



The Antediluvian

Ohio's Floodplain Management Newsletter

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MISSION STATEMENT: The Mission of Floodplain Management Program is to provide leadership to local governments, state agencies, and interested parties toward cooperative management of Ohio's floodplains to support the reduction of flood damage and the recognition of the floodplain's natural benefit. This mission will be accomplished through technical assistance, public awareness, education, and development/protection standards.

Flood Safety Awareness Week

YEARS



By Christopher M. Thoms,
Environmental Specialist,
Division of Water – Floodplain Management Program

For more than twenty years, the Ohio Committee for Severe Weather Awareness (OCSWA) has provided safety information to reduce the hazards associated with floods and tornadoes. Each year the governor designates a week for highlighting this purpose. This year, Governor Voinovich has designated **March 22 - 28, 1998** as **Tornado/Flood Safety Awareness Week**. In his proclamation, the Governor urges the news media and local governments to assist the state to educate Ohioans about the dangers of floods and tornadoes and the necessary measures that can be taken to increase safety. Every community should take advantage of this opportunity to showcase what they have been and are doing every day of the year to lessen the possibility that future floods will devastate their community as past floods repeatedly have.

See related article,
Severe Weather Committee Goes On The Road p. 8

One year ago-on the first two days of March , 1997-a stalled frontal system dropped up to 12 inches of

rain causing severe flooding along the Ohio River and throughout southern Ohio. Many lost their possessions, their homes, their businesses, and five, their lives; yet, this was a relatively small flood. Following that flood, public awareness of flood hazards was understandably higher. This event - driven interest is notoriously short-lived. Thinking a

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50-year flood occurs only once in fifty years or a 100-year flood only once in a century, many believe they're safe for another forty-nine or ninety-nine years.

The threat of flooding is not limited to the Ohio River. No region of the state has been left untouched by flooding. Concern over Lake Erie water levels is prompting renewed attention to flood hazards along our Northern Coast. Floods account for almost 80% of Ohio's major disaster declarations. There are almost 300,000 structures in flood hazard areas within the State. Hundreds of lives and millions of dollars in property have been lost to floods in Ohio. Recovery costs to all of us are spiraling ever upwards. Given this costly history, we cannot afford to wait for the next flood to heighten flood safety awareness again.

See related articles,

Project Impact p. 13
&
Flood Guide For Elected Officials p. 14

As with any natural hazard management, all who work to reduce flood damage face many daunting challenges and no *one-size-fits-all* workable solution has been or is likely to be found. The Floodplain Management Program Office-through our technical and regulations assistance. seminar and workshop presentations, community contacts and visits, fact sheets, *The Antediluvian*, and our new website-seeks to increase flood safety awareness and to offer a variety of floodplain management techniques so that officials and citizens can create a flood damage reduction strategy that is appropriate for their community. As part of this effort, our office heartily endorses the **Tornado/ Flood Safety Awareness Week**. Though this one week cannot substitute years of flood safety awareness, of using flood hazard: reduction

See related articles,

Looking For Ways to Fund Your FPM Strategies p. 9
&
HMGP p. 12

methods, of enacting long-range planning; it should be used as a means to remind us of what we have lost, what we can lose, what we need to preserve, and what we have to gain. 

Note: If you would like to receive more information concerning tornado or flood safety, please contact your county emergency management agency or the local chapter of the American Red Cross. For an educational packet-created each year to support this awareness effort-please contact the Ohio Emergency Management Agency (OEMA) at (614) 889-7150 or download the information from OEMA's Website at <http://www.state.oh.us/odps/division/ema/Tfsc.pdf>.

Lake Erie Coastal Communities & High Water Level Concerns



By Andrew Reimann,
Environmental Specialist,
Division of Water Floodplain Management Program

Many people think that the water levels on the Great Lakes are regulated. This is not the case simply because precipitation, the major factor determining the water supply to the Great Lakes, cannot be controlled. As many of Ohio's coastal communities already know, the impacts of high water levels on Lake Erie can cause significant flooding and expose some structures to the erosional forces of waves. The extent of flood damage experienced by Ohio's coastal communities will depend on a number of factors. These factors include high precipitation and low evaporation rates, storms and wind-driven waves, and wind setup.

Lake Erie water levels and precipitation amounts for 1997

The primary cause for the current high water levels on Lake Erie was due to higher than average rain and snow precipitation in the Great Lakes watershed during late 1995, 1996, and through May 1997.

The following Lake Erie water level data were compiled by the Army Corps of Engineers – Detroit

District (ACE). Please note that the ACE's data is calculated by averaging water levels at four gauge locations. Two gauges are located at Toledo and Fairport, Ohio on the United States side of Lake Erie. The other two gauges used in determining Lake Erie water levels are located at Port Stanley and Port Colborne in Ontario, Canada. However, only the data from the gauge at Fairport, Ohio is used to determine record water levels and long term averages. Although the current system for analyzing Lake Erie water level data may seem confusing, it illustrates the importance of determining the source of data and how the data collected and analyzed when one is involved with using water level data for Lake Erie.

Lake Erie water levels have been rising since November 1996 when the typical seasonal decline in Lake Erie's waters ended. In 1997, Lake Erie water levels began at 572.63 feet, about 22 inches above the long-term average (1918-1996). By June, water levels rose to 574.21 feet, about 28 inches above average. On June 7, water levels peaked at 574.34 feet, which was about 1 inch above the 1986 high. Water levels on Lake Erie declined through December, ending the year at 572.51 feet. This elevation was still about 20 inches above the average for the month. At the start of January 1998, Lake Erie water levels started at 572.26 feet.

For 1997, the total precipitation for the Lake Erie watershed was approximately 37.9 inches, which equals about 109% of the yearly average of 34.9 inches of precipitation. However, precipitation over the Great Lakes watershed for 1997 was below normal due to drier periods experienced in April, June, July and from September through December. The total precipitation in the Great Lakes watershed for 1997 was 32.31 inches, or about 0.89 inches below normal. In comparison, during December through March of 1996, the Lake Erie basin experienced 133% of its normal precipitation.

Lake Erie storms and increased water levels

Storm systems crossing the Great Lakes region during the spring and fall tend to be stronger due to contrasts in the temperatures of the northern and southern air masses. This scenario is particularly true during the fall when the jet stream that separates cold Canadian air and warm Gulf air migrates southward across the Great Lakes region. The resulting waves on the lakes increase in height and become more powerful. The wave's energy is expended higher on the shoreline profile, causing an

increase in beach erosion and bluff recession. In addition, lowland flooding under these conditions is chronic.

The term *storm rise* refers to the difference between mean still water levels and average storm water levels. Storm rises occur as a result of high winds and changes in barometric pressure. The eastern shores of the lakes tend to endure the greatest storm rises and strongest wave energy because the Great Lakes are at a latitude of predominately westerly winds. Storm rise, however, does not include any additional inundation that can be caused by *wave runup*. Wave runup is the term for the spread of waves onshore and the height they may reach.

Monthly storm induced rises on Lake Erie and estimated recurrence intervals are illustrated in **Table 1**. For example, at Toledo, the probability that a 2.6 foot storm induced rise will be exceeded is 0.20 (or 20%) during the month of January. This represents a recurrence interval (also called the return period) of once in every five years for that month. If the January level for Lake Erie is 572.26 feet, then there is a 20% (or one in five) chance that a level of 574.86 feet will be equaled or exceeded at Toledo during the month.

Lake Erie wind setup

Strong winds blowing parallel to the axis of a lake's surface (also referred to as *fetch*), such as a southwest wind on Lake Erie, can result in a phenomenon known as *wind setup*. This means that lake water is *pushed* by the wind and piled up on the leeward shore.

Unfortunately for Lake Erie's coastal communities, the greatest wind setups found on the Great Lakes occur on Lake Erie. Several factors can contribute to the significant differences in local water levels along Lake Erie. These factors include a fetch distance of 240 miles, the lake's east-west orientation, and the lake's very shallow western end. Under a strong northeast wind, a 1 to 2.5 foot storm rise can occur in the west end of Lake Erie. During the high water level period that Lake Erie is currently experiencing, the western end of the lake is particularly vulnerable to storm rises and the erosive power generated by wind driven waves due to the very gentle slope found in this area. It is easy to envision that a 1 foot rise in water levels could encroach several hundred feet inland. With its long fetch, offshore waves 10 to

15 feet high have been recorded on Lake Erie. This increased wave action has caused severe erosional problems when they come inshore, especially east of Cleveland. On February 16, 1967, a southwest wind at Buffalo, New York was recorded at 52 mph causing an almost 15 foot difference in the water surface elevation between Toledo and Buffalo!

The International Joint Commission and Lake Erie water levels

In 1909, the United States and Canada entered into the *Boundary Waters Treaty*. The treaty created the International Joint Commission (IJC). Canada and the United States established the IJC because they recognized that both are affected by the other's actions in the Great Lakes region. In 1993, after seven years of intense study, the IJC recommended that each government should aggressively promote the use of shoreline land-use management as the principal component of a strategy to alleviate the adverse consequences of fluctuating Lake Erie water levels. Floodplain managers in Ohio's coastal communities can play a significant role in ensuring that proposed coastal development is protected from the ever changing Lake Erie water levels. By consistently enforcing their community's floodplain management regulations they can reduce the potential of future flood damages. 

Possible Storm Induced Rises (in feet) and Annual Probability (in percent) of Equaling or Exceeding that Rise

Annual Recurrence Probability	Toledo					Marblehead					Cleveland					Fairport				
	0.2	10%	3%	2%	1%	20%	10%	3%	2%	1%	20%	10%	3%	2%	1%	20%	10%	3%	2%	1%
January	2.6	3.1	3.8	4.2	4.7	1.9	2.3	2.9	3.4	3.9	1.1	1.3	1.6	1.8	2.0	0.8	1.0	1.3	1.5	1.7
February	2.3	2.7	3.3	3.7	4.0	1.5	1.7	2.0	2.1	2.3	1.0	1.3	1.7	2.0	2.4	0.8	1.1	1.6	2.0	2.4
March	3.1	3.5	3.9	4.2	4.4	1.8	2.0	2.3	2.5	2.7	1.2	1.5	1.8	2.0	2.2	0.9	1.0	1.1	1.2	1.2
April	2.8	3.4	4.0	4.6	5.1	1.5	1.8	2.2	2.4	2.7	1.2	1.4	1.6	1.8	2.0	0.9	1.1	1.4	1.6	1.9
May	2.0	2.3	2.7	3.0	3.3	1.1	1.3	1.6	1.8	2.1	0.9	1.0	1.2	1.3	1.4	0.7	0.8	1.0	1.2	1.4
June	1.8	2.2	2.6	3.0	3.3	1.1	1.3	1.5	1.7	1.9	1.0	1.3	1.6	1.8	2.0	0.8	0.8	0.9	1.0	1.0
July	1.6	1.9	2.3	2.6	2.9	0.9	1.0	1.1	1.2	1.2	1.0	1.1	1.3	1.4	1.5	0.6	0.7	0.8	0.8	0.9
August	1.5	1.7	1.9	2.0	2.1	1.0	1.3	1.6	1.8	2.0	1.1	1.3	1.6	1.7	1.9	0.7	0.8	0.9	1.0	1.2
September	1.9	2.2	2.7	3.0	3.4	1.1	1.3	1.5	1.6	1.7	1.1	1.3	1.6	1.8	2.0	0.8	0.9	1.1	1.2	1.3
October	2.5	2.9	3.5	3.9	4.4	1.3	1.6	2.0	2.4	2.8	1.2	1.4	1.6	1.8	2.0	1.0	1.1	1.3	1.4	1.6
November	2.6	2.9	3.2	3.5	3.7	1.5	1.9	2.3	2.7	3.0	1.2	1.4	1.6	1.7	1.9	0.9	1.0	1.2	1.3	1.3
December	3.0	3.5	4.1	4.6	5.0	1.9	2.2	2.6	2.8	3.1	1.2	1.4	1.6	1.8	1.9	0.9	1.0	1.1	1.2	1.2

Source: U.S. Army Corps of Engineers - Detroit District
 Note: The rises shown above, should they occur, would be in addition to still water levels.
 Values of wave runup are not provided on this table.

TABLE 1

Impact Of Disaster On Business Is Growing



By Dr. Calvin L. Taylor,
Preparedness Branch Chief, OEMA

Businesses, like the communities in which they operate, can be as vulnerable to disasters as any other element in the community.

Several factors, many of which they have little ability to control, can adversely affect the business community, and, in turn, their customers. This realization is encouraging the business community to become involved in sound emergency, *contingency* planning to lessen the impacts of disasters, to diminish business disruptions, and to ensure survivability.

Usually business is in the position of helping victims, yet when disaster strikes, some businesses may themselves become victims. In the March 1997 Southern Ohio flood, 833 businesses were affected, with 257 destroyed. Eighty-one different types of businesses received Small Business Administration (SBA) loans for physical and economic loss and the SBA approved loans in excess of \$10 million.

Nationwide, there is a need for significant improvement in planning and response coordination between government and the private sector. This was substantiated as a major finding of the *Capability Assessment for Readiness* (CAR) pilot, standardized assessments completed by state emergency management agencies in 1997.

Both government and business have an investment and a responsibility to advance an *alliance partnership*.

Citizens depend on and expect government to prepare, respond, and assist them should they become disaster victims-and most will at some time in their lives.

Those same citizens, known to businesses as customers or clients, expect that products and services will be available to them without serious delays or disruptions.

Much has been learned about the disaster impact on businesses from two recent catastrophic disasters. The Northridge earthquake* disaster caused over \$40 billion in damages to businesses with 39,000 businesses applying to SBA. The Upper Midwest flood resulted in nearly \$500 million in damages to businesses.

Those two disasters revealed that at least four major factors impact businesses: physical damage from the disaster; loss of lifeline (utilities); customer disruption; and employee impact.

Five distinct categories of businesses were affected: wholesale and retail; manufacturing and construction; business and professional; finance, insurance and real estate; and other.

Physical flood damage was the cause of 20 percent of permanent business closures. Temporary closures ranged between 72 hours to 120 hours with a median of 96 hours. More than 90 percent of the businesses carried no business interruption insurance.

Lifeline disruption was the most important factor affecting businesses. The top five reasons for business closures in the flooded area were directly attributed to loss of water (64%), electricity (42%), sewer (35%), and telephones (28%). Water used in industrial processes was less critical than water used in business consumption. Sanitation and wastewater disposal were important to almost all businesses. While 90 percent of the flooded businesses indicated that regular phone service was critical or very important to their operation, 23 percent lost phone service due to the flood, and 54 percent lost phone service following the earthquake.

Disasters cause business losses by affecting employees and customers. Following the Upper Midwest flood, businesses indicated in 26 percent of the responses that permanent closure occurred because employees were unable to get to work or that the business could not deliver products and services.

The homes and families of employees and business owners may be affected and customer traffic and purchasing patterns are disrupted. Thirty-five percent of the flooded businesses indicated loss of customers as one reason for permanent business closure.

In today's resource-constrained, *do more with less* operations, a partnership between government and business can be mutually beneficial and enhance response to disaster victims who are both citizens and customers. 

** Research data collected by Kathleen J Tierney and James M. Dahlhamer of the Disaster Research Center at the University of Delaware.*

Closing The Loop



By Cynthia J. Crecelius, Supervisor,
Division of Water - Floodplain Management Program

On October 30, 1997, the Ohio Floodplain Management Association (OFMA), in cooperation with Clermont County and New Richmond National Bank, held an educational seminar for floodplain managers. The seminar was focused on the steps and procedures needed for successful implementation of the National Flood Insurance Program in a local community. Representatives of the interests involved in a local floodplain management program participated in an interactive exercise to identify the relationship of local regulations, mandatory flood insurance purchase requirements, insurance rates for properties in flood hazard areas, and community growth and economic health.

The exercise began with a request from Joe Developer, a citizen who wanted to build a new residence in the floodplain of the Ohio River. The citizen proceeded to **1)** visit the local floodplain manager, **2)** visit the local health department, **3)** obtain the services of a consulting engineer to help interpret flood hazard information and design a structure in compliance with local flood damage protection standards. **4)** obtain the services of a surveyor to verify an as built lowest floor elevation, **5)** obtain the criteria for a mortgage on a property in the special flood hazard area, and **6)** secure flood insurance for his residence and contents from a local

insurance agent. Throughout the exercise the citizen was enlightened to new connections and relationships concerning how his development criteria and the local regulations affected his economic well-being. In short, if his structure was elevated, he could obtain lower cost flood insurance premiums. It also became clear that the local lending institution may have reservations about lending on buildings in high risk areas that are not protected in accordance with local flood damage prevention standards.

In the exercise, the floodplain administrator and health department official have regulatory and technical assistance roles. The engineer and surveyor have technical assistance/consulting roles. The lender has the statutory responsibility to determine if the property is in the flood hazard area and to enforce the mandatory purchase requirement for flood insurance. The lender also has the responsibility to assess the risk and guarantee that their interest is appropriately insured against a flood loss. The insurance agent is providing a service and helping to inform the property owner of what protection is available through the National Flood Insurance Program.

After the exercise, seminar participants were asked to identify problems from the perspectives of key players (local floodplain manager, local health official, engineer, surveyor, lender and insurance agent) and possible solutions.

The following problems were expressed by the seminar participants:

Local Floodplain Manager:

- Lack of consistent interpretation of the flood damage reduction standards when seeking technical assistance from federal, state and other local sources,
- Discrepancies between existing flood insurance studies and maps, and the best available data from sources such as developers or current community projects,
- Who makes the final floodplain management decision, (sometimes it was not the local floodplain manager),
- Negative social consequences of floodplain management enforcement.
- Keeping ongoing education for citizens, politicians, developers and the general public about the flood hazard and risk,
- Variance procedures.

- Limited support for strong local floodplain management efforts,
- The current FEMA focus on full compliance in interactions with communities,
- Locator companies making *In/Out* determinations that differ from the local administrator's call

Possible solutions include:

- Have complete regulations that detail as much as possible,
- Use the FEMA Section 1316 denial process to prohibit insurance on structures that are in violation of flood damage prevention regulations after local options have been exhausted,
- Educate the individual on how noncompliance with regulations affects them (insurance cost),
- Identify the big benefits of floodplain management to the community. (public response, economic setbacks, political issues. *etc.*),
- Continue the immediate post-flood awareness effort so the floodplain managers know what to do, have information to support substantial damage and enforcement actions.
- Recognize and identify the problems that go beyond local authority

Local Health Department Official:

- Designing systems for both flood protection and environmental impact often conflict with each other.
- Coordination among several agencies reviewing or regulating.
- Comprehensive development review isn't always done

Possible solutions include:

- Prevent any systems with components below base flood elevation ,
- Do not site projects in areas that were floodplain but have been filled,
- Site visits are needed to support recommendations,
- Build relationships with cooperating organizations and agencies,
- Have criteria that require all sites to have a minimum area naturally outside the floodplain

Consulting Engineer:

- Hydrology and hydraulic studies are very costly,
- Enforcement and interpretation of regulations [for projects that] they design, can be inconsistent from one community to another,
- It takes FEMA too long to process new or updated engineering data,
- Quality of the existing Flood Insurance Study and map data is questioned,
- Map changes must follow compensation measures to ensure accurate information to support the regulations; sometimes development occurs without the necessary follow-up to do a map correction.

Possible solutions include:

- Educate all the players to avoid different interpretations,
- FEMA should improve the mapping and revision procedures,
- Better incorporate the local interpretation of data and maps,
- Go beyond the NFIP in local regulations to clarify some of the *grey area*.

Surveyor:

- Making floodway and fringe determinations since the floodway is an engineered concept,
- Datums vary,
- Contradicting survey information,
- Need more reference or bench marks,
- NFIP terminology: *Lowest Floor, Highest Adjacent Grade, Crawlspace, and Basement,*
- Need more education

Possible solutions include:

- FEMA should improve and clarify forms and terms.
- Require more accountability by professional surveyor,
- Professional opinion to resolve conflicts in information, technical assistance

Lender:

- Where does the property or structure lie relative to flood hazard area? - no really good way to determine,

- Caught in conflicts between local floodplain managers and appraiser/locator determination discrepancies,
- Federal regulations require use of current map and Flood Insurance Study when many times the best available data proves these sources outdated

Possible solutions include:

- Appraiser use *Standard Hazard Determination Form* and have a double check by bank,
- Incorporate obtaining compliance evidence. local permit, prior to loan closing

Insurance Agent:

- Failure to enforce regulations or noncompliance by property owner impacts the cost of flood insurance making it hard to market.
- Limits on coverage related to mandate (structure only, amount of loan),
- Mapped risk is not comprehensive (zones x and c have floods).
- Much misinformation is out there!

Possible solutions include:

- Education requirement for agents who sell flood insurance,
- State license testing would include information on the NFIP,
- More incentive for agent to learn the product ,
- Better dissemination and announcement of current training opportunities, (*i.e.*, Computer Sciences Corporation Seminars)

The information obtained at this seminar will be used by the state floodplain management program to identify priority areas where we might aid in resolving some of the problems. It is also the intent of the Ohio Floodplain Management Association that this type of seminar will be conducted in the remaining three quadrants of the state to help identify different or similar issues in areas not recently experiencing flood disaster declarations. Please participate when the opportunity presents itself to your area. If you would like to provide comments outside of the seminar you may forward those to our office: Ohio Department of Natural Resources, Division of Water, 1939 Fountain Square Drive, Columbus, Ohio 43224. Attention: OFMA Seminars.

I would like to thank all the participants of the Clermont County seminar, especially Ray Sebastian - Clermont County Floodplain Administrator, Kari Machenbach - Licking County Planning Commission, and Chad Berginnis - Ohio Department of Natural Resources for their efforts as the planning committee. Feedback was good and participation in the interactive sessions was excellent.

Severe Weather Committee Goes On The Road



By Nancy Dragani, Public Information Branch Chief, OEMA (reprinted from OEMA's Summer 1997 *ALERT*)

Each spring, the Ohio Committee for Severe Weather Awareness (OCSWA) holds a statewide poster contest for grades 1-6 and special education. The regional winners and state winners are recognized at the Ohio State Fair in August. Each regional winner receives a variety of prizes including a T-shirt and fanny pack. The statewide grade-level winners receive additional prizes, such as a weather radio and a letter from the governor. One child's poster is selected as the overall state winner; that child gets the grand prize including two savings bonds, a personal trophy and their name engraved on a full size trophy. Until last year, the full size trophy was kept at Ohio EMA. Following a great suggestion by the Allen County EMA (Allen County was the home of the 1996 overall state winner and two overall grade level winners), the committee decided to take the full - size trophy on the road, and present it to the winner at his or her school to display during the school year.

On October 30, Ken Haydu, 1997 Chair of the OCSWA did just that, presenting 1997 Tornado Safety Poster Contest winner Alyssa Burlile with the grand trophy at the Lincoln Elementary School in Tiffin. Alyssa's poster was selected as best overall from thousands received as part of the 1997 contest.

The Seneca County Commissioners, along with EMA director Dave Gross, recognized Alyssa and

Lincoln Elementary with resolutions acknowledging the achievement. 

Looking For Ways To Fund Your Floodplain Management Strategies?



By Mary Klemas, Environmental Specialist,
Division of Water Floodplain Management Program

The recent flooding disaster in southern Ohio made many communities painfully aware of the immense devastation that results, when floodplain developments and their occupants are not prepared for the very real risk inherent in a riverside existence. Unfortunately, the time of enlightenment comes too late for some communities. However, once a community recognizes its flood risk, preferably before the next flood, the search begins for solutions to its flooding problems. Since this can be quite an undertaking, most communities struggle for ways to finance their floodplain management solutions. In addition to uncompensated landowner-initiated conservation, a variety of funding opportunities do exist for planning and for implementation of your community's flood risk reduction strategies. Most programs have specific criteria, including community support, as well as funding caps; employee cost-share or loan arrangements; have application deadlines; focus on recreation or conservation; and some are competitively awarded, so be careful to match your community needs with the appropriate program.

One program is the new Flood Mitigation Assistance (FMA) program. FEMA oversees this cost-share program that provides both planning and project grants. As you probably have guessed there are strict program guidelines. Basically, this 75% - 25% cost-share program is funded through the NFIP and is directed at flood damage reduction actions for NFIP-insured structures. The FMA program was highlighted in the Summer '97 issue of *The Antediluvian*, which provides an excellent summary of the program. For a copy of this article, contact our office at (614) 265-6750. For additional information on the FMA contact

the Ohio Emergency Management Agency (OEMA) at (614) 799-3530 or our office.

The U.S. Army Corps of Engineers (USACE) has a number of programs worth looking into. One such program is **Floodplain Management Services (FPMS)**, which provides technical assistance to identify flood hazard magnitude and plan for wise use of floodplain lands. The technical assistance is free of charge to state and local governments. Examples of FPMS projects available are *Flood Mitigation Studies*, *Special Flood Hazard Information Reports*, *Community Flood Zone Database*, *HEC-1 AND HEC-2 Workshops*, and *Floodproofing Workshops*. For more information contact the Floodplain Management Services office of the USACE District covering your area. You can reach the Buffalo District at (716) 879-4143; the Pittsburgh District at (412) 644-6875, the Huntington District at (304) 529-5644, and the Louisville District at (502) 582-5848. The Section 206 *Aquatic Ecosystem Restoration* program provides assistance in aquatic ecosystem restoration and protection projects. It is a 65% - 35% cost share arrangement but the sponsor's share can be work-in-kind. The Section 1135 *Restoration of Environmental Quality* program is designed to restore fish and wildlife habitat affected by previous Corps projects. This is a 75% - 25% cost share arrangement with an 80% in-kind cap. For additional information on USACE habitat restoration and protection projects, contact the USACE District office covering your area.

As a result of amendments to the 1996 Farm Bill, the U.S. Department of Agriculture (USDA) has added a new option to the Emergency Watershed Protection (EWP) Program. This option of floodplain easement purchase on agricultural land and forest land adjoining a watercourse or water body is a voluntary opportunity for landowners to participate in a perpetual easement arrangement with the federal government. The easements will provide for the permanent restoration and enhancement of the natural floodplain as an alternative to traditional flood control measures.

It also has a 75% - 25% cost-share along with cost-effectiveness criterion. The program is at a start-up point in Ohio so contact Jon Warner, Assistant State Conservationist at (614) 469-6992 for details on this promising addition to floodplain management strategies.

Another USDA program is the **Watershed Surveys and Planning Grants**. Eligible applicants are any

government or nonprofit agency with authority over watershed works of improvement. The program provides financial assistance to cooperating agencies for watershed planning activities needed to conserve, distribute, develop, protect, restore, and use water. These grants can be used to provide the technical information to enable communities to adopt floodplain management regulations for participation in the NFIP. Development of coordinated water resources programs through investigations and surveys of river basins is also supported. Contact your district Natural Resources Conservation Service (NRCS) office or the Deputy Chief for Natural Resources Programs at (202) 720-4527 for more information.

The National Park Service (NPS) *Rivers, Trails and Conservation Assistance Program* (RTCAP) offers planning and technical assistance to protect rivers, trails, and greenway corridors; expand recreational opportunities; and build institutional capability for conservation. The program operates under a partnership principle, so look into what other individuals, groups, and organizations in your community may share your goals. Training is also available for planning issues such as resource inventories, defining/setting goals, public consensus, and fund-raising. The program relies on a cost-share arrangement with public and private interests. Contact the NPS Ohio Office, RTCAP at (216) 657-2950 to discuss the specifics of their program.

The Ohio EPA, Division of Environmental and Financial Assistance and Ohio Water Development Authority offers low-interest loans through the *Water Pollution Control Loan Fund* (WPCLF) to those eligible for public financial assistance. The WPCLF targets projects that protect and enhance the state's water resources. The fund has several interest packages available, but funds are limited. A recent loan award went to the Nature Conservancy to purchase a permanent conservation easement along the Ohio Brush Creek in Adams County. In addition to stream corridor restoration projects, some other eligible projects are: urban stormwater runoff, forestry best management practices, and agricultural runoff control. The WPCLF can also help you with coordinating various public financing packages, such as *Community Development Block Grant Program*, and Ohio Public Works Commission. For additional information contact Bob Monsarrat at (614) 644-2832.

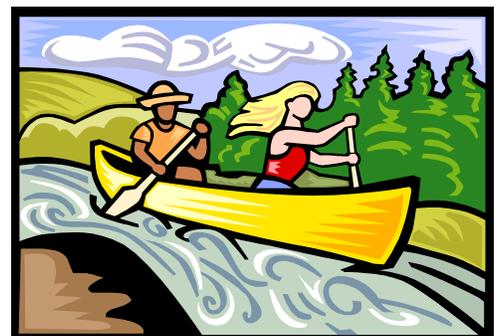
Another state program that is worth investigating is the NatureWorks program. Currently, ODNR supports three types of local grants programs for nonpoint

source pollution-related projects, parks and boating projects. Additional funds are available for other recreational opportunities such as bicycle and hiking trails, nature preserves, and wildlife areas. These are excellent examples of floodplain-compatible uses. For eligibility and funding particulars, contact Steve Kloss at (614) 265-6408.

Government organizations are not the only sources capable of offering strategies to protect your community's floodplain resources. Private, nonprofit conservation organizations (*i.e.*, the Land Trust Alliance, Trust for Public Land), can also offer conservation-minded landowners opportunities to protect the undeveloped nature of their property. One advantage is that a conservation easement with a private organization may be more flexible than with a government agency. You may be able to find information about private conservation organizations at your public library.

Another avenue for investigation is to contact organizations that promote greenway development. Greenways, or protected open space corridors often associated with watercourses and linking communities, natural features, *etc.*, are a compatible use of floodplains and provide many benefits to communities. Loveland, Ohio is a good local example of a community that has benefitted economically and socially, while reducing or eliminating damages caused by floods by having a greenway bike path along the Little Miami River that runs through their town. For details on the greenway concept, benefits, and development, contact the Ohio Parks and Recreation Association at (614) 895-2222.

The opportunities don't end here, but the programs mentioned above are a starting point for you to further investigate your community's flood risk reduction options. So don't wait for the next flood. If your community already has a plan, pull it out, blow off the dust and evaluate your opportunities. If not, then start planning now! 



Hazard Mitigation Grant Program

By Patricia Beck, State Hazard Mitigation Officer, OEMA

Just 10 years ago Congress amended the *Natural Disaster Act of 1974*. The amendment not only renamed the Act to *The Robert T. Stafford Act*, but created the **Hazard Mitigation Grant Program** (HMGP). The HMGP is the first funding program specifically for mitigation.

Following the *Shadyside* disaster in 1990, the State of Ohio received approval of its first HMGP project, the development of our *State of Ohio Rain/Snow Monitoring System* better known as STORMS. The HMGP provided \$630,000 toward establishing STORMS.

Since then, Ohio has received five (5) Presidential disaster declarations for flooding. Under the HMGP we have eight approved projects and 12 communities are either developing projects or awaiting approval of a project from the Federal Emergency Management Agency (FEMA). We have received more than \$14 million in HMGP funds to complete more than \$20 million in projects.

Presently it takes between six and eight months to develop a mitigation project, and about two months for approval by FEMA. We are working to streamline the process to gain approval more rapidly so projects can be completed in a shorter length of time.

There are some steps communities can take now to assist us in these streamlining efforts. The first step is to develop a **Mitigation Plan**. The plan should identify the hazards the community faces and the level of risk and vulnerability to those hazards. The identification of flood prone structures is an important element of the risk assessment. The plan should also identify where mitigation measures should be taken, and the types of mitigation activities and/or actions that best meet the needs of the community.

The second step is to establish a local **Mitigation Team** consisting of representatives from the areas of economic development, floodplain management, emergency management, public works/engineering, planning commissions, regional development commissions, health agencies, historic preservation

and private sector organizations. This team would assist with plan development and identification of the types of mitigation actions. The team could also help in identifying funding for the projects and would set the strategies and goals and objectives for the community.

Knowing whether there are historic structures or areas of historic significance in a community is important to project development. Working with local historic societies and the State Historic Preservation Office to pre-identify these areas will assist in speeding project development.

Public education and awareness are keys to accomplishing mitigation locally. Awareness campaigns and education programs to alert residents to the hazards and risks to which they are vulnerable are important to the success of any mitigation effort. Educating local residents about the hazards they face and the action they can take to minimize future loss from disasters will pay big dividends when a disaster does strike a community. Support from the local community for planning, enforcement of floodplain regulations and land-use management, and mitigation programs will lead you toward a disaster resistant community. 

For more information about the HMGP call the Ohio Emergency Management Agency, Mitigation Division, at 614-799-3530.

March Flood Final Disaster Statistics

By Kay Phillips, Disaster Recovery Branch Chief, OEMA (reprinted from OEMA's Fall 1997 *ALERT*)

The Federal Emergency Management Agency Disaster Housing program, the *Small Business Administration Home/Personal Property Loan Program*, and the *Individual and Family Grant Program* have initially processed all registrations received for assistance and these *Individual Assistance Programs* are closed.

In accordance with federal regulations, the application period for IA assistance was sixty (60) days from the date of the presidential declaration. For this declaration, **FEMA-1164-DR-OH**, the application period ended May 4, 1997.

The FEMA *Disaster Housing Program* provided a total of \$13,846,305 in assistance. A total of 9,764

applications were received; of these, 6,277 were eligible for the following types of Disaster Housing assistance:

- \$145,082-Hotel/Motel Reimbursement
- \$11,706,661-Disaster Home Repair
- \$1,994,562-Rental Assistance.

The SBA provided loans to homeowners, renters, and businesses totaling \$33,026,400. The SBA Home/Personal Property loans totaled \$20,182,900 to 1081 applicants. SBA provided \$12,832,700 to 398 businesses.

IFG provided grants for 2,142 of the applicants. The total amount of assistance provided was \$9,520,714. The state purchased 919 group flood insurance policies from the FEMA National Flood Insurance Program on behalf of applicants residing in the Special Flood Hazard Area that received IFG assistance.

Although the FEMA Disaster Housing Program, SBA and IFG have concluded the provision of assistance under their purview, the voluntary agencies such as the American Red Cross, Mennonite Disaster Services, Salvation Army, *etc.*, continue to assist individuals and families with unmet disaster-related needs. Additionally, the Public Assistance program and the Hazard Mitigation Grant Program continue to administer their programs. 💧

FEMA Announces



(reprinted from the *Natural Hazards Observer*, Volume XXII Number 3, January 1998)

The Federal Emergency Management Agency (FEMA) is taking a new tack in the fight against natural disasters, focusing on building disaster-resistant communities, thus reducing the need to rebuild following disasters. On October 14, during the *El Nino Community Preparedness Summit* in Santa Monica, California, FEMA Director James Lee Witt announced *Project Impact*, a new approach to emergency management that involves moving from the current reliance on response and

recovery to an emphasis on preparedness and disaster management. On November 6, FEMA designated Deerfield Beach, Florida, as its first pilot disaster-resistant community.

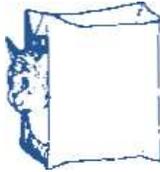
Project Impact includes a national awareness campaign and the participation of seven pilot communities around the U.S. that will demonstrate the benefits of disaster mitigation. The remaining pilot communities include Allegheny County, Maryland; Oakland, California; Pascagoula, Mississippi; Seattle, Washington; Tucker and Randolph counties, West Virginia; and Wilmington, North Carolina. Under the terms of the *memorandum of understanding* between FEMA and Deerfield Beach, FEMA will provide up to \$1 million in seed money to make the community more disaster-resistant. For example, the community will use \$150,000 to improve the hurricane resistance of the local high school. Local and national businesses have pledged to join the effort as well.

At the same time, FEMA has launched an outreach effort to businesses and communities using a new *Project Impact Guidebook*, which offers a formula communities can follow to become disaster resistant. It contains four chapters that address building partnerships, recognizing hazards and vulnerability, identifying and prioritizing risk reduction activities, and communicating the goals of Project Impact and keeping the initiative moving forward. The guidebook also contains lists and worksheets for identifying community partners; recognizing possible risks; using institutions as resources, including government agencies, employers, and nonprofit organizations; undertaking mitigation measures for wildfire, wind, seismic, and flood risks for both residences and businesses; working with news media and planning events; and creating a personalized media contact list. 💧

Copies of the *Project Impact Guidebook* (1997, 48 pp., free) can be obtained from the FEMA Publications Distribution Center, 8231 Stayton Drive, Jessup, MD 20794; (800) 480-2520 or (202) 646-3484; fax: (301) 497-6378.

For more information on **Project Impact**, contact FEMA, Office of Emergency Information and Media Affairs, 500 C Street, S.W., Washington, D.C. 20472; (202) 646-4600; E-mail: eipa@fema.gov; Web: <http://www.fema.gov/about/impact.htm>

FEMA Issues *Flood Guide* For Elected Officials



(reprinted from the *Natural Hazards Observer*, Volume XXII Number 3, January 1998)

FEMA has issued a new guide to educate public officials about their community's flood risks. Don Barnett, former mayor of Rapid City, South Dakota, introduces the guide by saying:

Elected public officials must give the same attention and priority to their flood problems as they give to their police and fire problems. In the history of Rapid City, perhaps 35 people have died in fires and another 35 have been killed during the commission of crimes. But in just two hours, 238 died in the (June 1972) flood.

Addressing Your Community's Flood Problems: A Guide for Elected Officials (1997, 40 pp., free) is a manual for reducing local flood risks. It describes how floods can affect communities as well as the role of local officials in dealing with the risk. It then outlines steps to take for understanding the flood problem, learning what the community has already done to reduce risk, coordinating mitigation with other activities and programs, building support by promoting floodplain management, and carrying out a successful flood risk reduction program. The guide also includes several local success stories.

Addressing Your Community's Flood Problems explains situations local officials face after a flood occurs and includes a list of resources available to local communities to cope with flooding. Appendices list outside sources of assistance and measures that can be employed at the local level to reduce flood losses. 

Copies of the guide are free and can be obtained from the FEMA Publications Distribution Center, 8231 Stayton Driver, Jessup, MD 20794; (800) 480-2520 or (202) 646-3484, fax: (301) 497-6378.

To Order **Flood Maps** or **Flood Insurance Studies** from the Federal Map Distribution Center, call **1-800-658-9616**

Just The Facts

By Chad Berginnis, Environmental Specialist,
Division of Water - Floodplain Management Program

Welcome to 1998! By the time you get this newsletter, we will be in the midst of this year's flood season. However, we would be remiss if we didn't spotlight some important events, changes, and plain old facts in the wide, wet world of floodplain management in 1997.

- FEMA reports that more than \$1.38 billion in agency disaster funds were needed in 1997 to aid people and communities.
- President Clinton declared 43 major disasters involving 27 states. Twenty-nine of the year's declared disasters were floods.
- The March 1997 flood of the Ohio River and its tributaries caused more than \$180 million in damages throughout Ohio.
- *Mitigation* is quickly proving to be an effective weapon against the rising disaster costs. In 1997, FEMA approved more than \$107 million in funding for the purchase of nearly 3,000 flood prone properties throughout the country and Congress appropriated \$20 million in funding for the Flood Mitigation Assistance program. Also, in 1997, the Increased Cost of Compliance (ICC) coverage became effective. The ICC provides many folks-already insured for flood loss - with up to \$15,000 that can be used to mitigate flood prone structures.
- Websites seem to be all the rage. FEMA's website <http://www.fema.gov> is a *hit* with users. Usage has grown to more than three million *hits*/month. Also, the ODNR, Division of Water website at <http://www.dnr.state.oh.us> that was under development for much of 1997 is now accessible. The Division of Water website has a lot of flood-related information!
- Nationally, the number of flood insurance policies are at an all-time high with more than 3.8 million policies in effect. In Ohio, more than 30,000 flood insurance policies are in effect. Twenty -six percent of these policies are in B, C, or X zones (not in the 100-year

floodplain). The average cost for a flood insurance policy in Ohio stands at \$401. How much insured flood damage has occurred in Ohio in recent years? Since 1978, more than \$70 million in NFIP claims have been paid. Where does your community stack up? Here are the 20 Ohio communities with the largest numbers of flood insurance policies as of August 20, 1997:

1.	City of Columbus	1,597
2.	City of Toledo	1,348
3.	Ottawa County*	1,314
4.	City of Findlay	1,127
5.	Franklin County*	752
6.	City of Port Clinton	604
7.	Lucas County*	537
8.	City of Cincinnati	518
9.	City of Lancaster	506
10.	City of Sandusky	444
11.	City of West Carrollton	395
12.	Montgomery County*	390
13.	City of Marietta	387
14.	Hamilton County*	369
15.	City of Newark	361
16.	Scioto County*	348
17.	Village of New Richmond	306
18.	Lawrence County*	288
19.	City of Kettering	286
20.	Trumbull County*	280

[*Unincorporated Areas]

Flood Debris Leaves Questions When The Water Recedes

A public-private partnership is one answer

By Greg Keller, State Public Assistance Officer, OEMA

In the midst of coordinating response and recovery operations for the worst flooding in Ohio since 1964, debris became important. Decision-makers at the **State Emergency Operations Center** recognized from the outset that removal and disposal of the flotsam and jetsam generated by the extended flood event could exceed the capability of affected local governments.

In anticipation of this situation, an *ad hoc* Debris Removal Committee was formed under the State Public Assistance Officer. The first meeting was

convened March 5 at the EOC. The team mission follows:

- Use feedback from state and local officials to identify areas where supplemental debris management would be required;
- identify potential disposal sites in proximity to the impacted areas;
- develop those sites in preparation for accepting debris;
- communicate the availability of such sites to potential users; and
- manage and close the site in an environmentally sound manner

Fortunately, the existing waste disposal sites in the majority of the impacted areas were able to accommodate most of the debris generated by the flood.

Of three sites initially identified for potential use, Zimmer Power Point, Hanging Rock and Shawnee State Forest, only the Zimmer Plant was utilized.

The Zimmer Power Plant was on private property, managed by the local solid waste district, worked by a private contractor and funded through a federal disaster grant to the Ohio EMA (the Public Assistance subgrantee).

This cooperative effort is exemplary of partnerships on all levels, including federal, state, local, and private industry. In time of crisis, despite time-limitations, this was an incredibly successful effort by all principal parties to work toward the common goal, which was to help disaster victims.

Updated

Publications!

By Chad Berginnis, Environmental Specialist, Division of Water - Floodplain Management Program

Two popular publications have been updated and are now available from the Federal Emergency Management Agency (FEMA). ***Mandatory Purchase of Flood Insurance Guidelines*** (FEMA 186) now includes information about the *National Flood*



Insurance Reform Act of 1994, Letters of Map Amendments and Revisions, determining the location of a structure, *Letters of Determination, Standard Flood Hazard Determination Form*, and a detailed discussion of the mandatory purchase provisions. Lenders, insurance agents, floodplain administrators, and property owners will find this manual useful. *Answers to Questions About The National Flood Insurance Program (FIA-2)* is a concise, straight forward discussion of many common questions about the NFIP. Topics include basic questions about the NFIP, flood insurance, flood insurance coverage limits, filing flood insurance claims, floodplain management regulations, flood mapping, and mitigation.

Both publications are available at no charge and can be ordered from the FEMA Publications Distribution Center by calling 1-800-480-2520.



Division of Water Web Page Now On-Line at

<http://www.dnr.state.oh.us/odnr/water/>

By Christopher M Thoms,
Environmental Specialist
Division of Water - Floodplain Management Program

The Division of Water's homepage covers wide-ranging topics that highlight the diverse activities and responsibilities of the Division of Water. The site includes general information about the Division, a summary of the Division's programs and services, and a listing of the Division's publications. Many of the Division's publications, fact sheets, and forms are available through the site as well as a list of contacts and e-mail addresses. It will be an on-going project to improve and expand the web site with more data and publications added as time permits.

WORKSHOP WATCH

By Christopher M Thoms,
Environmental Specialist
Division of Water - Floodplain Management Program

Thanks to our host, Todd Bickley, Director Ottawa County Regional Planning Commission for his help



and hospitality in conducting the Ottawa County Flood Loss Reduction Workshop last November.

As we go to press, workshops are being planned for Miami and Cuyahoga counties. Contact our off ice for the time and location of the workshop nearest you or if you would like to be a host for a workshop in your area. We will be happy to answer your questions or provide additional information.

Upcoming Lender & Agent Seminars

If you know a mortgage lender or insurance agent who needs to know more about their role in the NFIP, let them know about these upcoming seminars, designed especially for them.

1998 Ohio Seminars

March 10	Ironton	Lender Only
March 10	Ironton	Agent Only
April 14	Marietta	Agent Only
April 15	Marietta	Lender Only
April 28	Columbus	Agent Only
May 12	Cincinnati	Agent Only
May 20	Middlebury Hts.	Agent Only
June 10	Beachwood	Agent Only

To register call:
Rich Slevin, Regional
Marketing Manager
for the NFIP at
(630) 955-4550



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If you know of someone who would want to receive a copy of *The Antediluvian*, please let us know. Please send address corrections, additions, and personnel or office changes to our offices at 1939 Fountain Square Bldg E-3 Columbus, Ohio 43224

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