

# Flood Ready Community Resources

## Planning Resources

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### Creating Flood-Ready Communities: A Guide for Delaware Local Governments

*This guide provides resources for evaluating risks, planning adaptations, and executing actions to address the impacts of flooding. The guide also includes a user-friendly checklist designed to help communities evaluate the extent to which their jurisdiction has developed planning, regulatory, spending, ecosystem, economic, and community-engagement tools to enhance their community's flood readiness. The guide links to additional resources produced by Delaware state agencies and the Delaware Sea Grant College Program, as well as a GIS Story Map showcasing freeboard, a floodplain management strategy. The downloadable guide and other resources are available on the University of Delaware Institute for Public Administration's Delaware Complete Communities Planning Toolbox at:*

**[www.completecommunitiesde.org/planning/sustainable/flood-ready/](http://www.completecommunitiesde.org/planning/sustainable/flood-ready/)**

### Delaware Sea Grant's Natural Hazard and Climate Change Adaptation Tool Kit for Delaware Communities

*Delaware communities are susceptible to a variety of natural hazards. Additionally, communities face an increasing degree of uncertainty related to the impacts that future climatic conditions may have on their areas. This toolkit was developed to assist communities in identifying planning, mitigation and adaptation opportunities that will help reduce vulnerabilities to natural hazards and climate impacts.*

**<http://www.deseagrants.org/products/natural-hazard-and-climate-change-adaptation-tool-kit-delaware-communities>**

### U.S. Climate Resilience Toolkit

*The U.S. Climate Resilience Toolkit provides scientific tools, information, and expertise to help people manage their climate-related risks and opportunities, and improve their resilience to extreme events. The site is designed to serve interested citizens, communities, businesses, resource managers, planners, and policy leaders at all levels of government.*

**<https://toolkit.climate.gov>**

### Delaware Floodplain and Drainage Committee Report (S.B. 64 information)

*Senate Bill 64 established a Floodplain and Drainage Advisory Committee with diverse stakeholders that included public interests to review best practices and national standards and recommend minimum standards for improved floodplain management and drainage within the state. The Committee also examined the adequacy of existing requirements, policies and practices associated with notification to prospective property purchasers of existing flooding or drainage issues.*

**<http://www.dnrec.delaware.gov/swc/Pages/FloodplainandDrainageCodeWorkGroupCommittee.aspx>**

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FEMA Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Homes in Coastal Areas

*This publication provides a comprehensive approach to planning, siting, designing, constructing, and maintaining homes in the coastal environment. Volume I provides information about hazard identification, siting decisions, regulatory requirements, economic implications, and risk management. Volume II contains in-depth descriptions of design, construction, and maintenance practices that will increase the durability of residential buildings in the harsh coastal environment and reduce economic losses associated with coastal natural disasters.*

**<https://www.fema.gov/media-library/assets/documents/3293>**

Delaware Homeowners Handbook to Prepare for Natural Hazards

*More than 80 major storms have threatened Delaware's coast over the past three decades, putting lives and property at risk. The resource guides residents on practical measures that can keep them safe and minimize damage to homes and property.*

**<http://www.deseagrant.org/products/delaware-homeowners-handbook-prepare-natural-hazards>**

Delaware Coastal Flood Monitoring System

*The Delaware Coastal Flood Monitoring System (CFMS) is a web-based tool and alert system designed to provide emergency managers, planners, and others the information needed regarding upcoming coastal flood events. The CFMS covers the Delaware Bay coastline from New Castle to Lewes and serves three primary functions: to send out warning alerts up to 48 hrs in advance of potential flood conditions, to provide access to current meteorological and hydrologic conditions, and to provide local tidal predictions and map their areas of impact.*

**<http://www.coastal-flood.udel.edu>**

Sea Level Rise Vulnerability Assessment for the State of Delaware

*This was developed by the DNREC Delaware Coastal Programs with input, advice and guidance from members of Delaware's Sea Level Rise Advisory Committee in 2012. It contains background information about sea level rise, methods used to determine vulnerability and a comprehensive accounting of the extent and impacts that sea level rise will have on 79 resources in the state. The information contained within this document and its appendixes will be used by the Delaware Sea Level Rise Advisory Committee and other stakeholders to guide development of sea level rise adaptation strategies.*

**<http://de.gov/slrva>**

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### Recommendations for Adapting to Sea Level Rise in Delaware

*This publication three years of effort and marks the completion of the advisory committee's work. The central component of this document is a list and description of recommendations for adapting to sea level rise in Delaware. These recommendations focus on building the necessary capacity for Delaware agencies, local governments, businesses and individuals to plan for and put into place strategies for responding to sea level rise.*

**<http://de.gov/slradaptplan>**

### Delaware Climate Impact Assessment

*The Delaware Climate Change Impact Assessment summarizes the best available science on how climate change may affect Delaware's people, places, and resources. It also increases our understanding of the current and future risks of a changing climate, and helps Delaware's citizens, communities, and businesses prepare for, adapt to, and reduce the impacts of climate change in our state. The Assessment includes the findings of a report prepared by Dr. Katherine Hayhoe, "Climate Change Projections and Indicators for Delaware" (December 2013).*

**<http://www.dnrec.delaware.gov/energy/Pages/The-Delaware-Climate-Impact-Assessment.aspx>**

### Climate Resilience Evaluation & Awareness Tool (CREAT)

*A software tool created by the EPA to assist drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing the related risks at their individual utilities.*

**<http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm>**

### Climate Central Surging Seas Portal

*Climate Central's Program on Sea Level Rise strives to provide accurate, clear and granular information about sea level rise and coastal flood hazards both locally and globally, today and tomorrow. Anchored in rigorous primary research, our work distinguishes itself by its user-friendly maps and tools, extensive datasets, and high-quality visual presentation. The program dedicates its efforts to helping citizens, communities, businesses, organizations, and governments at every level to understand the consequences of different carbon pathways and to navigate the shifting waters of our warming world. - See more at: <http://sealevel.climatecentral.org/about#sthash.b0bHCPBj.dpuf>*

**<http://sealevel.climatecentral.org/ssrf/delaware>**

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Georgetown Law's Adaptation Tool Kit for Sea Level Rise and Coastal Land Use

*The Adaptation Tool Kit explores 18 different land-use tools that can be used to preemptively respond to the threats posed by sea-level rise to both public and private coastal development and infrastructure, and strives to assist governments in determining which tools to employ to meet their unique socio-economic and political contexts.*

**<http://www.georgetownclimate.org/resources/adaptation-tool-kit-sea-level-rise-and-coastal-land-use>**

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### Data Resources

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Delaware Climate Projections Portal

*The Delaware Climate Change Projections Portal provides data visualization, data downloads, and general information resulting from climate model runs conducted for the Delaware Climate Change Impact Assessment (DCCIA). The DCCIA reflects the best available climate science, climate modeling, and projections to illustrate the range of potential vulnerabilities that Delaware may face from the impacts of climate change.*

**<http://climate.udel.edu/declimateprojections/>**

U.S. Geological Survey - Delaware's Daily Streamflow Conditions

**<http://waterdata.usgs.gov/de/nwis/rt>**

Delaware Environmental Observing System

*For over 10 years, DEOS has been providing real-time environmental conditions for Delaware and the surrounding region. Today, DEOS operates and maintains over 50 environmental monitoring platforms and brings in data from over 200 additional environmental monitoring platforms throughout our region. These data are used for a number of purposes. From forecast model initialization to emergency planning to crop water requirements, DEOS monitoring and data services are utilized across many sectors.*

**<http://www.deos.udel.edu/>**

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## Mapping Resources

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Delaware Sea Level Rise Interactive Inundation Mapping Tool

*Map will be updated in Summer 2016.*

*Scientists from Delaware Coastal Programs used a simple model to develop a map to show the possible impacts of inundation based on various sea level rise scenarios for Delaware's waterways and the land that surrounds them (watersheds). This map reflects the filling of these watersheds at constant elevations also referred to as 'Bath Tub' modeling. In other words, the map shows the water levels rising in the watersheds similar to the 'filling of a bathtub'.*

<http://firstmap.gis.delaware.gov/inundation>

FEMA National Flood Hazard Layer Map. Data from Flood Insurance Rate Maps (FIRMs)

*The National Flood Hazard Layer (NFHL) dataset represents the current effective flood data for the country, where maps have been modernized. It is a compilation of effective Flood Insurance Rate Map (FIRM) databases and Letters of Map Change (LOMCs). The NFHL is updated as studies go effective. For more information, visit FEMA's Map Service Center (MSC).*

<http://arcg.is/1qoCEF7> (zoomed into the state of Delaware)

or go to:

<http://fema.maps.arcgis.com/home/>

Click on **Flooding**.

Click on **FEMA's National Flood Hazard Layer**

NOAA Digital Coast's Sea Level Rise and Coastal Flooding Impacts Mapping Tool

Features

- Models potential marsh migration due to sea level rise
- Examines how tidal flooding will become more frequent with sea level rise
- Enables access through mobile devices
- Produces shortened URLs for easy map sharing through email and social media
- Provides access to Web map services and underlying geospatial data
- Offers supporting documents and information on sea level rise mapping

<http://www.csc.noaa.gov/slr/viewer>

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# Flood Ready Community Resources

## Funding Resources

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Delaware Database for Funding Resilient Communities

*The Delaware Database for Funding Resilient Communities identifies financial assistance programs that support the implementation of high-cost activities such as infrastructure improvements, facility retrofitting, construction, and land acquisition. The sorting feature enables users to quickly and easily filter programs by four categories. The database is available at:*

**<https://www.sppa.udel.edu/research-public-service/ddfrc>**

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