just multiple casinos, for example, but also related impacts from additional restaurants, retail shops, residences, and increased traffic spawned by the casino development.

(3) **Broadened Geographic Scope.** The assessment needs to span a watershed, ecosystem, multiple-ecosystems or a similar biologically-defined area of sufficient size to encompass major factors that may cause variation in the effects on the resources of concern.

(4) **Extended Temporal Scope.** The assessment should take into consideration past development, going as far back as the records will permit to identify change from the base-

line, and also consider probable future development, projecting ideally at least a generation, based on pending permit applications, local plans, and projected likely similar applications in future.

(5) Use of Extrapolating Techniques. It is important to use techniques to simplify complexity. This might involve using indices of ecosystem health such as indicator species, change in impervious surface area, or change in submerged aquatic vegetation.

(6) Goal-Setting and Comprehensive Planning. A community consensus on resource goals is crucial to establish a decision-making context for permitting programs. Similarly, comprehensive planning and advanced designation can relieve pressure on permit programs by directing development to areas where it is likely to have fewest adverse effects.

(7) Integrated Monitoring, Assessment, and Management. Environmental managers need to make use of all

three: assessment to project impacts, management to implement strategies to minimize or reverse negative impacts, and monitoring to detect environmental changes and determine if the assessment was correct.

But, as with most resource management efforts, at the heart of the matter is a fundamental issue of whether the community has the political will to protect particular valued resources. Our study indicated that if the will is there, the mechanisms can be devised to bring us much closer to managing cumulative environmental impacts. But if the political will is lacking, adequate assessment and management of cumulative impacts is unlikely.

Adapted from: Vestal, Barbara, Alison Rieser et al. 1995. *Methodologies and Mechanisms for Management of Cumulative Coastal Environmental Impacts*. NOAA Coastal Ocean Program Decision Analysis Series No. 6. Available from NOAA Coastal Ocean Office, 1315 East West Highway, Silver Spring, MD 20910.

The OCRM Role in Developing Cumulative and Secondary Impact Management Strategies

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The control of cumulative and secondary impacts of growth and development have been major issues in coastal states and territories. Addressing cumulative impacts is probably the number one to number three issue for most of the states and territories of the United States right now. The office of Ocean and Coastal Resource Management (OCRM) will be cosponsoring workshops to pull together the information from across the country that states have been developing over the past 4 to 5 years.

The Office of Ocean and Coastal Resource Management of the National Oceanic and Atmospheric Administration (NOAA) administers the Coastal Zone Management Program and the National Estuarine Reserve System, which are both under the Coastal Zone Management Act and NOAA's National Marine Sanctuary Program. The Coastal Zone Management Program was established in 1972, when the Coastal Zone Management Act first passed, with the directive to preserve, protect, develop, and where possible restore or enhance the resources of the coastal zone. It is one of the first programs to look comprehensively at what happens along the coastal area and at that broad spectrum of uses and activities from development to conservation.

The Coastal Zone Program is voluntary, and has done rather well in terms of getting state participation. Twenty-nine states out of thirty-five coastal states and territories in the United States have federally approved coastal zone programs. Another five are presently in the process of developing coastal zone programs. The next program scheduled for approval is that of the State of Texas, soon to be followed by the State of Ohio, and then sometime further along by Georgia, Minnesota, and Indiana, probably in that order. At this point, well over 93% of the U.S. shoreline is currently managed by a federally-approved coastal zone program.

The program is important because people have really recognized the importance of coastal resources. And from a political perspective, it's been a bipartisan recognition of the importance of coastal zone management.

The Coastal Zone Act Reauthorization passed the House 2 weeks ago by a vote of 407 to zero. What's important about reauthorization is what it will do to the program. In 1990, Congress made a number of significant amendments to the Coastal Zone Management Act. One was to basically provide new incentive funding to get the rest of the coastal states and territories involved in coastal zone management. Another was to work jointly with EPA on a Coastal

Nonpoint Source Pollution Program under Section 6217. A third amendment by Congress put together something called the Coastal Zone Enhancement Program. This is where cumulative and secondary impacts are addressed. Congress basically felt that there are a number of significant coastal issues that states ought to address.

In 1990, they added a competitive funding section called the Coastal Zone Enhancement Program and outlined national coastal resource management objectives that needed to be reviewed by states to enhance the existing authorities of their programs. These included the following: (1) to protect, restore, or enhance the existing coastal wetlands base or create new coastal wetlands; (2) to increase opportunities for public access to coastal areas; (3) to address the cumulative and secondary impacts of population growth and urban development in coastal areas (26 out of the 29 coastal states and territories with approved programs thought that was a priority issue that needed to be addressed by their state); (4) to prevent or significantly reduce threats to the life and destruction of property by eliminating development or redevelopment in high coastal hazards areas and managing development in other hazard areas; (5) to identify and develop special area management plans to manage coastal areas with special needs (Mississippi is a good example of having used the special area management planning process with a number of its ports); (6) to promote the wise use of ocean resources; and (7) to assist in the placing of energy facilities and government facilities along the coast.

Here's the way the process worked. Once Congress put the program in place, guidelines were developed and all of the state programs went through an assessment process to review the issue areas. Wetlands, cumulative and secondary impacts, and coastal hazards were the top three priority areas. Once states identified what their problems were, they were then required to develop strategies as to how, over a 5-year period, they would begin to address those particular problems. Cumulative and secondary impacts were probably one of the major areas in which federal money was spent by states to try to get a grasp on this problem. Most state coastal management programs do have legal authority to consider cumulative impacts in permitting decisions. Many states have policies in local land use plans that are applicable to cumulative impacts. However in actual practice, these programs review only the immediate and direct impacts on coastal resources. They've acquired a variety of

obstacles in putting guidelines together. The first is the absence of methodologies that are practical and widely accepted. The second is limited scientific knowledge pertaining to causes and effects. The third is the inability to develop sufficient information to assess resources. And finally, there is insufficient coordination among regulatory agencies.

Despite all these difficulties, many coastal states and territories have utilized the Enhancement Program to improve the primary existing plan frameworks, including improvement of coordination mechanisms, expansion of the scope of state environmental impact review requirements, incorporation of cumulative impact language into existing environmental programs and recommendations, modification of permit procedures, and improvements of baseline data and monitoring capability with a greater emphasis on nationwide approaches.

California, for example, is in the midst of pursuing development of a regional review permitting process. The state is conducting a demonstration project to review the regional cumulative impacts to resources and to make recommendations on how to better consider cumulative impacts in local permitting processes for coastal development. This may result in new monitoring data collection and/or better coordination.

Other approaches that coastal states and territories are pursuing through the Enhancement Program include (as in the case of North Carolina) combining a comprehensive

planning and management approach to protect natural resources with more science-based efforts that involve collecting and utilizing resource data on geographic information systems.

Alaska is developing a methodology to quantify the impacts to fisheries habitat in one of its rivers. Various coastal states and territories employ other systematic approaches to improve the cumulative impacts.

As part of Mississippi's enhancement strategy, the Coastal Program proposes to clarify its existing wetlands authority, and to identify and manage activities that cause indirect impacts associated with stormwater runoff and sedimentation from construction, altered natural hydrology and related water quality problems. Clarification of this authority would result in modification of permit review guidelines to include management of indirect impacts. And further, there was a memorandum of understanding with relevant state and federal agencies to address agency coordination. OCRM will be going forward with an assessment of what the states have accomplished over the past 5 years, getting an analysis of that information, and getting it out to people so it can be of some use. The other important change will be coming out of the reauthorization of the Coastal Zone Management Act. Congress has given OCRM the authority to allow the states to spend competitive funds under this program (Enhancement Program) or take up to 2 years to actually implement program changes.