

WATER LOG

A Newsletter for the Mississippi-Alabama Sea Grant Consortium

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PREFACE

Floodplains and the wetlands within them offer valuable benefits to the regions which adjoin the nation's watercourses. In addition to providing unique wildlife habitat and alluvial soil replenishment, these areas serve as an important medium for the conveyance of flood waters. Without their ability to accommodate periodic inundations from neighboring streams and rivers, and then to release the overflow at a slower, less destructive rate, inestimable flood damage to downstream communities would result.

Gradual human encroachment upon floodplains and wetlands, often causing irreversible damage to these areas, has all but destroyed this storage capability. The effect of urbanization within the floodplain is to exacerbate the resulting damage to these communities. It is estimated by experts that approximately one-half of all U.S. communities experience "significant flooding" from rivers and streams, and that by 1985, total losses from flood damage will reach the \$5 billion mark.

Until the 1960's, communities which were threatened by regularly overflowing waterways

responded to the problem by erecting structures (such as dams and levees) to block or redirect floodwaters. In 1966, the ineffectiveness of this type of structural flood control was addressed by the Congressional Task Force Report, "A Unified National Program for Managing Flood Losses." Task Force on Federal Flood Control Policy, 89th Cong., 2d Sess., "A Unified National Program for Managing Flood Losses," H.R. Doc. No. 465, Serial 12724, No. 3 (Aug. 10, 1966). From that point on, national and state legislation dealing with flood relief and control recognized the need to emphasize methods which discourage development in areas likely to be flooded.

This issue of the *Water Log* focuses on the problem of floodplain management and the methods by which federal, state, and local governments in Alabama and Mississippi have dealt with flood control.



Emergency Watershed Protection (EWP) technical and financial assistance when an emergency exists. This assistance is available only as needed to safeguard lives and property from flood and erosion caused by a natural disaster. These EWP funds are not to be used to resolve pre-existing watershed problems or for the normal operation and maintenance costs of flood control projects. 7 C.F.R. §624 (1983).

National Flood Insurance Program

The National Flood Insurance Program (NFIP), which was created in 1968 [42 U.S.C.A. §§4001 *et seq.* (West 1977 & West Supp. 1983)], represents the federal government's first attempt to encourage land use planning as a method of minimizing flood hazards. Congress realized that flood prevention projects sponsored for 40 years under the Flood Control Acts had afforded insufficient protection against flood loss, as evidenced at the time by escalating federal flood disaster relief expenditures and the unavailability of private flood insurance. Its main purpose is to provide a federal-private industry flood insurance program to the public at affordable rates.

The NFIP was amended in 1973 by the Flood Disaster Protection Act. Pub. L. No. 93-234, 87 Stat. 975 (codified as amended in scattered sections of 42 U.S.C.). These amendments expanded the scope of the NFIP by (1) substantially increasing the limits of coverage; (2) requiring that communities, as a condition of future federal financial assistance, participate in the flood insurance program and adopt floodplain ordinances consistent with federal standards; and (3) prohibiting federally insured lending institutions from providing mortgage money for property in an identified flood-prone area of a community unless the community was participating in the NFIP and the property owner purchased flood insurance.

The Flood Insurance Administration (FIA), located since 1978 within the Federal Emergency Management Agency, has been charged with the task of administering the NFIP. One of its first responsibilities under the NFIP was to conduct a Flood Insurance Study which would (1) identify all floodplain areas in the United States which have special flood hazards, (2) establish flood-risk zones in all such areas, and (3) set actuarial insurance rates based upon the degree of flood hazard risk. From this study, flood profiles, floodway/flood boundary maps and the Flood Insurance Rate Maps (FIRM) were developed. These maps are to be used by flood-prone communities in adopting floodplain management regulations. Flood-prone communities are identified in the Flood Insurance Study as those subject to inundation by the 100-year flood. (Continued on page 6)

FEDERAL FLOOD CONTROL LEGISLATION

Congress has been struggling with the problem of flood control for over half a century, and yet devastating floods continue to be a serious national problem. In the spring of 1983 the U.S. Senate appropriated to the state of Mississippi alone over \$20 million to expedite flood control measures on the Pearl River and in the Mississippi-Yazoo River Basin. Millions more were approved for emergency watershed programs in California, Utah, Nevada and other states hit by floods and mudslides. This article discusses, in a historical sequence, federal legislative efforts to deal with this critical issue.

Flood Control Act

The federal government's first legislative attempt to provide relief to flood-prone areas was directed specifically to the Mississippi River. Federal Mississippi Flood Control Act of 1928, 33 U.S.C. §702 *et seq.* (1970). Recognizing that destructive floods constitute a problem of national significance, Congress expanded the Act in 1936. Flood Control Act of 1936, 33 U.S.C.A. §§701 *et seq.* (West 1970 & West Supp. 1983). It authorizes the federal government to participate in the improvement of navigable waters or their tributaries for flood control purposes, as long as the benefits of the project exceed its costs, and the lives and social security of people are not otherwise adversely affected.

Administration of the Flood Control Act is divided between the Army Corps of Engineers (Corps) and the Soil Conservation Service (SCS). The Corps has jurisdiction over any channel or major drainage improvements of our nation's rivers and other waterways. The SCS is responsible for investigating and evaluating proposed flood prevention projects designed to alleviate problems associated with run off, waterflow retardation and soil erosion prevention in eleven identified watersheds. [Two of these are located in Mississippi and none in Alabama. See 7 C.F.R. §632.2 (1983) for their locations.]

Plans for proposed Flood Control Act projects must be individually submitted to Congress for funding approval. Examples of such projects include channelization, drainage improvements, bank stabilization, dams and reservoirs, floodproofing, and floodplain zoning and acquisition. State and local political subdivisions which are affected by such flood control projects must be consulted during the planning phase. In addition, the Corps and SCS are required to receive "adequate assurances" from the states or their local political subdivisions that any necessary rights of way, easements, and mitigation lands will be acquired without expense to the federal government.

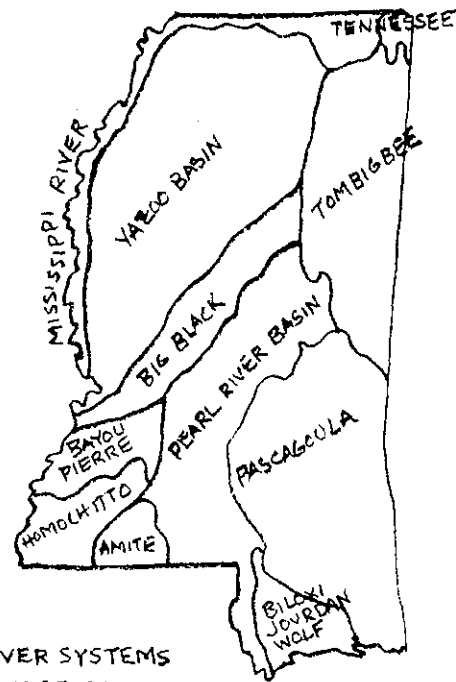
SCS regulations under the Act also provide for

MISSISSIPPI'S FLOOD CONTROL LEGISLATION

Introduction

Early settlers of Mississippi, particularly in the Yazoo and Pearl River basins, were plagued by frequent flooding. Primitively structured levees and dams offered scant protection against the seasonal inundations of their farmland. It wasn't until the late 1800's that the U.S. Army Corps of Engineers began assisting local attempts to harness the forces of Mississippi's watercourses. Despite these joint efforts, one of the worst floods recorded in Mississippi River history devastated the northern delta of the state in 1927. As a result, the Federal Mississippi Flood Control Act of 1928, 33 U.S.C. §§702 *et seq.* (1970), was passed to fund improvements in flood control methods along the entire Mississippi River and its tributaries. This Act proved to be the forerunner of subsequent federal flood control legislation discussed elsewhere in this issue.

In 1932, another catastrophic overflow prompted not only the modification of federal flood control projects, but also Mississippi's own enactment of the Flood Control Act of 1936. Miss. Code Ann. §§51-35-101 *et seq.* (1972 & Supp. 1982). As Mississippi's first statewide legislative effort at flood



MAJOR RIVER SYSTEMS
AND DRAINAGE BASINS

GLOSSARY

Base Flood/100 yr. Flood: The flood that has 1% chance of being equalled or exceeded in a given year.

Floodplain/Flood-prone Areas: A plain along a river or other watercourse that is covered by water when the river or watercourse overflows its banks.

Floodproofing: Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage.

Flood Retardation Structure: A structure that stores water during periods of peak run-off and then releases it in measured amounts over a period of time (e.g. reservoirs).

Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (one foot for purposes of the NFIP).

Land Treatment: Measures designed to reduce off-site damage from erosion, sedimentation or run-off (e.g. tree planting, vegetative cover, debris basins, and grade stabilization structures).

Nonstructural Measures: Measures that reduce flood damages without altering the stream or its overflow characteristics (e.g. land use regulations, land acquisition, and flood insurance).

Structural Measures: Artificial measures designed to reduce flood damages by altering the stream and/or its overflow characteristics (e.g. channelization).

Watershed: The catchment area or drainage basin from which the waters of a stream or a stream system are drawn.



control, the 1936 Act authorized further improvements in channel and drainage systems, levees, and dams, as well as the organization of "flood control districts" for the purpose of coordinating projects with the federal government. Although portions of this act have been implemented, the districts themselves have reportedly never been utilized. Nevertheless, given the recent flooding which has challenged the state's ability to manage its floodplains, it is interesting to note the powerful delegation of authority found in the Act of 1936 in comparison with Mississippi's presently used system of water management districts.

The Flood Control Act of 1936

The 1936 Act authorized the appointment of a Board of Commissioners (hereinafter referred to as the Board) to supervise the projects of a flood control district in the event that the federal government passed legislation to provide funds for any flood control works or improvements in Mississippi. This Board was directed to adopt an official plan for flood control within the district, and could enter into agreements with the U.S. government to cooperate in the construction and maintenance and/or assume their respective costs. Miss. Code Ann. §51-35-153, art. 1 (1972 & Supp. 1982). The flood control districts were to be funded by levying ad valorem taxes based upon the value of the properties included in the district.

In addition to its corporate powers, the Board was authorized to acquire lands, premises, rights of way, easements, and flowage rights in order to reclaim lands, prevent overflows, and accomplish all other purposes of the district. To these ends, the Board was granted the power of eminent domain, as well as the right to obstruct or dam any non-navigable natural watercourse. (Section 81 of the Mississippi Constitution of 1890 forbids the permanent obstruction of navigable waterways.) In addition, the Board could construct and maintain bypasses for the control and conveyance of

surplus or flood waters. The Board also had the right to police the works of the district and, in times of emergency and flooding, could compel assistance of the district citizens in protection of the works. The inclusion of these police powers and the unqualified power of eminent domain made the flood control district a great deal more powerful than Mississippi's later-created water management districts.

The Urban Flood and Drainage Control Law

A second legislative effort at flood control is the "Urban Flood and Drainage Control Law" of 1962, found at Miss. Code Ann. §§51-35-301 *et seq.* (1972 & Supp. 1982). Section 303 of this law recognizes that "[t]he diversion and control of the waters of any rivers or their tributaries and their overflow waters in or near municipalities for the protection and development of domestic, municipal, commercial, industrial, and manufacturing functions, for flood control, and for pollution abatement are, as a matter of public policy, for the general welfare of the entire people of the State of Mississippi." Consequently, the legislation allows certain populated municipalities to form "flood and drainage control districts" whenever any part of such district lies wholly or partially in or adjacent to any part of a municipality having a population of at least 100,000 inhabitants. Broad water management powers, similar to those granted to the water management districts discussed later, enable such flood and drainage control districts to oversee the drainage problems of the local area. To date, the Rankin-Hinds Pearl River Flood and Drainage District covers the only eligible municipal area of the state for this type of district, encompassing Jackson and surrounding towns on the Pearl River. Other flood-prone regions in Mississippi are not able to reap the benefits of this particular legislation, for lack of population.

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FLOODPLAIN MANAGEMENT IN ALABAMA

Introduction

The Alabama legislature has delegated the responsibility of floodplain management to county governments. A statute passed in 1971 (hereinafter referred to as the Act) provides guidelines for counties which embark on a land-use management program for "flood-prone areas". Ala. Code §§11-9-1 *et seq.* (1975). Although it is not mandatory for counties in Alabama to enact such a program, those which do must meet certain basic requirements, both of this Act and pursuant to the National Flood Insurance Program (NFIP). Recent developments in Baldwin County, which reveal the potential for conflict between these authorities, will be discussed later. It should be pointed out that Alabama's legislation applies only to unincorporated areas of the counties; no corresponding statute has been passed for municipalities. This article briefly summarizes the county's role in regulating growth in the floodplain in accordance with Alabama's legislative provisions.

County Floodplain Regulation

Because of the human suffering and economic loss which so often result from flooding, it is declared public policy that participating counties should constrict and control development in flood-prone areas. Lands considered as flood-prone are those subject to the 100-year flood. To identify these areas, counties may rely on mapping and designations of flood-risk zones which have been adopted by the federal Flood Insurance Administration. The authority to enact regulatory controls in this floodplain is vested in the County Commission, which may adopt pertinent subdivision development regulations, building codes, health regulations and zoning ordinances. These restrictions, which apply to new construction and improvements to existing buildings, are to center around the design of structures and probable exposure to flooding which the development might cause. If such regulation is accomplished through zoning ordinances, public hearings must be held prior to their becoming effective.

The County Commission may delegate its responsibilities under this Act to a County Planning Commission (hereinafter both administrative bodies are referred to as the Commission, their duties being interchangeable). The Commission is authorized to coordinate development within the county's flood-prone areas in cooperation with state and federal agencies, as well as administer the above-mentioned regulatory controls.

Before any construction can begin in a flood-prone area, a permit application accompanied by specifications and plans must be submitted to the Commission. No permit will be granted unless substantial compliance with the ordinances and regulations is found. When the proposed development is a subdivision, its plat cannot be filed in the probate judge's office until the Commission has approved the plat in writing. However, if the Commission fails to act within 30 days after a plat is submitted, its conduct will be deemed to be approval.

The Commission also has the authority to appoint a County Board of Adjustment to hear and decide appeals from any order, requirement, or determination made by any administrative body concerning the enforcement of the Act. This Board

may authorize variances and special exceptions to the regulations and ordinances as well. Within 15 days, the applicant may appeal the Board's decision to a court with proper jurisdiction within the county where the affected property is located.

Failure to obtain a permit before construction begins, or any other violation of ordinances and regulations that the county has enacted, is a misdemeanor subject to a \$500 fine and/or a maximum of one year in the county jail. The county attorney is authorized to take any legal action necessary to ensure compliance with such rules and regulations.

As was recently illustrated in Baldwin County, Alabama, enforcement of such regulations can pose a problem after the development has already begun. The Federal Emergency Management Agency (FEMA) has declared that seven condominium developments on Baldwin County's beaches may not be in compliance with federal Flood Insurance Program requirements adopted by the county. If this claim is justifiable and the situation is not remedied, the entire county could lose its federal flood insurance coverage.

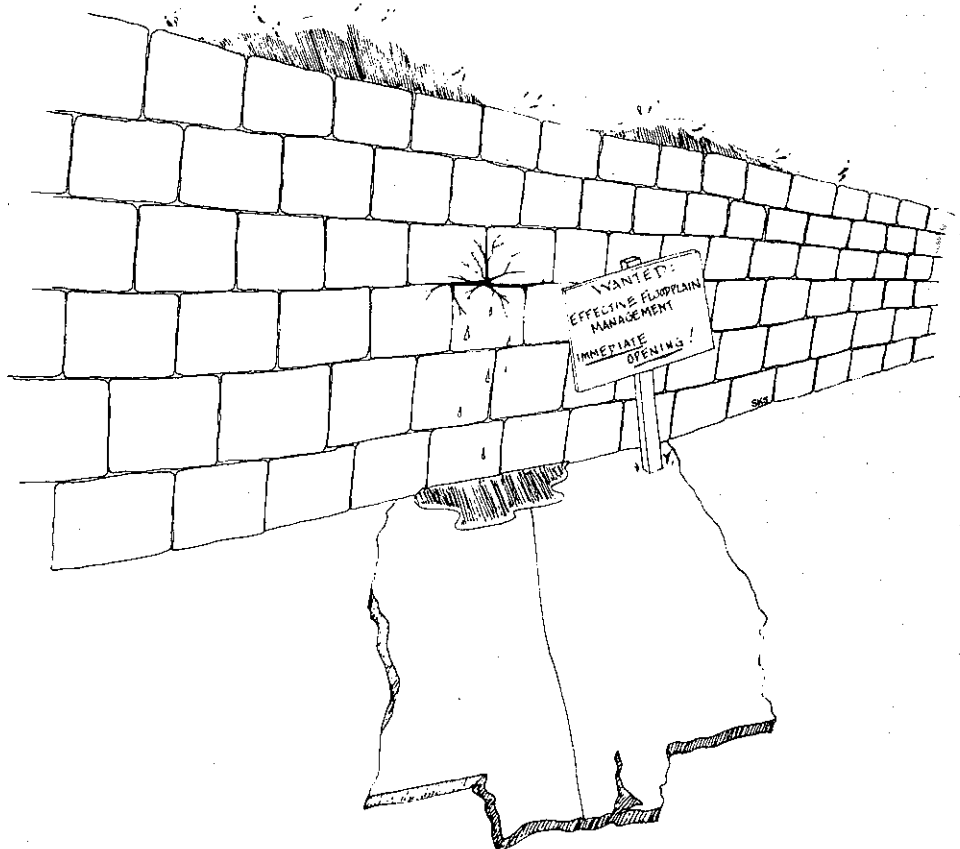
To avoid the possibility of such a disaster, the Baldwin County Commission may be faced with the difficult problem of assuring compliance with FEMA's requirements by issuing a "stop work" order for the condominium developments. This is perceived as seriously detrimental to the county as such developments contribute to the coastal economy by attracting visitors who spend substantial sums of money in coastal business. Also,

millions of dollars have been invested in these seven projects by the developers who are now left in the wake, confused, since they have already been issued permits by the County Commission and the Alabama Department of Environmental Management (ADEM) in Montgomery. At present, the Commission and FEMA are reviewing engineering studies submitted by the developer which purportedly show compliance with floodplain regulations.

The problem may have arisen because of the method by which the Baldwin County permits were issued. Customarily, before a building permit is issued, developers submit their construction plans with their own engineer's opinion as to the possible flooding which the development might cause. The Commission usually makes no official, independent investigation of this opinion, other than a review by the county engineer, who is not a registered engineer. In response to the recent pressure from FEMA, however, the Baldwin County Commission has passed a resolution requiring a registered coastal engineer to inspect all proposed construction sites prior to the issuance of any building permit in flood-prone areas. Such steps will help lessen the possibility of the development deviating from county or federal standards.

Flood Disaster Relief

Disaster relief from severe flooding is provided to Alabama citizens through the state's civil defense program. Alabama Civil Defense Act of 1955, Ala. Code §§31-9-1 *et seq.* (1977 & Supp. 1982). Once
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OPINION—CHANNELIZATION—By Chester A. McConnell*

Many persons interested in the conservation of natural resources are under the false impression that the channelization of our streams is something of bygone days. Unfortunately, this is not the case; the devastating practice of excavating natural stream channels to straighten, widen and deepen them is once again gaining momentum. Conservationists should be aware and become informed.

Channelization has caused tremendous, unnecessary damage and destruction to many valuable streams, their associated floodplains, and a smorgasbord of related natural resources. Direct and indirect effects upon our resources have been devastating according to numerous scientific reports. A century and a half of this nation's settlement has included the development and modification of at least 200,000 miles of waterways. The primary purposes were to drain land for agriculture, to relieve flooding, and to provide for water-borne transportation. The work was carried out by states, counties, towns, drainage districts, individuals, private companies and the federal government. One result was the drainage of about 50 million acres of wetlands, or 40 percent of our primitive wetland acreage.

Channelization is still in the planning stages for many thousands of miles by a variety of interests. For example, the Corps of Engineers has estimated that about 43,610 miles of channels and ditches will be needed by the year 2020 to improve agriculture in the Lower Mississippi River Valley Region alone. This valley covers a narrow strip of land on both sides of the Mississippi River from Cairo, Illinois to the Gulf of Mexico—not a large area.

There have been, and still may be, situations in which channelization, when properly applied with full consideration of all existing values, has some beneficial effects on the environment. For example, there may be situations in which channel modifications may be essential to protect life and property, although stricter guidelines should be developed and enforced when work in these critical areas is considered. Special attention may be essential to protect developments which were placed on floodplains or in areas where watershed use has been so altered that large increases of runoff now occur. However, in these instances, all other long term solutions such as floodplain zoning, flood proofing and natural stream renovation should be given a higher priority; channelization should be used only as a last resort.

Many people fail to realize that channelization can only modify the pattern of flooding. It does not eliminate flooding but simply provides flood relief in limited areas. The hydrological principle behind channelization as a flood relief tool is the acceleration of the waterflow from the land in the vicinity of the channel. Unless the channel mouth empties directly into the sea or other large body of water, the flood waters and silt contribute to flooding and sedimentation on unchanneled stream segments downstream, at times with disastrous effects. Increased sedimentation of public waters, such as lakes, reservoirs and navigable streams is an inevitable side-effect, and a common after-effect

of channelization. The cost of corrective measures for such side-effects, however, are rarely if ever projected in the cost/benefit calculations when planning such projects.

Channelization has physical, chemical and biological effects on streams and their adjacent riparian zones which are highly adverse. This is caused by the radical surgery on the stream environment which channelization entails. In the process of streambed excavation, the riparian vegetation is first removed from one or both sides of the stream for a distance of 50 to 100 feet, to provide working space for construction equipment and an area for depositing the dredged material. Next, draglines or back-hoes are used to dig the channel, and the spoil material is shaped by bulldozers.

The major effects of channelization on the stream's ecosystem are summarized here, from numerous technical reports, to illustrate the highly destructive results of this practice. The riparian environment, consisting of those areas lying adjacent to the stream which are affected by the stream, is an essential, integral part of the stream ecosystem. Destruction of riparian vegetation will either damage, alter or destroy aquatic life in or near the stream. Valuable characteristics of riparian zones which are destroyed or damaged as a result of channelization include:

- (1) Heavy vegetation. Heavily vegetated riparian zones, which provide considerable protection against local erosion and downstream siltation and flooding, also slow the flow of flood waters and trap debris and sediment which enrich zone soils. In addition, vegetation and insect production which falls directly into the stream or is swept in by flood waters form the primary source of nutrients for aquatic life.
- (2) Trees and shrubs. No type of grass sod can replace the root protection afforded by woody vegetation. The shading effect of trees and shrubs helps to maintain a more stable and often lower temperature in streams. This has a favorable effect on oxygen levels and production of in-stream aquatic organisms.
- (3) Wildlife habitat, and its accompanying mammal, bird, reptile and amphibian production.

The stream environment includes the waters and other chemical, physical and biological features within the confines of the stream proper. A broader definition would also include the floodplain. Physical and chemical problems caused by channelization include:

- (1) Elimination of meanders. Meanders cause stream water to flow at a slower rate, provide habitat diversity, and aid in flushing sediment loads from stream channels during flooding.
- (2) A steeper bottom gradient is produced, causing water flow rates to increase.
- (3) Increased channel bank and bottom erosion occur due to disturbed soils and increased water flow rate. One result is that road bridge piers are sometimes under-

mined causing bridge collapse.

- (4) Increased turbidity and reduced light penetration of water column results.
- (5) Increased flow rate also tends to reduce habitat diversity by eliminating littoral areas (shallow backwaters and sloughs), riffle and rapid areas, as well as eddy and pool habitats.
- (6) Downstream of the channelized area, where the stream returns to its natural channel and normal, shallower gradient, the flow rate diminishes and suspended solids fall out, increasing downstream sedimentation.
- (7) Since floodplains and wetlands no longer serve as natural reservoirs as they did prior to channelization, downstream flooding is increased. This is due to large volumes of water reaching shallower downstream areas at a more rapid rate.
- (8) Sediment remains in the channel, clogging stream riffles, filling pool areas, and altering the entire bottom topography.
- (9) Deepening of channels leads to erosion of tributary streams which cut their beds more deeply in accommodation of the main channel depth.
- (10) Lakes, sloughs and swamps near channelized streams are often drained, and the water table is lowered.
- (11) Annual flooding is reduced or eliminated, preventing restocking of remaining wetlands, causing these areas to become drylands.
- (12) Sediment loads which are normally deposited in floodplains are reduced or eliminated.
- (13) Large quantities of nutrients and fresh water are eventually lost to the sea, instead of being retained in the floodplain's wetlands and bottomland hardwood forest.
- (14) Aquifer and groundwater recharge is reduced.
- (15) Extensive timber cutting and agricultural land-clearing frequently follows channelization. Erosion becomes more of a problem as a result, and again, wetlands become drylands.
- (16) In low coastal plain areas, salt water penetration may occur.

Biological effects include:

- (1) Channelization reduces the size and diversity of stream habitats by removing instream vegetation, logs, and rocks, and by destroying pool and riffle areas.
- (2) Key production areas are destroyed.
- (3) Species composition is altered.
- (4) Some species are eliminated by constantly shifting sediments and lack of suitable attachment surfaces.
- (5) Standing crop and diversity of fish populations are greatly reduced.
- (6) Damaging alteration or removal of aquatic vegetation often occurs.
- (7) Habitat for birds, mammals, reptiles and amphibians which depend on aquatic environments is severely altered.

Mississippi Flood Control Legislation

(Continued from page 2)

Water Management Districts and Flood Control

Currently in Mississippi, the entities which actually administer flood control authority are the state's five major water management districts: the Tombigbee River Valley Water Management District, the Pearl River Valley Water Supply District, the Pearl River Basin Development District, the Pat Harrison Waterway District, and the Lower Yazoo River Basin District, all of which have as part of their mission the task of controlling floodwaters within their district. These authorities are each created by separate and distinct acts of the legislature, which are located at Title 51 of the Mississippi Code.

The water management districts were established to manage "all beneficial uses of the district waterways", and the Mississippi legislature granted them extensive authority to accomplish their goals. Among other things, the districts are empowered to construct facilities to impound and contain waters, to acquire any other available water deemed "useful" to their projects, to forest or reforest eroding areas, to acquire property within the project area, to exercise the power of eminent domain within specified limitations, and to permit the overflow of waters onto public lands.

Although they are afforded substantial authority to act on their respective projects, the water management districts are often caught short-handed when it comes to funding major projects. Furthermore, it is important to note that flood con-

trol *per se* is only a *part* of the district's work, and for obvious reasons does not receive the full attention of the district which it requires. For instance, the Pearl River Basin District, established in 1964, encompasses 15 counties from Attala, in the northern reaches of the Pearl, to Hancock, on the Gulf Coast. In addition to its responsibilities of water management within these counties, the district must oversee the management of some 18 state parks, all on an annual budget of \$2.4 million.

As a result of the lack of funds, the districts are heavily dependent on the assistance of such agencies as the Soil Conservation Service and the Corps of Engineers, which administer federal programs with federal money. These authorities are better positioned to finance specific water management projects, such as the Tennessee-Tombigbee Waterway and the proposed Shoccoe Dam to be built 20 miles north of the Ross Barnett Reservoir on the Pearl River. This state/federal cooperation is provided for within the enabling legislation of each water management district.

Other Legislation: Flood Relief and Insurance

Other types of state provisions for flooding include flood relief acts and required flood insurance on state-owned buildings. Following a declaration of major disaster by the governor of the state or the President of the United States, Mississippi's Commission of Budget and Accounting (the Commission) appropriates disaster relief and emergency funds. The Commission is authorized to make independent determinations as to the extent and degree of damages, destruction or loss to public properties caused by such disasters, the dollar value of such loss, the reasonable expectation of loss of present and future revenues, and all appropriate economic factors affecting the ability of state agencies to provide necessary public functions. Miss. Code Ann. §§27-107-1 *et seq.* (1972 & Supp. 1982).

In order to fund this relief, separate legislation must be passed to meet the needs of the victims of each specific disaster. Examples of the maximum amounts authorized for emergency relief in Mississippi's recent history are the following: for flood damage in 1973, not to exceed \$5,500,000; in 1975, not to exceed \$500,000; again in 1975, not to exceed \$5,500,000; and in 1979, not to exceed \$5,000,000. The Flooding Disaster Act of 1979 [Miss. Code Ann. §27-107-151 (Supp. 1982)] is typical in that it authorized the board of supervisors of any county, the governing bodies of any municipality, the board of trustees of any public school district, and the governing authorities of any other political subdivision to expend public funds and use public facilities for the purpose of evacuating or protecting endangered persons or property in the damaged areas of that particular flood. The Commission was authorized to appropriate funds to assist the local governing

authorities to obtain federal disaster assistance, and to make emergency grants and loans directly to the counties and municipalities.

Mississippi also requires the state building commission to compile an inventory of all state-owned buildings in any floodplain areas, to be presented to the Commission. Miss. Code Ann. §29-13-1 (Supp. 1982). The latter office is then obligated to purchase and maintain flood insurance on these buildings and/or their contents, in accordance with the National Flood Insurance Program.

Conclusion

The formation of a single, consolidated flood control district in the floodplain areas of Mississippi (as per the Flood Control Act of 1936) would probably be a more effective instrument than the overlapping, multi-jurisdictional authorities now in existence. This idea was in fact proposed before the legislature by Pearl River Basin Development District President George Wynne—after the 1979 Easter Flood which caused millions of dollars of damage to Jackson and vicinity, and again this past June, after heavy rains and flooding. The proposal was voted down by the Mississippi Senate on both occasions. However, in order to examine current water supply and consumption in the state and make recommendations for improving water management, the Mississippi legislature recently created a 33-member state Water Management Council. Unfortunately, flood control is not specifically mentioned among the Council's projects, so that this issue may not be addressed by that body at all, unless it is approached via the issue of jurisdictional problems among the many water management and drainage districts.

Mississippians are increasingly aware that the state has an inadequate statewide flood control program. From 1979 to 1983 alone, major inundations have caused millions of dollars in damage to both the state and its citizens. As mentioned above, the water management districts are not equipped with either the funding or the expertise to handle emergency flood planning. The irony is that tens of millions of dollars are spent every couple of years in disaster relief funding after the floods occur, rather than in financing water management and flood planning on the front end. Much damage to Mississippi businesses, homes, property, and life might be avoided if this money were spent on preventive planning before flooding occurs, including more effectively directing development away from high risk flood areas.

Catherine L. Mills



This summary of the major effects of channelization clearly illustrates the continuing need to identify alternatives that will solve problems and conserve natural resources. Renovation of natural streams to restore normal flow capacities is one alternative that is being used on a growing number of streams. When properly done, stream renovation solves many flooding problems while causing far less severe environmental damage. It is a compromise approach that should be used where possible. For more information on this process, order a free copy of "Stream Obstruction Removal Guidelines" from the International Association of Fish and Wildlife Agencies, 1412 16th Street, N.W., Washington, D.C. 20036.

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(The views expressed in OPINION are solely those of the author and do not necessarily reflect those of the sponsors of the WATER LOG, including the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Mississippi-Alabama Sea Consortium, or the Mississippi-Alabama Sea Grant Legal Program.)



Federal Flood Control Legislation

(Continued from page 1)

To qualify for federal flood insurance, a flood-prone community must adopt enforceable floodplain management regulations consistent with minimum criteria established by the FIA. The area within the 100-year floodplain which is subject to this regulation is referred to as the floodway. Regulations must ensure that development in the floodway will not further increase the base flood levels assigned to the floodway and will be designed to standards that protect against flood damage. Criteria for floodplain management regulations have been divided into four principal categories: (1) flood-prone areas, (2) mudslide-prone areas, (3) flood-related erosion-prone areas, and (4) variances and exceptions. For the first three categories, these regulations must provide that all development taking place in the 100-year floodplain in coastal and riverine areas be evaluated for its impact on base flood levels, and must contain elevation standards, flood-proofing, and anchorage standards that protect against flood damage. Furthermore, in coastal floodplains which are subject to wave action (coastal high hazard areas) and thus are likely to be damaged by severe coastal storms, structures must be built to withstand storm waves, currents and hurricane wave wash. Detailed requirements necessary for minimum compliance with these floodplain management criteria are set out at 44 C.F.R. §60 (1982). Once a community has complied with these requirements, its residents are eligible to apply for federal flood insurance protection.

Variances from the requirements of the NFIP may be issued in certain enumerated circumstances, such as for reconstruction or rehabilitation of a structure on the National Register of Historic Places. In addition, when an applicant shows good and sufficient cause, a variance may be granted if it is determined that failure to give the variance would create an exceptional hardship for the applicant, and if the granting of it will not result in increased flood heights, or additional threats to public safety. Communities are required to maintain a record of all their variances and report them annually to the FIA. Obtaining a variance causes an increase in individual premium rates if construction below the base flood level increases risks to life and property, 44 C.F.R. §60.6 (1982).

A community which repeals or fails to adequately enforce its approved floodplain management regulations is subject to suspension from the NFIP. The FIA is required to give such a community 30 days in which to show cause why it should not be suspended before commencing suspension procedures. In addition, a hearing on the matter may be conducted at this time. If a community is to be suspended, 30 days' prior written notice must be published in the *Federal Register* of its loss of eligibility for the sale of flood insurance. The FIA also issues a press release to the local media explaining the reasons and effects of the suspension. The community's eligibility can only be reinstated upon receipt by the FIA of a local legislative or executive measure reaffirming the community's formal intent to abrogate, to the maximum extent possible, the actions which caused the suspension. In such cases, during the time of re-evaluation, the FIA may either conditionally

reinstate the community's eligibility or withhold reinstatement for a period of up to one year from the date of receipt of the submission. Flood insurance cannot be sold or renewed in any suspended community until the date of the community's formal reinstatement. Policies sold or renewed during the period of ineligibility are voidable whether or not the parties had actual notice of ineligibility, 44 C.F.R. §49.24 (1982).

In 1982, the NFIP was amended to prohibit the sale of federal flood insurance for any new construction on undeveloped barrier islands after October 1, 1983. For information on this amendment, see the *Water Log*, Vol. 2, Nos. 3 & 4 (1982).

Watershed Protection and Flood Prevention Act

The federal government's third major attempt to deal with flooding came in 1974 with the passage of the Watershed Protection and Flood Prevention Act (WPPFA), which is administered by the SCS, 16 U.S.C.A. §§1001 *et seq.* (West 1974 & West Supp. 1975 to 1982). The purpose of the WPPFA is to encourage dealing with water management concerns on a watershed basis, emphasizing coordinated resource planning. It is designed to establish a federal partnership with states and their political subdivisions (including soil or water conservation districts, flood prevention or control districts, and other local public agencies) to prevent erosion, floodwater and sediment damages to the watersheds of U.S. rivers and streams. The goal is to preserve, protect and improve our land and water resources and thereby the quality of our total environment. This is to be accomplished by providing federal assistance for land treatment and structural flood prevention measures and for the development of conservation plans. Such plans apply to watershed areas which do not exceed 250,000 acres.

In order to qualify for WPPFA assistance, an applying local entity must provide the SCS with adequate assurances that they will acquire, without costs to the federal government (except under certain limited circumstances), such land, easements and rights of way needed to complete the project for which the funding is requested. As with Flood Control Act sponsored projects, the SCS must demonstrate that the benefits of the project will exceed the costs. In addition, when planning a project, SCS and the local sponsors must consider alternative solutions in the following preferential order: (1) the installation, operation and maintenance of land treatment measures; (2) nonstructural measures and (3) structural measures. 7 C.F.R. §622 (1983).

Disaster Relief Act of 1974

The Disaster Relief Act of 1974 [Pub. L. No. 89-136, as added Pub. L. No. 93-288, 88 Stat. 160 (codified as amended in scattered sections of 42 U.S.C.)], was passed to assist states and local governments in helping areas recover from the effects of a natural disaster. It covers two situations: emergencies and major disasters. An emergency exists when a catastrophic event occurs which requires federal emergency assistance in order to supplement local and state efforts to save lives, protect property, public health and safety, or to avert or lessen the threat of disaster. A major disaster is a catastrophe so severe that federal assistance

over and above emergency assistance is needed to alleviate the resulting damage, loss, suffering or hardship.

When the Governor of a state finds that the situation is of such severity and magnitude that effective response is beyond the capabilities of the state and local governments, he can request emergency or major disaster relief from the President. If requesting emergency relief, the Governor must furnish the President information on state and local efforts and resources that have been and will be expended and define the type and extent of federal aid needed. If requesting major disaster relief, the Governor must certify that for the current disaster, state and local obligations and expenditures will constitute a "reasonable amount" of the funds necessary for alleviating the damage, loss and suffering caused by the disaster. In addition, he must take appropriate action under state law and direct execution of the state's emergency plan. Based upon the information provided, the President decides which type relief, if any, should be given.

Upon declaration of a major disaster area, the President appoints a federal coordinating officer who is to assist local citizens and officials in promptly obtaining assistance. In addition, he requests the Governor to appoint a state coordinator. The President then forms a federal emergency support team of federal personnel to work in the affected area under the direction of the federal coordinator.

The type of federal emergency assistance available is that which is needed to save lives and protect property, public health and safety. Assistance for declared major disaster areas go beyond that to include unemployment assistance, grants (distributed through the states) for individuals and families who are not able to meet the expenses of recovering from the disaster, crisis counseling, emergency food stamps and legal services for low-income families as necessary, and community disaster loans to local governments. Any person who receives assistance in repairing or restoring property must, as a condition of receiving such assistance, agree to purchase insurance that is reasonably available, adequate and necessary to protect against future loss to such property.

Executive Orders 11988 and 11990

On May 24, 1977, President Carter issued two Executive Orders that are central to federal floodplain management. One is on "Floodplain Management", Exec. Order No. 11988, 42 FR 26591 (1977) and the other on "Protection of Wetlands", Exec. Order No. 11990, 42 FR 26951 (1977). The purpose of these Orders is to help prevent the adverse impacts associated with the occupancy and modification of floodplains and wetlands by requiring that all actions conducted, supported or allowed by the federal government avoid these areas. If an action must be taken in a floodplain or wetland, there is a duty to minimize harm to these areas.

Exec. Order No. 11988 and Exec. Order No. 11990 direct federal agencies to prescribe procedures ensuring that the potential effects of any actions on a floodplain or wetland will be fully evaluated prior to its instigation. These regulations must include provision for early public review of

any such plans or proposals. In addition, any requests for new authorizations or appropriations must indicate that the project is located in a floodplain or wetland, and that the proposed action is in accordance with the directives of the Executive Order. They further require that when any property in a floodplain or wetland is proposed for lease, easement, right of way, or disposal to non-Federal public or private parties, the conveyance must indicate that the property is located in such an area and attach appropriate restrictions to the uses of the property.

Conclusion

Over the past fifty years, the federal government has expended a considerable amount of time and money on trying to minimize losses occasioned by flooding. It has established a comprehensive program of flood control which emphasizes non-structural flood prevention measures. Yet the SCS and Corps continue to sponsor local flood prevention projects which encourage rather than discourage unwise development in the floodplain. In addition, the NFIP ultimately results in subsidizing the risks of living in a flood-prone area. Until such time as the federal government exercises fully its powers to direct growth away from floodplains, it will continue to have to appropriate millions of dollars yearly in flood relief efforts.

Casey Jarman



Flood Plain Management in Alabama

(Continued from page 3)

an emergency has been declared by the Governor or by joint resolution of the legislature, state and local civil defense workers are mobilized to do whatever is necessary to protect the health and safety of persons and property. Emergency assistance such as food, clothing, transportation, and medical care is also made available to the victims of the flood.

Conclusion

In summary, Alabama has provided guidelines for those counties who wish to regulate development in areas which are subject to flooding. This has been accomplished by establishing minimum requirements for zoning, building codes, health regulations, and subdivision regulations. The County Commission is charged with adopting, administering and enforcing such regulations. Supplementing these provisions are the FEMA guidelines for land management through federal flood insurance requirements and state disaster relief through the civil defense program. Counties which enter this field of regulation, however, may discover that satisfying the federal government and private developers can be a difficult task, as illustrated by the present conflict in Baldwin County. Careful scrutiny and independent validation of proposed construction plans appears to be a method of satisfying all of the interests involved.

(Some of the material for this article was obtained from interviews with Neil Lauder, Baldwin County Commissioner, and Walter Stevenson, Chief of Resource Development, Office of State Planning and Federal Programs.)

Tim Weeks



LOCAL FLOODPLAIN MANAGEMENT

All of Mississippi's and Alabama's coastal counties are participating in the National Flood Insurance Program, having adopted floodplain management ordinances consistent with federal guidelines. This article reviews the Jackson County, Mississippi floodplain ordinance as an example of regulation at the local level. Jackson County, Miss., Zoning Ordinance art. II, VII (1981).

Under the ordinance, a person who wishes to begin construction in the floodplain must secure a building permit from the County Inspection Office. If the new construction is a residential dwelling, the permit must specify that the proposed elevation of the lowest habitable floor (including the basement, if applicable) is not below the base flood level. The permittee must ensure that the water supply and sewerage systems of the proposed residence are so designed as to eliminate or at least minimize any possible exchange which could take place between these systems and floodwaters.

If someone wishes to construct a new building in the floodplain for commercial or other non-residential purposes, he has the option of elevating it above the base flood level or of simply flood-proofing it and any attendant utility or sanitary facilities up to that same level.

To be permitted, all new construction in the floodplain is generally required to be constructed of building materials and utility equipment which are resistant to flood damage and with building methods which are designed to minimize flood problems. New structures, including mobile homes, must be anchored in order to prevent possible flotation, collapse, or lateral movement in the event of flooding.

Owners of mobile homes in the floodplain must secure them to ground anchors with over-the-top and frame ties. In addition, mobile homes not located in parks existing prior to the Program's implementation must be elevated on compacted fill or pilings, so that the lowest floor is not below the base flood level. New mobile home parks should have adequate surface drainage and provide access for a hauler.

There are no restrictions on structures in the floodplain which pre-date the implementation of this ordinance. However, if an owner chooses to add on or make other major improvements (in excess of \$100) to the building, he may be required by the County Board of Supervisors to perform certain floodproofing measures such as the installa-

tion of anchorage, watertight doors or bulkheads, or specially reinforced walls.

When any of the above requirements threaten to work a serious hardship, the aggrieved party may apply to the County Planning Director for a variance. If the applicant demonstrates such hardship, the Board of Adjustment, upon recommendation of the Planning Director, may grant a variance. Before the Board can do so, it must determine that failure to grant it would create unnecessary and exceptional hardship and would not result in increased flood heights or other threats to the public health. The final prerequisite to a variance is that the construction or improvements be on lots of a half-acre or less, which are next to and surrounded by lots with pre-existing structures built below the base flood level.

The building official of the Planning Commission has the duty to warn the applicant for a variance that if its issuance results in the location of a structure below the base flood level, this could result in substantially higher flood insurance premiums for the applicant and increased risk to his life and property.

Exceptions to the minimum elevation requirement may be granted for certain special uses, after proper application to and a public hearing before the County Planning Commission. Some examples of such special uses are car lots, circuses, gas stations, drive-in theaters, kennels and stables. However, following the Commission's review, the Board of Supervisors may attach conditions to the special use permit, such as waste disposal and water supply requirements, time limits on the use, and floodproofing measures.

Once the permitted construction or improvement is complete, the permittee must submit a certificate from a registered professional engineer or surveyor, showing the elevation of his lowest habitable floor. If it meets the regulatory minimum and if all other requirements have been complied with, then the County Inspection Officer will issue him/her a certificate of occupancy indicating that he/she has complied with the county floodplain ordinances and is eligible to apply for federal flood insurance.

Holt Montgomery



WATER LOG

This newsletter is quarterly publication reporting on legal issues affecting the Mississippi-Alabama coastal area. The purpose of the newsletter is to increase public awareness of coastal problems and issues.

If you would like to receive future issues of the WATER LOG free of charge, please send your name and address to: Sea Grant Legal Program, University of Mississippi Law Center, University, Mississippi 38677. We welcome suggestions for topics you would like to see covered in the WATER LOG.

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NOTES

The Mississippi-Alabama Sea Grant Legal Program is conducting a research project attempting to ascertain the types (species/gear) and magnitudes of by-catch/incidental take in U.S. commercial marine fisheries. The Program is also involved in an analysis of federal and state (Mississippi and Alabama predominantly) laws relative to the shipping of hazardous materials by water vis-a-vis the implications of such practices for non-transportation water users. Parties interested in sharing information on the above projects should contact Bo Bricklemeyer at the University of Mississippi Law School, Oxford.

The Federal Emergency Management Agency has published its final rule implementing Section 11 of the Coastal Barrier Resources Act of 1982 which prohibits new flood insurance coverage on or after October 1, 1983, for new construction or substantial improvements of structures located on coastal barriers within the Coastal Barriers Resource System. See 48 Fed. Reg. 37036 (1983).

Thirteen Sea Grant-affiliated attorneys from Louisiana, New York, Maine, South Carolina, Washington, D.C., and Mississippi met at Sea Grant Week '83 in San Antonio in July for the purpose of setting up a marine law network. Anyone desiring more information on the network should contact Casey Jarman, Law Center, Box 20, University, Mississippi 38677; (601) 232-7361.

Catherine L. Mills, a staff attorney for the Mississippi Law Research Institute, assisted the Sea Grant Marine Advisory Service with a 4-H Club Ecology Workshop at the Gulf Park Campus of USM in early June. Addressing two groups of 4-H Club members, Ms. Mills discussed the role of law in coastal activities.

Due to space limitations, the second part of the Federal consistency article by Al Sage will be printed in the next issue.

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