

# KEY RESOURCES

## CHAPTER 2 CLIMATE CHANGE AND THE COAST

- Climate Change—Science, EPA. <http://epa.gov/climatechange/science/>
- Climate Change 2007: The Physical Science Basis, IPCC. [www.ipcc.ch/](http://www.ipcc.ch/)
- Climate Change 2007: Synthesis Report, IPCC. [www.ipcc.ch/](http://www.ipcc.ch/)
- Climate Change: Fitting the Pieces Together (online training), University Corporation for Atmospheric Research, Cooperative Program for Operational Meteorology, Education and Training. [www.meted.ucar.edu/broadcastmet/climate/](http://www.meted.ucar.edu/broadcastmet/climate/)
- Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change, National Assessment Synthesis Team, U.S. Global Change Research Program (2000, includes regional and sectoral assessments). [www.globalchange.gov/publications/reports/scientific-assessments/first-national-assessment](http://www.globalchange.gov/publications/reports/scientific-assessments/first-national-assessment)
- Climate Change Indicators in the United States, EPA Climate Change Division. [www.epa.gov/climatechange/indicators.html](http://www.epa.gov/climatechange/indicators.html)
- Climate Literacy—The Essential Principles of Climate Science: A Guide for Communities and Individuals, U.S. Climate Change Science Program. [www.globalchange.gov/resources/educators/climate-literacy](http://www.globalchange.gov/resources/educators/climate-literacy)
- Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Fisheries Economics and Sociocultural Status and Trends Series, NOAA National Marine Fisheries Service. [www.st.nmfs.noaa.gov/st5/publication/](http://www.st.nmfs.noaa.gov/st5/publication/)
- Global Climate Change Impacts in the United States, U.S. Global Change Research Program. [www.globalchange.gov/publications/reports/scientific-assessments/us-impacts](http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts)
- National Ocean Economics Program Web Site (includes state summaries). [www.oceaneconomics.org/](http://www.oceaneconomics.org/)
- NOAA Climate Service. [www.climate.gov/](http://www.climate.gov/)
- NOAA Great Lakes Environmental Research Laboratory. [www.glerl.noaa.gov/](http://www.glerl.noaa.gov/)
- PMEL Ocean Acidification Home Page, NOAA Pacific Marine Environmental Laboratory. [www.pmel.noaa.gov/co2/OA/](http://www.pmel.noaa.gov/co2/OA/)
- Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- State of the U.S. Ocean and Coastal Economies—2009, National Ocean Economics Program. [www.oceaneconomics.org/nationalreport/](http://www.oceaneconomics.org/nationalreport/)
- Thresholds of Climate Change in Ecosystems, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Weather and Climate Extremes in a Changing Climate: Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- U.S. Global Change Research Program Web Site. [www.globalchange.gov/](http://www.globalchange.gov/)

## CHAPTER 3 PLANNING PROCESS

### Publications and Web Sites

- Adapting to Coastal Climate Change: A Guidebook for Development Planners, U.S. Agency for International Development. [www.crc.uri.edu/index.php?actid=366](http://www.crc.uri.edu/index.php?actid=366)
- Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Decisionmaking, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Building Public Support for Floodplain Management, Association of State Floodplain Managers. [www.floods.org/ace-files/documentlibrary/Publications/BPS\\_Guidebook\\_2\\_1\\_10.pdf](http://www.floods.org/ace-files/documentlibrary/Publications/BPS_Guidebook_2_1_10.pdf)
- Climate Literacy—The Essential Principles of Climate Science: A Guide for Communities and Individuals, U.S. Climate Change Science Program. [www.globalchange.gov/resources/educators/climate-literacy](http://www.globalchange.gov/resources/educators/climate-literacy)
- Engaging Stakeholders in the Adaptation Process (from Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures), United Nations Development Programme. [www.undp.org/gef/documents/publications/apf-technical-paper02.pdf](http://www.undp.org/gef/documents/publications/apf-technical-paper02.pdf)
- Getting Started: Building Support for [Hazard] Mitigation Planning, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Introduction to Stakeholder Participation, NOAA Coastal Services Center. [www.csc.noaa.gov/stakeholder/](http://www.csc.noaa.gov/stakeholder/)
- Multi-Hazard Mitigation Planning, FEMA. [www.fema.gov/plan/mitplanning/](http://www.fema.gov/plan/mitplanning/)
- Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments, ICLEI—Local Governments for Sustainability. [www.icleiusa.org/action-center/planning/adaptation-guidebook/](http://www.icleiusa.org/action-center/planning/adaptation-guidebook/)
- Seven Cardinal Rules of Communication, U.S. Environmental Protection Agency. [www.epa.gov/CARE/library/7\\_cardinal\\_rules.pdf](http://www.epa.gov/CARE/library/7_cardinal_rules.pdf)
- Voluntary Guidance for States to Incorporate Climate Change into State Wildlife Action Plans & Other Management Plans, Association of Fish and Wildlife Agencies. [www.fishwildlife.org/pdfs/ClimateChangeGuidance%20Document\\_Final\\_December2009.pdf](http://www.fishwildlife.org/pdfs/ClimateChangeGuidance%20Document_Final_December2009.pdf)

### Training

- Coastal Training Program, National Estuarine Research Reserve System. [www.nerrs.noaa.gov/Training.aspx](http://www.nerrs.noaa.gov/Training.aspx)
- Education and Outreach Training, U.S. Fish and Wildlife Service National Conservation Training Center. <http://nctc.fws.gov/>
- Introduction to Hazard Mitigation (online), FEMA. <http://training.fema.gov/EMIWeb/IS/>
- Negotiating for Coastal Resources, NOAA Coastal Services Center. [www.csc.noaa.gov/cms/cls/negotiating\\_coastal.html](http://www.csc.noaa.gov/cms/cls/negotiating_coastal.html)
- Public Issues and Conflict Management, NOAA Coastal Services Center. [www.csc.noaa.gov/cms/cls/public\\_issues\\_conflict.html](http://www.csc.noaa.gov/cms/cls/public_issues_conflict.html)

## CHAPTER 4 VULNERABILITY ASSESSMENT

### General

- Adapting to Coastal Climate Change: A Guidebook for Development Planners, U.S. Agency for International Development. [www.crc.uri.edu/index.php?actid=366](http://www.crc.uri.edu/index.php?actid=366)
- ArcGIS Online Resource Center, ESRI. <http://resources.esri.com/arcgisonline/services/index.cfm>
- Climate Ready Estuaries Coastal Toolkit, EPA Climate Ready Estuaries. [www.epa.gov/cre/toolkit.html](http://www.epa.gov/cre/toolkit.html)
- NOAA Climate Service. [www.climate.gov/](http://www.climate.gov/)
- Digital Coast, NOAA Coastal Services Center. [www.csc.noaa.gov/digitalcoast/](http://www.csc.noaa.gov/digitalcoast/)
- eCoastal, U.S. Army Corps of Engineers. <http://ecoastal.usace.army.mil/>
- Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies, United Nations Environment Programme. <http://dare.uvu.vu.nl/bitstream/1871/10440/1/f1.pdf>
- HAZUS-MH, FEMA. [www.fema.gov/plan/prevent/hazus/](http://www.fema.gov/plan/prevent/hazus/)
- Introduction to Hazard Mitigation (online training), FEMA. <http://training.fema.gov/EMIWeb/IS/>
- National State Geographic Information Council. [www.nsgic.org/](http://www.nsgic.org/)
- Planning for Climate Change, NOAA Estuarine Reserves Division. <http://nerrs.noaa.gov/CTPIndex.aspx?ID=455>
- Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments, ICLEI—Local Governments for Sustainability. [www.icleiusa.org/action-center/planning/adaptation-guidebook/](http://www.icleiusa.org/action-center/planning/adaptation-guidebook/)
- Regional Integrated Science and Assessment Program, NOAA Climate Program Office. [www.climate.noaa.gov/cpo\\_pa/risa/](http://www.climate.noaa.gov/cpo_pa/risa/)
- Road Map for Adapting to Coastal Risk (training), NOAA Coastal Services Center. [www.csc.noaa.gov/digitalcoast/training/coastalrisk.html](http://www.csc.noaa.gov/digitalcoast/training/coastalrisk.html)
- Understanding Your Risks: Identifying Hazards and Estimating Losses, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)

### Identify Climate Change Phenomena

- Climate Change 2007: The Physical Science Basis, IPCC. [www.ipcc.ch/](http://www.ipcc.ch/)
- Climate Change 2007: Synthesis Report, IPCC. [www.ipcc.ch/](http://www.ipcc.ch/)
- Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change, National Assessment Synthesis Team, U.S. Global Change Research Program (2000, includes regional and sectoral assessments). [www.globalchange.gov/publications/reports/scientific-assessments/first-national-assessment](http://www.globalchange.gov/publications/reports/scientific-assessments/first-national-assessment)
- Global Climate Change Impacts in the United States, U.S. Global Change Research Program. [www.globalchange.gov/publications/reports/scientific-assessments/us-impacts](http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts)
- Great Lakes Water Levels, U.S. Army Corps of Engineers Detroit District. [www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/](http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/)
- Synthesis and Assessment Products, Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Tides and Currents, NOAA Center for Operational Oceanographic Products and Services. <http://tidesandcurrents.noaa.gov/>

## Identify Climate Change Impacts and Consequences

- Climate Monitoring, NOAA National Climatic Data Center.  
<http://lwf.ncdc.noaa.gov/climate-monitoring/>
- The Economic Impacts of Climate Change and the Costs of Inaction, Center for Integrative Environmental Research, University of Maryland. [www.cier.umd.edu/climateadaptation/](http://www.cier.umd.edu/climateadaptation/)
- FEMA Mapping Information Platform, FEMA. <https://hazards.fema.gov/>
- FEMA Map Service Center, FEMA. <http://msc.fema.gov/>
- Multi-Hazard Identification and Risk Assessment, FEMA.  
[www.fema.gov/library/viewRecord.do?id=2214](http://www.fema.gov/library/viewRecord.do?id=2214)
- National Assessment of Coastal Vulnerability to Sea-Level Rise, U.S. Geological Survey.  
<http://woodshole.er.usgs.gov/project-pages/cvi/>
- The NatureServe Climate Change Vulnerability Index, NatureServe.  
[www.natureserve.org/prodServices/climatechange/ClimateChange.jsp](http://www.natureserve.org/prodServices/climatechange/ClimateChange.jsp)
- NCDC Storm Events, NOAA National Climatic Data Center.  
[www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms](http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms)
- NOAA Regional Climate Centers, NOAA National Climatic Data Center.  
[www.ncdc.noaa.gov/oa/climate/regionalclimatecenters.html](http://www.ncdc.noaa.gov/oa/climate/regionalclimatecenters.html)
- PERI Presidential Disaster Declaration Web Site, Public Entity Risk Institute.  
[www.peripresdecusa.org/](http://www.peripresdecusa.org/)
- Spatial Hazard Events and Losses Database for the United States, Hazards and Vulnerability Research Institute, Department of Geography, University of South Carolina.  
<http://webra.cas.sc.edu/hvri/products/sheldus.aspx>
- United States Historical Climatology Network, NOAA National Climatic Data Center.  
<http://cdiac.ornl.gov/epubs/ndp/ushcn/ushcn.html>

## Assess Physical Characteristics and Exposure

- Bathymetry and Global Relief, NOAA National Geophysical Data Center.  
[www.ngdc.noaa.gov/mgg/bathymetry/relief.html](http://www.ngdc.noaa.gov/mgg/bathymetry/relief.html)
- Coastal Change Analysis Program Land Cover, NOAA Coastal Services Center.  
[www.csc.noaa.gov/landcover/](http://www.csc.noaa.gov/landcover/)
- Data Basin Climate Center, Conservation Biology Institute. [www.databasin.org/climate-center](http://www.databasin.org/climate-center)
- Demographic Baseline Report of U.S. Territories and Counties Adjacent to Coral Reef Habitats, NOAA NOS Special Projects Office. [www.coris.noaa.gov/activities/coral\\_demographics/](http://www.coris.noaa.gov/activities/coral_demographics/)
- Endangered Species Program, U.S. Fish and Wildlife Service. [www.fws.gov/endangered/](http://www.fws.gov/endangered/)
- Geospatial One Stop. [www.geodata.gov/](http://www.geodata.gov/)
- Likelihood of Shore Protection Data Set. <http://risingsea.net/ERL/data.html>
- Mapping Socio-Economic Variables Using 2000 Census Data, NOAA Coastal Services Center.  
[www.csc.noaa.gov/digitalcoast/inundation/\\_pdf/census\\_methodology.pdf](http://www.csc.noaa.gov/digitalcoast/inundation/_pdf/census_methodology.pdf)
- MPA Inventory, NOAA National Marine Protected Areas Center.  
<http://mpa.gov/dataanalysis/mpainventory/>
- National Atlas. [www.nationalatlas.gov/](http://www.nationalatlas.gov/)
- National Land Cover Database, Multi-Resolution Land Characteristics Consortium.  
[www.mrlc.gov/nlcd.php](http://www.mrlc.gov/nlcd.php)

- The National Map Seamless Server, U.S. Geological Survey. <http://seamless.usgs.gov/>
- National Ocean Economics Program. <http://noep.mbari.org/>
- National Register of Historic Places, National Park Service. [www.nps.gov/history/nr/](http://www.nps.gov/history/nr/)
- National Wetlands Inventory, U.S. Fish and Wildlife Service. [www.fws.gov/wetlands/](http://www.fws.gov/wetlands/)
- National Wetlands Research Center, U.S. Geological Survey. [www.nwrc.usgs.gov/](http://www.nwrc.usgs.gov/)
- NOAA Shoreline Website, NOAA Coastal Services Center. <http://shoreline.noaa.gov/>
- NOAA's State of the Coast, NOAA. <http://stateofthecoast.noaa.gov/>
- Resilience Assessment of Coral Reefs, International Union for Conservation of Nature Climate Change and Coral Reefs Marine Working Group. <http://data.iucn.org/dbtw-wpd/edocs/2009-020.pdf>
- Social Vulnerability Index, Hazards and Vulnerability Research Institute, Department of Geography, University of South Carolina. <http://webra.cas.sc.edu/hvri/products/sovi.aspx>
- Spatial Trends in Coastal Socioeconomics, NOAA Coastal and Ocean Resource Economics Program. <http://marineeconomics.noaa.gov/socioeconomics/>
- Species Protected under the Endangered Species Act, NOAA Office of Protected Resources. [www.nmfs.noaa.gov/pr/species/esa/](http://www.nmfs.noaa.gov/pr/species/esa/)
- U.S. Census Bureau, [www.census.gov/](http://www.census.gov/)

### **Develop Scenarios and Simulate Change**

- Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Decisionmaking, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- CanVis, NOAA Coastal Services Center. [www.csc.noaa.gov/digitalcoast/tools/canvis/](http://www.csc.noaa.gov/digitalcoast/tools/canvis/)
- Climate Modeling, Geophysical Fluid Dynamics Laboratory. [www.gfdl.gov/climate-modeling/](http://www.gfdl.gov/climate-modeling/)
- Climate Models: An Assessment of Strengths and Limitations, Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Coastal Inundation Mapping (training), NOAA Coastal Services Center. [www.csc.noaa.gov/digitalcoast/training/inundationmap.html](http://www.csc.noaa.gov/digitalcoast/training/inundationmap.html)
- Coastal Inundation Mapping Toolkit, NOAA Coastal Services Center. [www.csc.noaa.gov/digitalcoast/inundation/](http://www.csc.noaa.gov/digitalcoast/inundation/)
- Final Guidelines for Using Future-Conditions Hydrology, FEMA. [www.fema.gov/plan/prevent/fhm/ft\\_futur.shtm](http://www.fema.gov/plan/prevent/fhm/ft_futur.shtm)
- GIS Climate Change Scenarios, National Center for Atmospheric Research. [www.gisclimatechange.org/](http://www.gisclimatechange.org/)
- HAZUS Training, FEMA. <http://training.fema.gov/EMICourses/>
- IPCC Data Distribution Centre, IPCC. [www.ipcc-data.org/](http://www.ipcc-data.org/)
- NCAR Models & Modeling, National Center for Atmospheric Research. [www.ncar.ucar.edu/tools/models/](http://www.ncar.ucar.edu/tools/models/)
- Special Report on Emissions Scenarios, IPCC. [www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.htm](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.htm)
- U.S. National Assessment of the Potential Consequences of Climate Variability and Change Scenarios & Data, U.S. Global Change Research Program. [www.usgcrp.gov/usgcrp/nacc/background/scenarios/](http://www.usgcrp.gov/usgcrp/nacc/background/scenarios/)
- Vertical Datum Transformation, NOAA National Ocean Service. <http://vdatum.noaa.gov/>

## CHAPTER 5 ADAPTATION STRATEGY

### *General*

- Adapting to Coastal Climate Change: A Guidebook for Development Planners, U.S. Agency for International Development. [www.crc.uri.edu/index.php?actid=366](http://www.crc.uri.edu/index.php?actid=366)
- Advanced Floodplain Management Concepts (training), Federal Emergency Management Agency. <http://training.fema.gov/EMICourses/>
- Coastal No Adverse Impact, Association of State Floodplain Managers. [www.floods.org/index.asp?menuid=340&firstlevelmenuid=187&siteid=1](http://www.floods.org/index.asp?menuid=340&firstlevelmenuid=187&siteid=1)
- Coastal Training Program, National Estuarine Research Reserve System. [www.nerrs.noaa.gov/Training.aspx](http://www.nerrs.noaa.gov/Training.aspx)
- Community Rating System, FEMA. [www.fema.gov/business/nfip/crs.shtm](http://www.fema.gov/business/nfip/crs.shtm)
- DisasterSafety.org, Institute of Business and Home Safety. [www.disastersafety.org/](http://www.disastersafety.org/)
- Developing the [Hazard] Mitigation Plan: Identifying Actions and Implementing Strategies, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Guidance on Water and Adaptation to Climate Change, United Nations Economic Commission for Europe. [www.unece.org/env/documents/2009/Wat/mp\\_wat/ECE\\_MP.WAT\\_30\\_E.pdf](http://www.unece.org/env/documents/2009/Wat/mp_wat/ECE_MP.WAT_30_E.pdf)
- Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Introduction to Hazard Mitigation (online training), FEMA. <http://training.fema.gov/EMIWeb/IS/>
- Local Strategies for Addressing Climate Change, NOAA Coastal Services Center. [www.csc.noaa.gov/publications.html](http://www.csc.noaa.gov/publications.html)
- Managing Coastal Erosion, National Research Council of the National Academies. [http://books.nap.edu/catalog.php?record\\_id=1446](http://books.nap.edu/catalog.php?record_id=1446)
- Managing Floodplain Development through the National Flood Insurance Program (training), FEMA. <http://training.fema.gov/EMICourses/>
- Mitigating Shore Erosion along Sheltered Coasts, National Research Council of the National Academies. [http://books.nap.edu/catalog.php?record\\_id=11764](http://books.nap.edu/catalog.php?record_id=11764)
- National Flood Insurance Plan/Community Rating System (training), FEMA. <http://training.fema.gov/EMICourses/>
- Negotiating for Coastal Resources (training), NOAA Coastal Services Center. [www.csc.noaa.gov/cms/cls/negotiating\\_coastal.html](http://www.csc.noaa.gov/cms/cls/negotiating_coastal.html)
- Planning for Climate Change, NOAA Estuarine Reserves Division. <http://nerrs.noaa.gov/CTPIndex.aspx?ID=455>
- Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments, ICLEI—Local Governments for Sustainability. [www.icleiusa.org/action-center/planning/adaptation-guidebook/](http://www.icleiusa.org/action-center/planning/adaptation-guidebook/)
- Shoreline Management: Alternatives to Hardening the Shore, NOAA Office of Ocean and Coastal Resource Management. <http://coastalmanagement.noaa.gov/shoreline.html>
- Special Area Management Plans. NOAA Office of Ocean and Coastal Resource Management. <http://coastalmanagement.noaa.gov/special.html>
- Synthesis of Adaptation Options for Coastal Areas, EPA Climate Ready Estuaries. [www.epa.gov/cre/adaptationoptions.html](http://www.epa.gov/cre/adaptationoptions.html)
- U.S. Army Corps of Engineers Coastal and Hydraulics Laboratory. <http://chl.erdc.usace.army.mil/>



- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Water Resource Policies and Authorities Incorporating Sea-Level Change Considerations in Civil Works Programs, U.S. Army Corps of Engineers. <http://140.194.76.129/publications/eng-circulars/>

### ***Impact Identification and Assessment***

See also Key Resources in Chapter 4.

- Climate Prediction Center, NOAA National Weather Service. [www.cpc.ncep.noaa.gov/](http://www.cpc.ncep.noaa.gov/)
- CoastWatch, NOAA National Environmental Satellite, Data, and Information Service. <http://coastwatch.noaa.gov/>
- Coral Reef Watch, NOAA National Environmental Satellite, Data, and Information Service. <http://coralreefwatch.noaa.gov/>
- Integrated Coral Observing Network, NOAA. <http://ecoforecast.coral.noaa.gov/>
- National Estuarine Research Reserve System Research. NOAA Estuarine Reserves Division. [www.nerrs.noaa.gov/Research.aspx](http://www.nerrs.noaa.gov/Research.aspx)
- National Water Information System. U.S. Geological Survey. <http://waterdata.usgs.gov/nwis>
- NOAA Climate Service. [www.climate.gov/](http://www.climate.gov/)
- NOAAWatch: NOAA's All Hazard Monitor, NOAA. [www.noaawatch.gov/](http://www.noaawatch.gov/)
- nowCoast, NOAA Office of Coast Survey. <http://nowcoast.noaa.gov/>
- Science-Based Monitoring Restoration Monitoring of Coastal Habitats, NOAA National Centers for Coastal Ocean Science. [http://coastalscience.noaa.gov/ecosystems/estuaries/restoration\\_monitoring.html](http://coastalscience.noaa.gov/ecosystems/estuaries/restoration_monitoring.html)
- Tides and Currents, NOAA Center for Operational Oceanographic Products and Services. <http://tidesandcurrents.noaa.gov/>
- U.S. Drought Portal. National Integrated Drought Information System. [www.drought.gov/](http://www.drought.gov/)
- U.S. Water Monitor. U.S. Geological Survey. <http://watermonitor.gov/>
- WaterWatch, U.S. Geological Survey. <http://water.usgs.gov/waterwatch/>

### ***Awareness and Assistance***

- Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Decisionmaking, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- Building Public Support for Floodplain Management, Association of State Floodplain Managers. [www.floods.org/ace-files/documentlibrary/Publications/BPS\\_Guidebook\\_2\\_1\\_10.pdf](http://www.floods.org/ace-files/documentlibrary/Publications/BPS_Guidebook_2_1_10.pdf)
- Climate Literacy—The Essential Principles of Climate Science: A Guide for Communities and Individuals, U.S. Climate Change Science Program. [www.globalchange.gov/resources/educators/climate-literacy](http://www.globalchange.gov/resources/educators/climate-literacy)
- Communicating Sustainability, United Nations Environment Programme. [www.unep.fr/scp/publications/details.asp?id=DTI/0679/PA](http://www.unep.fr/scp/publications/details.asp?id=DTI/0679/PA)
- Education and Outreach Training, U.S. Fish and Wildlife Service National Conservation Training Center. <http://nctc.fws.gov/>
- ICLEI Resource Guide: Outreach and Communications, ICLEI—Local Governments for Sustainability. [www.icleiusa.org/action-center/engaging-your-community/](http://www.icleiusa.org/action-center/engaging-your-community/)

- Risk Behavior and Risk Communication: Synthesis and Expert Interviews, NOAA Coastal Services Center. [www.csc.noaa.gov/publications.html](http://www.csc.noaa.gov/publications.html)
- Seven Cardinal Rules of Communication, EPA. [www.epa.gov/CARE/library/7\\_cardinal\\_rules.pdf](http://www.epa.gov/CARE/library/7_cardinal_rules.pdf)

### ***Growth Management***

- Coastal Community Planning and Development (training), NOAA Coastal Services Center. [www.csc.noaa.gov/training/ccpd.html](http://www.csc.noaa.gov/training/ccpd.html)
- Hazard Mitigation: Integrating Best Practices into Planning, American Planning Association, FEMA. [www.fema.gov/library/viewRecord.do?id=4267](http://www.fema.gov/library/viewRecord.do?id=4267)
- Smart Growth for Coastal and Waterfront Communities, NOAA, EPA, International City/County Management Association, Rhode Island Sea Grant. <http://coastalsmartgrowth.noaa.gov/>

### ***Loss Reduction***

- Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas, FEMA. [www.fema.gov/rebuild/mat/fema55.shtm](http://www.fema.gov/rebuild/mat/fema55.shtm)
- Design Guide for Improving Critical Facility Safety from Flooding and High Winds: Providing Protection to People and Buildings, FEMA. [www.fema.gov/library/viewRecord.do?id=2441](http://www.fema.gov/library/viewRecord.do?id=2441)
- Engineering Principles and Practices of Retrofitting Floodprone Residential Structures, FEMA. [www.fema.gov/library/viewRecord.do?id=1645](http://www.fema.gov/library/viewRecord.do?id=1645)
- FEMA Mitigation Assessment Team Reports, FEMA. [www.fema.gov/rebuild/mat/mat\\_reprts.shtm](http://www.fema.gov/rebuild/mat/mat_reprts.shtm)
- Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding, FEMA. [www.fema.gov/library/viewRecord.do?id=1420](http://www.fema.gov/library/viewRecord.do?id=1420)
- Implementing Floodplain Land Acquisition Programs in Urban Localities, University of North Carolina Center for Urban & Regional Studies. <http://people.vanderbilt.edu/~james.c.fraser/publications/Floddplain%20Project%20Report.Final.pdf>
- International Code Council (codes available for purchase). [www.iccsafe.org/](http://www.iccsafe.org/)
- Introduction to Residential Coastal Construction (online training), FEMA. <http://training.fema.gov/EMIWeb/IS/>
- Local Officials Guide for Coastal Construction, FEMA. [www.fema.gov/library/viewRecord.do?id=3647](http://www.fema.gov/library/viewRecord.do?id=3647)
- [Hazard] Mitigation Best Practices Portfolio, FEMA. [www.fema.gov/plan/prevent/bestpractices/](http://www.fema.gov/plan/prevent/bestpractices/)
- Retrofitting Flood-Prone Residential Buildings (training), FEMA. <http://training.fema.gov/EMICourses/>
- Sea Level Rise Planning Maps: Showing the Likelihood of Shore Protection. <http://plan.risingsea.net/>
- Selecting Appropriate [Hazard] Mitigation Measures for Floodprone Structures, FEMA. [www.fema.gov/library/viewRecord.do?id=2737](http://www.fema.gov/library/viewRecord.do?id=2737)

### ***Shoreline Management***

- Beach Nourishment, U.S. Army Corps of Engineers Coastal and Hydraulics Laboratory, <http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES;192>
- Beach Nourishment and Protection, National Research Council of the National Academies. [http://books.nap.edu/catalog.php?record\\_id=4984](http://books.nap.edu/catalog.php?record_id=4984)
- Beneficial Use of Dredged Material, U.S. Army Corps of Engineers. <http://el.erdc.usace.army.mil/dots/budm/budm.cfm>
- Living Shorelines, NOAA Restoration Center. <http://habitat.noaa.gov/restoration/techniques/livingshorelines.html>



- Regional Sediment Management, U.S. Army Corps of Engineers. [www.wes.army.mil/rsm/](http://www.wes.army.mil/rsm/)
- Shore Protection Assessment: How Beach Nourishment Works, U.S. Army Corps of Engineers Coastal and Hydraulics Laboratory.  
<http://chl.erdc.usace.army.mil/pub-beachnourishment>

### ***Coastal and Marine Ecosystem Management***

- Adaptive Management: The U.S. Department of the Interior Technical Guide, U.S. Department of the Interior. [www.doi.gov/initiatives/AdaptiveManagement/documents.html](http://www.doi.gov/initiatives/AdaptiveManagement/documents.html)
- Addressing Elevation and Inundation Issues in Habitat Restoration Planning and Implementation, NOAA National Ocean Service. <http://response.restoration.noaa.gov/cpr/library/publications.html>
- Aquatic Nuisance Species Task Force. <http://anstaskforce.gov/default.php>
- Climate Ready Estuaries Coastal Toolkit. EPA Climate Ready Estuaries. [www.epa.gov/cre/toolkit.html](http://www.epa.gov/cre/toolkit.html)
- Ecosystem-Based Management Tools Network. [www.ebmtools.org/](http://www.ebmtools.org/)
- Effects of Climate Change on Aquatic Invasive Species and Implications for Management and Research, EPA National Center for Environmental Assessment.  
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=188305>
- GIS Tools for Strategic Conservation Planning (training), NOAA Coastal Services Center.  
[www.csc.noaa.gov/digitalcoast/training/gisforscp.html](http://www.csc.noaa.gov/digitalcoast/training/gisforscp.html)
- Habitat Priority Planner: A New Planning Tool for Coastal Communities, NOAA Coastal Services Center.  
[www.csc.noaa.gov/hpp/](http://www.csc.noaa.gov/hpp/)
- An Introduction and User's Guide to Wetland Restoration, Creation, and Enhancement, Interagency Workgroup on Wetland Restoration. [www.lsu.edu/slegal/pdfs/WetlandsUsersGuide.pdf](http://www.lsu.edu/slegal/pdfs/WetlandsUsersGuide.pdf)
- National Artificial Reef Plan (as Amended): Guidelines for Siting, Construction, Development, and Assessment of Artificial Reefs, NOAA National Marine Fisheries Service.  
[www.nmfs.noaa.gov/sfa/PartnershipsCommunications/NARPwCover3.pdf](http://www.nmfs.noaa.gov/sfa/PartnershipsCommunications/NARPwCover3.pdf)
- National Conservation Training Center, U.S. Fish and Wildlife Service. <http://nctc.fws.gov/>
- NOAA Habitat Program. <http://habitat.noaa.gov/>
- NOAA National Marine Protected Areas Center. <http://mpa.gov/>
- NOAA Restoration Center. <http://habitat.noaa.gov/restoration/>
- Planner's Guide to Wetland Buffers for Local Governments, Environmental Law Institute.  
[www.elistore.org/reports\\_detail.asp?ID=11272](http://www.elistore.org/reports_detail.asp?ID=11272)
- Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources, U.S. Climate Change Science Program. [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps)
- A Reef Manager's Guide to Coral Bleaching, Great Barrier Reef Marine Park Authority, NOAA, and the International Union for the Conservation of Nature.  
[www.coris.noaa.gov/activities/reef\\_managers\\_guide/](http://www.coris.noaa.gov/activities/reef_managers_guide/)
- Strategies for Managing the Effects of Climate Change on Wildlife and Ecosystems, The H. John Heinz III Center for Science, Economics and the Environment. [www.heinzcenter.org/publications/](http://www.heinzcenter.org/publications/)

### ***Water Resource Management and Protection***

- EPA Stormwater Program, EPA, Office of Water.  
[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6)
- Low Impact Development, EPA, Office of Wetlands, Oceans, and Watersheds. [www.epa.gov/nps/lid/](http://www.epa.gov/nps/lid/)
- Managing Wet Weather with Green Infrastructure, EPA, Office of Wastewater Management.  
[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=298](http://cfpub.epa.gov/npdes/home.cfm?program_id=298)

- Water Quality Scorecard: Incorporating Green Infrastructure Practices at the Municipal, Neighborhood, and Site Scale. EPA Office of Research and Development. [www.epa.gov/smartgrowth/water\\_scorecard.htm](http://www.epa.gov/smartgrowth/water_scorecard.htm)
- Water Resources of the United States. U.S. Geological Survey. <http://water.usgs.gov/>

### ***Evaluate, Select, and Prioritize Actions***

- Benefit Cost Analysis, FEMA. [www.fema.gov/government/grant/bca.shtm](http://www.fema.gov/government/grant/bca.shtm)
- Benefit-Cost Analysis: Entry-Level Training, FEMA. <http://training.fema.gov/EMICourses/>
- Project Design and Evaluation (training), NOAA Coastal Services Center. [www.csc.noaa.gov/cms/cls/project\\_design.html](http://www.csc.noaa.gov/cms/cls/project_design.html)
- Using Benefit-Cost Review in [Hazard] Mitigation Planning, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)

## **CHAPTER 6 PLAN IMPLEMENTATION AND MAINTENANCE**

### **Funding**

- The Catalog of Federal Domestic Assistance, General Services Administration. [www.cfda.gov/](http://www.cfda.gov/)
- Compendium of Federal Funding Sources for State and Tribal Wetlands Programs, UNC Environmental Finance Center, EPA. [www.efc.unc.edu/publications/pdfs/wetlands/CompendiumofWetlandsFederalFundingSourcesNationalPrograms.pdf](http://www.efc.unc.edu/publications/pdfs/wetlands/CompendiumofWetlandsFederalFundingSourcesNationalPrograms.pdf)
- Federal Funding Programs, EPA, Office of Wetlands, Oceans, and Watersheds. [www.epa.gov/owow/funding/federal.html](http://www.epa.gov/owow/funding/federal.html)
- Funding Opportunities for Coastal Managers (includes links to grant writing guides), NOAA Coastal Services Center. [www.csc.noaa.gov/funding/](http://www.csc.noaa.gov/funding/)
- Guidebook of Financial Tools: Paying for Environmental Systems, EPA. [www.epa.gov/efinpage/publications/GFT2008.pdf](http://www.epa.gov/efinpage/publications/GFT2008.pdf)

### **Other**

- Adapting to Coastal Climate Change: A Guidebook for Development Planners, U.S. Agency for International Development. [www.crc.uri.edu/index.php?actid=366](http://www.crc.uri.edu/index.php?actid=366)
- Bringing the Plan to Life: Implementing the Hazard Mitigation Plan, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Developing the Mitigation Plan: Identifying Actions and Implementing Strategies, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)
- Developing and Promoting Mitigation Best Practices and Case Studies, FEMA. [www.fema.gov/library/viewRecord.do?id=1774](http://www.fema.gov/library/viewRecord.do?id=1774)
- Planning for Meaningful Evaluation (training). NOAA Coastal Services Center. [www.csc.noaa.gov/cms/cls/evaluation.html](http://www.csc.noaa.gov/cms/cls/evaluation.html)
- Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments, ICLEI—Local Governments for Sustainability. [www.icleiusa.org/action-center/planning/adaptation-guidebook/](http://www.icleiusa.org/action-center/planning/adaptation-guidebook/)
- Telling the Tale of Disaster Resistance. A Guide to Capturing and Communicating the Story, FEMA. [www.fema.gov/library/viewRecord.do?id=1762](http://www.fema.gov/library/viewRecord.do?id=1762)
- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects, FEMA. [www.fema.gov/plan/mitplanning/resources.shtm](http://www.fema.gov/plan/mitplanning/resources.shtm)