



Science Services – Project Summary

May 2015

On-Going Projects

Coastal & Legal No Adverse Impact Workshops – ASFPM developed a Coastal No Adverse Impact Handbook (funded by NOAA) and materials for one-day Coastal No Adverse Impact workshops. In addition to requests from ASFPM Chapters, these workshops have been well received by NOAA's National Estuarine Research Reserves. NERRs have funded five of the workshops and developed a mapping exercise that has become a core component of the workshops.

Recently the legal content has been enhanced to support community higher standards for floodplain management in coastal watersheds. In response to Superstorm Sandy, ASFPM conducted CNAI/Legal workshops in Rhode Island, New Jersey and New York. These workshops were hosted by the ASFPM chapters in these States. In addition a Legal NAI workshop was conducted on August 19, 2014 in Milwaukee, WI in conjunction with a 2-day Digital Coast Partnership meeting hosted by ASFPM. Planning is currently underway to conduct similar workshops in Hammond, Indiana (June 2015) and Chicago, Illinois (July 2015) in collaboration with Illinois-Indiana Sea Grant.

NOAA Digital Coast Partnership – ASFPM continues to partner with NOAA's Office for Coastal Management in development and expansion of its Digital Coast website to improve coastal community access to data and decision support tools for addressing coastal hazards. This project also enhances ASFPM partnerships - ASFPM is part of an 8 NGO partnership that includes The Nature Conservancy (TNC), the Coastal States Organization (CSO), the National Association of Counties (NACo), the National State Geographic Information Council (NSGIC), the Urban Land Institute (ULI), the National Estuarine Research Reserve Association (NERRA), and the American Planning Association (APA).

National Flood Barrier Testing & Certification Program – The Association of State Flood Plain Managers (ASFPM) in partnership with FM Approvals and the US Army Corps of Engineers National Nonstructural/Flood Proofing Committee (NFPC) are implementing a national program of testing and certifying flood barrier products used for flood proofing and flood fighting. This program currently tests barrier products in two broad categories, Temporary Flood Barriers and Closure Devices (<http://nationalfloodbarrier.org/>)

Floodplain Management Training (Mentoring) – ASFPM has developed a standard process to support State floodplain management programs in long-range strategic planning and annual work plan development. The effort was piloted in Kentucky and has since included Kansas and Texas. An official mentoring program website is being developed that will support automatic signup as a mentor or mentee along with access to relevant training materials, resources and publications.

L-273: Managing Floodplain Development through the NFIP – ASFPM has been funded by FEMA to manage the field deployment of this course. We have developed a cadre of instructors to support States interested in providing this training in their State. The course has been successfully conducted 10 times over the last 12 months – ASFPM's 2014 Fiscal Year.

Active Projects

CTP Support – FEMA requested ASFPM to develop a CTP support group. A Mapping & Engineering Standards subcommittee has been established that focuses on CTPs. Steve Story with Montana and

Amanda Flegel with Illinois are co-chairs of this subcommittee. The project involves surveying CTPs to document level of effort, type of activities be conducted, document needs and provide training.

Community Engagement for Higher Standards – For 20 years ASFPM has produced data on the status of floodplain management focused on state programs, authorities and activities. However, the knowledge of local floodplain management programs is limited and even then, viewed from a state perspective. ASFPM has been funded to compile information focused on local floodplain management programs. The objective of this project is to survey, assess and make public, by way of a report and interactive web tool, the status of local floodplain management programs in the United States that can be periodically updated to establish long-term trend information.

Improving Coastal Resiliency – Community Engagement Hurricane Sandy Coastal Resiliency Competitive Grant – ASFPM is partnering with the Coastal States Organization on a National Fish & Wildlife Foundation Hurricane Sandy Coastal Resiliency Grant related to the CRS program. The overall goal of the project is to increase the number of communities making voluntary, effective measures to increase coastal resiliency by taking advantage of the window of opportunity that has been created by NFIP Reform legislation and the need for communities to take steps to make flood insurance affordable. It will do so by promoting CRS participation, providing guidance on activities that increase community's rating, and working directly with communities to increase their resiliency through the CRS process.

Subdivision Design in Flood Hazard Areas – ASFPM has been invited to partner with the American Planning Association in a project funded by FEMA that will update APA's 1997 publication, Subdivision Design in Flood Hazard Areas (PAS Report No. 473, 1997). A new PAS Report would be broadened from the strict subdivision approach used in the 1997 edition to include other land-use regulatory considerations affecting design in flood hazard areas, but also other innovations in coastal and floodplain zoning and regulation.

Planning Information Exchange – Planners in several disciplines participate in information exchanges, and good models exist. ASFPM and APA participate in the Natural Floodplain Functions Alliance, which ASFPM is a co-founder. While not formally called an information exchange, NFFA has been incredibly successful at doing just that. The central activity has consisted of webinars held every other month on issues of interest to the alliance. APA will lead in this FEMA-funded project with ASFPM playing a key partner role. The Planning Information Exchange will focus on all hazards and primarily on mitigation planning, but also its connections with recovery planning and preparedness.

Great Lakes Coastal Flood Study Outreach – FEMA is updating the Great Lakes Coastal Methodology and will be revising the FIRMs for the Great Lakes coastline. FEMA has funded ASFPM to assist with outreach for this FEMA mapping. ASFPM is hosting a website associated with the project. In addition, ASFPM will be developing training materials associated with near shore coastal modeling processes. The project will enhance our understanding coastal hazard analysis and mapping and will help ensure State and local governments are informed and involved throughout the mapping process.

Great Lakes Coastal Resilience Planning Guide – Funded through the Great Lakes Restoration Initiative (GLRI) ASFPM and NOAA's Office for Coastal Management (formerly Coastal Service Center) are leading the Digital Coast Partnership in working with coastal communities on the Great Lakes to improve community resiliency through the comprehensive planning and management within coastal watersheds. This project is entering its 4th year and has two major outcomes: 1) development of peer-reviewed case studies and process-driven solutions and strategies delivered through a web-based guide titled "*Great Lakes Coastal Resilience Planning Guide*" (greatlakesresilience.org); and 2) development of a long-term regional training and outreach strategy for the Great Lakes. Partners include the Digital Coast Partnership along with the University of Wisconsin – Sea Grant Institute.

NAI How-To Guides (Internal) – In furtherance of ASFPM’s No Adverse Impact (NAI)™ initiative, the Association is developing a series of No Adverse Impact (NAI) “How-To” Guides. These “How-To” Guides will be developed for each of the Building Blocks in the No Adverse Impact: A Toolkit for Common Sense Floodplain Management and include: 1) Mitigation (completed in 2013); 2) Infrastructure (completed in 2013); 3) Planning (2013-2014); 4) Education and Outreach (2013-2014); 5) Hazard Identification and Mapping (2014-2015); 6) Regulations and Development Standards (2014-2015); 7) Emergency Services (2015-2016); 8) Legal (2015-2016)

Bluff Stability and Erosion Analysis – Wisconsin Coastal Management Program has funded ASFPM and Emeritus Professor David Mickelson – UW Madison for a 2nd year to conduct a bluff stability analysis. FEMA’s Great Lakes Coastal Flood Study is developing new models and maps on the Lake Michigan shoreline in order to better define the extent of potential coastal flooding. Their study will not in any detail consider the other major hazard along the shoreline – bluff erosion and retreat. This study will complement the FEMA study and provide a predictive ability of the bluff shorelines, especially those most prone to erosion.

Floodplain Conservation as a Flood Mitigation Strategy: Examining Costs and Benefits – ASFPM was invited by Resources for the Future to consult on this study that will evaluate how local governments can utilize floodplain conservation as a flood damage reduction strategy. This study is evaluating one such investment for a greenway along the Meramec River in St. Louis County, Missouri.

Projects – Proposals (funding not yet available)

Project Concepts (proposals not yet submitted)

ASFPM has been asked to submit a Letter of Interest to the Argosy Foundation and has been discussing project proposals with the ASFPM Foundation. Below is a list of project titles and concepts that have been identified over the years as membership and floodplain management community needs:

- Citizen Science and K12 Education for Floodplain Management – From Crowdsourcing to Action
- Population at Risk – Mapping the Natural Floodplain and Associated Demographic Characteristics
- Mapping the Hazard and Risk: What can the US learn from the EU?
- National Flood Damage Database
- Flood Science Center Library – including Donated & Special Collections
- Community Flood Profiles (a.k.a. summaries of community from a floodplain management perspective)

Completed Projects

Ecosystems Services in Flood Risk Assessment – ASFPM worked with Earth Economics in a McKnight Foundation funded effort that focused on ways to incorporate floodplain natural and beneficial functions in FEMA Risk MAP activities. The project involved promoting natural capital projects as part of the inventory of mitigation actions and tested the inclusion of ecosystems values in the FEMA cost benefit analysis. The final report is forthcoming and expected by June 2015. **Completed – January 2015**

Economic Assessment of Green Infrastructure Report – Funded through the Great Lakes Restoration Initiative (GLRI) Science Services over the past 2 years supported NOAA and the Eastern Research Group on a study to assess the economic benefits of green infrastructure (GI) as a method of reducing the negative effects of flooding in Duluth, Minnesota, and Toledo, Ohio. ERG worked with the Army Corps of Engineers Institute of Water Resources to assess each watershed using H&H models to estimate existing and future flooding, and with the ASFPM’s Science Services using FEMA’s U.S. Multi-Hazards flood model (Hanus) to estimate existing and future potential losses associated with flooding (based on 2-, 5-, 10-, 25-, 50-, and 100- year storm events). The final report released in May, 2014 was titled “*Economic Assessment of Green*

NOAA Coastal Fellowship Program – ASFPM together with The Nature Conservancy received funding for a 2-year Coastal Fellow position. Laura Flessner completed her fellowship in September 2014 and conducted project work in Sheboygan, Wisconsin and Puget Sound, Washington. Laura’s work in Wisconsin helped develop a framework to guide county planners and conservationists through the process of prioritizing locations for potential multi-beneficial wetland restoration to capture and control non-point pollution loads from agricultural landscapes. Her work can be found on the Great Lakes Coastal Resilience Planning Guide (greatlakesresilience.org) in the case study “Prioritizing Locations for Potential Wetland Restoration. For The Nature Conservancy she focused on spatial analysis that illustrates flooding impacts and risk reduction solutions in specific Puget Sound floodplains. **Completed – September 2014**

FEMA Dam Risk Reduction Strategy – State and local floodplain managers (ASFPM members and others) need to better understand how dams affect floodplains and floodplain management. They need to know where to find information on dams that may impact their responsibilities and what steps they can take to ensure that their communities and States are aware of the hazards and prepared to deal with them. This project involved an analysis of the relationship of dams to the floodplain and includes recommendations on how to start integrating dams into floodplain management. **Completed – July 2013**

FEMA Risk MAP Support – FEMA developed a high-water mark awareness initiative to help communities document their local history of flooding. The HWMs and flood inundation maps support Risk MAP in two ways: (1) as valuable data useful for calibrating floodplain engineering models used to generate flood hazard mapping and (2) by providing additional flood awareness and hazard identification data to support Risk MAP Products such as the Flood Risk Database, Flood Risk Report and Flood Risk Map. One of the limitations associated with HWMs and historic flood inundation maps is that the frequency of the associated events is unknown. This project documented ways to establish flood frequencies associated with floods in which HWMs have been established.

ASFPM - The Floodway Encroachment Standard: Minimizing Cumulative Adverse Impact – This report reviews the origin, use and establishment of regulatory floodways and provides an assessment of the impact of encroachments based upon allowing a one foot increase in flood elevations during the regulatory flood. The assessment evaluated impact on: the physical characteristics of the floodway (floodway width, water velocity and area inundated), damages to development in the floodplain and floodplain natural resources. **Completed – June 2013**

ASFPM - Mapping the Nation – The Association of State Floodplain Managers developed an estimate of the total cost to complete the floodplain mapping of the country based on the parameters specified in the Biggert-Waters Flood Insurance Reform Act of 2012 and ASFPM’s projection of what constitutes adequate flood mapping for the country. This estimate shows the initial cost to complete flood mapping for the nation ranges from \$4.5 billion to \$7.5 billion. **Completed – March 2013**

FEMA EMI HAZUS/GIS Course for Floodplain Managers (E176) – ASFPM in conjunction with the POLIS Center in Indianapolis, IN assisted FEMA in the development of an EMI approved training course - HAZUS and GIS applications for Floodplain Managers. The course is intended to meet the training needs of floodplain managers related to the use of HAZUS and GIS in flood risk reduction. As of this report the course continues and is available through EMI, the POLIS Center and other locations. **Original Curriculum Completed – April 2012**