

**IMPROVING COASTAL LAND USE PLANNING THROUGH A GRANT
COMPETITION**

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Introduction

In 2007, the National Sea Grant Law Center at the University of Mississippi held a grant competition to facilitate the development and implementation of legal research and outreach projects in the field of ocean and coastal law. The objectives of the grant competition were two-fold: increase the legal capacity of the Sea Grant College Program and provide funding to tackle ongoing management dilemmas and conduct public outreach and education. Four of the eleven funded projects focused on coastal management.

**Enhancing Understanding of Wetlands Protection Laws and Legal
Authority of Coastal Commissions in Massachusetts**

The Massachusetts Wetlands Protection Regulations (310 CMR 10.00) define coastal wetlands to include a variety of coastal landforms, such as beaches, dunes, barrier beaches, coastal banks, salt marshes, rocky inter-tidal shores, land under the ocean, land containing shellfish, land under salt ponds, banks under or along fish runs, estimated habitats of rare wildlife, riverfront area, and land subject to coastal storm flowage. Each of these 'wetlands' provides unique natural beneficial functions – termed 'interests' in the regulations. These 'interests' include, storm damage prevention, flood control, prevention of pollution, protection of public and private water supply, protection of ground water, protection of land containing shellfish, protection of fisheries and protection of wildlife habitat. Any activity that will alter, dredge, fill, or remove any portion of any of the listed wetlands that affects its beneficial functions is regulated by a board of 5 to 7 unpaid, appointed volunteers that serve in each of the 78 coastal communities in MA. This volunteer board, required by law in every town in Massachusetts, is known as a conservation commission.

These coastal regulations are based on fundamental scientific principles of the interaction between coastal processes and coastal landform system function. Determining how human activity interacts or interferes with these processes, and particularly how such activity may affect coastal lands' beneficial functions is often complicated. Conservation commission volunteers, many of whom lack technical training in coastal processes, must make decisions on public and private property that must withstand legal scrutiny. Turnover of commission

members is frequent. Thus, the continuing educational and training needs of these commissions are substantial.

The Woods Hole Sea Grant Program partnered with the Massachusetts Association of Conservation Commissions to create a coastal training course - Coastal Conservation Commission Training: Making Decisions based on Law and Science - to help these citizen volunteers make effective, scientifically-based decisions. Such decisions, based on science and complying with the underlying purposes of the regulations of protecting people, property and coastal resources from harm by human actions should withstand legal challenges.

The products of the project include a PowerPoint presentation describing the sources of regulatory authority of conservation commissions; a technical description of coastal processes and coastal landform function in Massachusetts; a definition of each wetland for delineation purposes followed by a description of each wetland resource area function and its protected interests pursuant to the regulations; and, a demonstration of application of the regulations through a series of thirteen mock activities proposed on or adjacent to the protected wetlands. Workshops were held in different coastal regions of Massachusetts each attended by an average of 75 coastal commissioners. The training is also available as a web-base module for broader utilization and can be found on the Massachusetts Association of Conservation Commission's web site (www.maccweb.org).

Effectively Managing Coastal Floodplain Development: Using Science and Case Law to Develop a National Model Coastal Floodplain Bylaw

By the year 2000, flood damages in the U.S. approached \$6 billion annually and the trend of increased disaster costs was continuing. Hurricane Katrina alone in 2005 caused more than \$120 billion in flood damage. The NFIP (and state building code) minimum requirements alone will not reverse this trend. They do not factor in future conditions, do not address all coastal hazards, and do not protect against large flood or storm surge events (ASFPM, 2007). By 2015, the population of coastal counties is predicted to increase by an additional 12 million people (NOAA, 2005), despite a more-than-likely significant rise in the rate of relative sea level and potentially more intense major coastal storms. "Communities must proactively take steps to reduce risks based on their own knowledge of local risks. It is the local implementation of risk reduction programs that make the difference. Implementation of local floodplain ordinances alone is estimated to prevent \$1.1 billion in flood damages annually" (Maurstad, 2007; 2005).

The Woods Hole Sea Grant Program, Cape Cod Commission, and an experienced attorney in floodplain law have partnered to research and document our current scientific understanding of the natural and beneficial functions of coastal floodplains and national precedent-setting coastal and related inland

floodplain case law. The results of this research are being used to analyze numerous existing local bylaws and ordinances, including the Cape Cod Commission's existing model coastal floodplain by-law.

The results of this effort is a progressive national model coastal floodplain bylaw/ordinance that when adopted by local communities, in whole or part, will reduce, and in some cases eliminate, adverse post-coastal disaster related impacts, and should withstand legal challenges and avoid regulatory takings. It includes considerations such as: protecting the beneficial functions of coastal floodplains; conservation districts; no-build high-hazard zones; erosion setbacks; buffer zones; additional freeboard and migration of coastal resources considering relative sea level rise and predicted accelerations; using updated tidal datum; FEMA suggested 'coastal A-zone' standards; cumulative substantial improvement; using 'assessed value' rather than 'market value' in substantial damage calculations; compensatory transfer of development rights; and coordination to reduce permitting conflicts and time delays. The by-law parameters are linked to coastal and related in-land floodplain case law for support for adoption by town planners and conservation commissions.

Model Coastal Management Ordinances for Great Lakes Coastal Communities

The University of Wisconsin-Madison and Wisconsin Sea Grant developed updated model ordinances for use by local governments to guide development along the Great Lakes coasts of Wisconsin. While targeted at Wisconsin communities, the ordinances are also applicable for coastal communities in other Great Lakes states. All fifteen coastal counties in Wisconsin experience erosion, flooding and damage to shoreline structures. Erosion rates are particularly high along sand plains and high bluffs composed of till, with short-term erosion rates of 3-15 feet per year having been recorded along sand plains and 2-6 feet per year along high bluff lines. Coastal flooding is a serious issue along low-lying sections of the Lake Michigan shore. The risk of property damage has increased over the years as development has occurred in the coastal hazard areas.

Wisconsin was the first state in the nation to mandate shoreland zoning around all waterbodies in the state in the 1960s. The regulations developed at that time were targeted at inland lakes and did not adequately address the unique issues of the coastal areas. In 1981, the Wisconsin Coastal Management Program published Regulations to Reduce Coastal Erosion Losses by D.A. Yanggen of the University of Wisconsin Extension. These research-based model regulations were meant to provide an important tool for Wisconsin's coastal communities to tailor to unique local circumstances and adopt in an attempt to help stabilize and protect Wisconsin's coasts. This project evaluated local ordinances along Wisconsin's coasts to evaluate how those ordinances compared to the model ordinance. Only one ordinance came close to following the methodology of the model ordinance. The vast majority of the ordinances do not reflect the dynamic

nature of Wisconsin's coasts nor do they apprise property owners of the inherent risks related to building along the coasts.

While the coastal hazards have been documented for decades, helping local governments address coastal management issues now is very timely given the convergence of several opportunities. First, there is a heightened interest in local land use planning among coastal communities in Wisconsin and throughout the United States. Second, there have been significant technological advances related to methodologies for understanding erosion issues and computer visualization techniques to better educate the public about coastal hazard issues.

The model ordinances developed for this project reflect the advances over the past 25 years regarding methodologies for predicting coast line erosion and integrate current technical information in a GIS format, and 3D visualization to communicate the dynamic nature of coastal processes.

Legal Tools to Protect Coastal Environments Outreach Workshop

The Great Lakes Water Studies Institute at Northwestern Michigan College; Olson, Bzdok and Howard, P.C.; Inland Seas Education Association; Sleeping Bear Dunes National Lakeshore; the Watershed Center Grand Traverse Bay and Michigan Sea Grant joined together to create a unique and innovative new legal outreach workshop, entitled "Legal Tools to Protect Coastal Environments." This three-day workshop provided government officials, non-profit environment groups, shoreline property owners and concerned citizens with the tools they need to better understand and protect Michigan's coastal environments.

The Great Lakes are increasingly under a myriad of pressures, including water withdrawals, development pressures, point and non-point source pollution, deposition of airborne contaminants, aquatic invasive species, and climate change. There is a raft of legal regimes in place that are aimed to protect the Great Lakes, including the traditional pollution control statutes passed in the 1970s and early 1980s, as well as more recent efforts in the areas of water withdrawal, invasive species and brownfield redevelopment, among others. The suite of legal regimes related to coastal environments can be confusing and overwhelming to citizens that are not well-versed in legal issues. An increased understanding of available legal tools can increase public participation in Great Lakes decision-making and focus the public discussion on the gaps in current protections. The legal tools workshop was designed to address this need.

The legal tools workshop offered a unique combination of legal analysis sessions and field experiences related to coastal environments. The legal analysis sessions of the workshop were held at the Great Lakes Campus of Northwestern Michigan College in Traverse City, MI, and were used to teach participants about specific federal, state and local legal tools related to Michigan's coastal environments. Practical ways to apply these legal tools in

Great Lakes decision-making and citizen action were emphasized. The field experiences of the workshop took place at the Sleeping Bear Dunes National Lakeshore, along the shore of Grand Traverse Bay and on the bay itself aboard the schooner, Inland Seas. These field experiences provided participants with the opportunity to gain content knowledge related to key issues affecting coastal environments, and allowed participants to explore the natural resources that the laws are created to protect. The connection between the collection of scientific data and the outcomes of legal decision-making processes was emphasized.

The combination of legal analysis sessions and field experiences in the Legal Tools workshop provided participants with a comprehensive understanding of the resources at stake, the legal tools available and the steps that can be taken to protect and preserve Michigan's coastal environments. The legal tools workshop helped to provide participants with a personal connection to Michigan's coastal environments, a unique perspective of these environments, and a context within which to place the relevance and need for effective legal tools. Participants of the Legal Tools workshop received a Legal Toolkit that contains relevant legal resources, contact lists and action steps to help them educate others and to work to protect coastal environments following the workshop. An online version of this toolkit will also be available.

The successful development and implementation of the Legal Tools workshop and the thoughtful creation of the Legal Toolkit has resulted in a workshop model that can be easily replicated in coastal communities throughout Michigan and other Great Lakes states.

References

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