

Toolkit

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Tools, Tips, and Templates for: Project Identification, Feasibility, and Planning



As described in Chapter 2, **project identification** is the first step in the strategic project planning process. Before spending significant time and resources on a project, restoration practitioners should be able to identify the biological importance and likelihood of restoration success at potential project sites (Battelle 2003, 2010).

An initial feasibility analysis should also be performed that evaluates how the local or state political climate, permits, funding, or community acceptance might support or impede a project.

As project planning proceeds, a team should be assembled that is knowledgeable of the opportunities, complexities, and potential pitfalls of the project. Finally, the development of partnerships and consideration of funding opportunities are also important steps in planning.

Project Identification, Feasibility, and Planning Resources

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for project identification:

- *Toolkit Resource #1*
Project Identification, Feasibility, and Planning Summary Recommendations
A summary of key recommendations from Chapter 2 of the *Returning the Tide Guidance Manual*, "Project Identification, Feasibility, and Planning."
- *Toolkit Resource #2*
Site Hydrology Evaluation Questions
Questions for a project team to consider when conducting initial feasibility analysis and planning for hydrology restoration (IWWG 2004).

- *Toolkit Resource #3*
Project Identification Checklist
Designed for practitioners to use when examining potential restoration sites for critical considerations such as structural alterations that may be impeding tidal flow, ecological incidents that may have occurred in the associated landscape, and any long-term ecological shifts that may have occurred and may indicate ecological impairment.
- *Toolkit Resource #4*
GIS and Online Mapping Resources
Websites where practitioners can access geographic information system (GIS) data and tools, and interactive maps that may be helpful for planning restoration projects.
- *Toolkit Resource #5*
Feasibility Questions Worksheet
This worksheet includes important questions for the project team to consider during the restoration project feasibility and planning process.
- *Toolkit Resource #6*
Organizations Providing Technical and Financial Support for Restoration
Partnerships and funding are critical to the success of any restoration project. Partnerships that the team develops can provide funding, staff support, provision of services at decreased costs, public meeting space, and project advocacy. This resource includes a list of programs that should be considered when the project team develops partnerships.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #1: Summary Recommendations

1. Plan restoration activities strategically so that regional priorities can be considered, and any stakeholders have opportunities to buy in.
2. There will be times when restoration is best served by opportunistic action.
3. Combine Geographic Information Systems (GIS) technology with in-field observations to garner the most information out of your site identification and characterization.
4. Conduct a feasibility analysis that takes into account land ownership around the project site, building an effective project team, strategic partnerships, and local involvement from the community, agencies, and corporations.
5. Look at the project team and partnerships to determine project feasibility. Consider stakeholder engagement and land ownership. To build an effective project team, carefully consider the appropriate partners and the specific needs of your project.
6. Think about a variety of funding sources, including private contributions, state or federal funding, and other granting mechanisms.

Toolkit Resource #2: Site Hydrology Evaluation Questions (IWWG 2004)

Issue	Analysis
1. Where can regional baseline hydrologic data (including typical and extreme flood events and their potential) be found?	
2. What are the current hydrologic characteristics of the restoration site?	
3. What are the pre-disturbance hydrologic characteristics at the restoration site (if known)?	
4. What parameters should be measured at the restoration and reference sites?	
5. What factors have altered the hydrologic characteristics of the site (what prevents or restricts water from entering your site)?	
6. Where can reference sites for this wetland type be found in the watershed or nearby?	
7. Will changing the hydrological characteristics of your site potentially affect downstream areas?	
8. What is the relationship between the elevation of the land surface and primary water sources (surface and ground water) for the wetland?	
9. What changes might restore hydrology and the correct relationship between soil and water levels?	
10. What design elements should be included to restore the typical hydrological regime and allow for extreme events?	
11. What soft engineering or bioengineering methods are available to restore tidal hydrology?	
12. What factors might constrain restoring full hydrological functions?	
13. What are likely reasons that the site might fail to reach the project's hydrological goals?	
14. What potential remediation or correction measures are available?	
15. Are the project goals reasonable, feasible, and likely to result in establishing the maximum ecological functioning possible for the site?	
16. What parameters should be monitored? How often should they be monitored and for how long?	

Toolkit Resource #3: Project Identification Checklist

Structural Alterations			
Name	Type	Date Built	Purpose
1.			
2.			
3.			
4.			
5.			

Ecological Incident			
Incident	Location	Date	Impact
1.			
2.			
3.			
4.			
5.			

Long-Term Ecological Shift			
Shift	Location	Time Period	Impact
1.			
2.			
3.			
4.			
5.			

Comments

Toolkit Resource #4: GIS and Online Mapping Resources

Name	Web Address	Summary	Highlights	GIS Expertise/ Software Required
<i>Digital Coast</i>	http://www.csc.noaa.gov/digitalcoast	Provides data, tools, training, and examples for coastal resource management.	Direct access to coastal data sets and tools for GIS professionals and analysts, along with training options and “in action” examples for applying the data and tools to coastal management issues. Data (from NOAA and other sources) includes imagery, high-resolution elevation, hydrography, land cover and more. Tools range from analysis tools, such as the Habitat Priority Planner, to data manipulation tools, such as the LIDAR Data Handler.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data and most tools. This requires some knowledge of GIS and familiarity with spatial data formats. Some of the tools do not require GIS software or expertise.
<i>NOAA Tides and Currents: Observational Data Interactive Navigation</i>	http://tidesandcurrents.noaa.gov/gmap3	Distributes tide, current, water level and other coastal oceanographic data.	Interactive map of tide gauge stations provides access to tide data, tide predictions, sea level trends, and more.	Online mapping capabilities offered for browsing and viewing data. No desktop software is required.
<i>Regional Ecosystems Data Management</i>	http://ecowatch.ncddc.noaa.gov	Provides access to data and interactive maps, including management boundaries data, habitat data, nautical charts, observations data and model analyses.	Through “Access Data,” a user can conduct a spatial or text search and view results of related data sets, documents, or presentations on the map. Search results include direct links to the information resource as well as contact information. “GIS Mapping” includes access to interactive maps, many with a southeastern U.S. focus.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats).
<i>NOAA National Geophysical Data Center (NGDC) Bathymetry, Topography, and Relief Archive</i>	http://www.ngdc.noaa.gov/mgg/bathymetry/relief.html	Archives and distributes bathymetry, topography, and relief data and tools.	Maps, data, and tools available for download /FTP; some can be ordered in hard copy or on disc.	Online mapping offered for browsing and viewing some of the data. Desktop software is required to use downloadable data and tools (this requires some knowledge of GIS and familiarity with spatial data formats).
<i>NOAA's Essential Fish Habitat Mapper and GIS Data Inventory</i>	http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx	Allows users to visualize, query, and download GIS layers representing essential fish habitat (EFH) and habitat areas of particular concern (HAPCs).	Provides information on important fisheries habitats and enables Federal agencies to determine whether actions adversely impact EFH or HAPCs. Produces maps and text descriptions by geographic area. A GIS inventory, organized by region, is also available with links to download data. Southeast and Gulf of Mexico are included.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats).
<i>Gulf of Mexico Regional Collaborative</i>	http://www.gomrc.org/tools.html	Displays spatial data on tidal wetlands, seagrasses, and oyster beds through interactive maps. Initial pilot area is Mobile Bay, AL. Includes links to search, visualization and analysis tools.	The Conceptual Model Explorer tool allows users to browse data sets by ecosystem stressor and processes. The Restoration Prioritization Toolbox uses GIS modeling based on the conceptual models and can help evaluate system stressors and inform restoration management strategies based on current and past habitat distribution.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to run some of the downloadable tools (some require knowledge of GIS and familiarity with spatial data formats).

Name	Web Address	Summary	Highlights	GIS Expertise/ Software Required
<i>National Estuaries Restoration Inventory</i>	http://neri.noaa.gov	Provides an interactive map of examples of planned and implemented restoration projects in the coastal U.S.	Allows users to review case studies of completed restoration projects or to build upon restoration activities that may be near a restoration site of interest.	Online mapping capabilities offered for browsing and viewing data. No desktop software is required.
<i>NOAA's nowCOAST</i>	http://nowcoast.noaa.gov	Designed to be a planning aid for recreational and commercial mariners, coastal managers, HAZMAT responders, marine educators, and researchers to discover and display real-time coastal information.	Web-based mapping portal to real-time coastal observations and NOAA Forecasts. Runs continuously and is routinely monitored to provide real-time observational data to the public via the Web.	Online mapping capabilities offered for browsing and viewing data. No desktop software is required.
<i>National Estuarine Reserve System: System-wide Monitoring Program</i>	http://www.nerrs.noaa.gov/RCDefault.aspx?ID=18	Provides long-term and real-time data on water quality, meteorological, and nutrient parameters.	Spatial search function allows browsing of packaged data analyses or the Get Data link can be used for downloading data that is viewable in Google Earth or other GIS software.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats), but can be viewed in spreadsheet format.
<i>NOAA National Ocean Service (NOS) Data Explorer</i>	http://oceanservice.noaa.gov/dataexplorer	Serves as a portal to many NOS geospatial data sets and tools by searching an FGDC metadata catalog documenting all NOS geospatial/GIS data using an interactive mapping interface.	Site is geared toward directing users to downloadable data. "What's New" feature allows user to see recent additions to the portal or updates of existing NOAA data sets via RSS feeds such as Environmental Sensitivity Index (ESI) data or geodetic control points.	Online mapping capabilities offered for locating and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats). Some of the geospatial data are available in pdf, jpeg, or other more common/standard formats for printable maps (does not require GIS software or expertise).
<i>Ecosystem-based Management Tools Network</i>	http://www.ebmtools.org	Provides access to, descriptions of, and training on a wide variety of analysis, monitoring, and decision support tools for coastal and marine environments	On-line database of tools with links for accessing individual tools. Not all tools are GIS-based.	Online searchable database. Desktop software and varying levels of GIS knowledge are required for using some of the downloadable tools.

Toolkit Resource #4: GIS and Online Mapping Resources (continued)

Name	Web Address	Summary	Highlights	GIS Expertise/ Software Required
<i>Climate Ready Estuaries Coastal Toolkit</i>	http://www.epa.gov/cre/toolkit.html	Provides resources for estuaries and coastal programs interested in learning about climate change impacts and adaptation.	Listing with links to coastal vulnerability and adaptation tools, and to find data. Not all tools and data are GIS-based.	Online browsing of links. Desktop software and varying levels of GIS knowledge are required for using some of the downloadable tools.
<i>Esri Data Resources</i>	http://www.geography.network.com/data/clearinghouses.html	Provides links to a range of data clearinghouses.	This site has search and browse functions by content theme to access some of the more useful websites or clearinghouses offering geographic data.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats).
<i>Geospatial One Stop (GOS) Portal</i>	http://www.geodata.gov	Facilitates data discovery, access, and visualization through search of published metadata. Contains over 10,000 metadata records for Live Data and Maps, Documents, Downloadable Data, Applications and more.	National data sets organized into categories (e.g. Hydrology category) allows for more efficient browsing, particularly if user doesn't have a specific data set in mind. Search feature enables user to find higher resolution data sets and to filter results by type (e.g. documents, downloadable data, live data, etc.).	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats).
<i>Data.gov</i>	http://www.data.gov	Provides access to U.S. Federal Executive Branch datasets.	This application offers data searching in three ways: through the "raw" data catalog, using tools, and through the geodata catalog. Click on the name of a dataset to view additional metadata for that dataset.	Online mapping capabilities offered for browsing and viewing data. Desktop software is required to use downloadable data (this requires some knowledge of GIS and familiarity with spatial data formats).

Toolkit Resource #5: Project Feasibility Questions Worksheet

Issue	Analysis
Landownership	
<p><i>Is the land privately or publicly owned?</i></p> <p><i>Are owners willing participants?</i></p> <p><i>Are owners willing to sell?</i></p> <p><i>Is adjacent land privately or publicly owned?</i></p> <p><i>Are adjacent landowners supportive?</i></p> <p><i>Is there nearby public or private infrastructure?</i></p> <p><i>Will the project impact that infrastructure?</i></p> <p><i>Will land ownership restrict access or activities?</i></p>	
Project Team	
<p><i>Is the team representative/interdisciplinary?</i></p> <p><i>Is the team adaptive?</i></p> <p><i>Is the team ready to move forward?</i></p>	
Local Involvement	
<p><i>What is the project influence area/ geographic extent?</i></p> <p><i>Have you consulted project stakeholders?</i></p> <p><i>Have you shared preliminary goals and objectives with the project stakeholders?</i></p>	

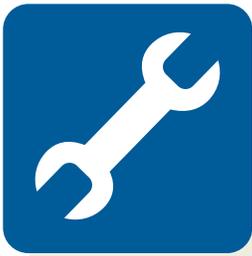
Toolkit Resource #5:
Project Feasibility Questions Worksheet *(continued)*

Issue	Analysis
Partnerships	
<p><i>What local, state, or federal partners can provide technical support?</i></p> <p><i>What local, state, and federal partners can provide cash or in-kind services?</i></p> <p><i>What agencies have site-specific data that can inform your project?</i></p> <p><i>What organizations have in-house staff or equipment to facilitate the project?</i></p> <p><i>What private companies have a reputation for supporting local restoration efforts?</i></p>	
Funding	
<p><i>What are the funding needs?</i></p> <p><i>What are the potential sources?</i></p> <p><i>What funding strategies should be considered?</i></p>	
Regulation and Permitting	
<p><i>What permits will be required?</i></p> <p><i>What is the general time frame for the permitting process?</i></p>	

Toolkit Resource #6:

Organizations Providing Technical and Financial Support for Restoration

Program	Web Address
National Oceanic and Atmospheric Administration	http://www.noaa.gov
NOAA Restoration Center Community-based Restoration Program	http://www.habitat.noaa.gov/funding/crp.html
Estuary Restoration Act	http://www.era.noaa.gov
U.S. Fish & Wildlife Service	http://www.fws.gov
Partners for Fish and Wildlife	http://www.fws.gov/partners/
National Coastal Wetlands Conservation Grant Program	http://www.fws.gov/coastal/coastalgrants
Environmental Protection Agency	http://www.epa.gov
Wetlands, Oceans, and Watersheds Program	http://www.epa.gov/owow
National Estuary Program	http://www.epa.gov/nep
U.S. Department of Agriculture	http://www.usda.gov
Natural Resources Conservation Service	http://www.nrcs.usda.gov/partners
Non-governmental Organizations	
Corporate Wetlands Restoration Partnership	http://www.cwrp.org
Ecotrust	http://www.ecotrust.org/wwri/
Fish America Foundation	http://www.fishamerica.org/grants
Gulf of Mexico Foundation	http://www.gulfmex.org/restoration.htm
National Fish and Wildlife Foundation	http://www.nfwf.org/grants
Restore America's Estuaries	http://www.estuaries.org
Southeast Aquatic Resources Network	http://southeastaquatics.net/opportunities
The Nature Conservancy	http://www.nature.org/initiatives/marine/



Tools, Tips, and Templates for: Goals and Objectives



Goals and objectives (G&Os) are the foundation for all restoration projects. Developing restoration G&Os entails careful consideration of site-specific characteristics. Often goals and objectives are shaped not only by the ecological conditions at the site but also by stakeholder interests. Identification of G&Os directly informs the project design, construction, and scientific evaluation and allows for a more efficient and focused restoration process.

Goals and Objectives Resources

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for determining project goals and objectives:

- *Toolkit Resource #7*
Goals and Objectives Summary Recommendations
A summary of key recommendations from Chapter 3 of the *Returning the Tide Guidance Manual*, "Goals and Objectives".

- *Toolkit Resource #8*
Project Goals Worksheet
Provides a list of common goals for tidal hydrology restoration projects, as well as space for the project team to define their own project goals.
- *Toolkit Resource #9*
Project Objectives Worksheet
Provides a list of common tidal hydrology restoration project objectives, as well as space for the project team to define their own objectives.
- *Toolkit Resource #10*
References for Adaptive Management
A list of useful resources for understanding and applying adaptive management to restoration projects.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #7: Summary Recommendations

1. Refer to project goals and objectives during all phases of project implementation to help set priorities and intended project outcomes.
2. Develop goal statements that include ecological or biological target(s) and incorporate practical planning considerations that are achievable.
3. Make goals statements simple, clear, and concise.
4. Do not define goals too narrowly.
5. Use project objectives to define more specifically the actions that will be taken to achieve a specific target goal.
6. Consider a range of factors (ecological function, community values, stakeholder interest, cost, etc.) and their impact on project design and implementation to develop achievable goals.
7. Consult regional planning documents when developing project goals and objectives.

Toolkit Resource #8: Project Goals Worksheet

Common Goals for Tidal Hydrology Restoration Projects		Your Project Goals
<i>Re-establish...</i>	<ul style="list-style-type: none"> • a tidally influenced salt marsh • tidal influence through a barrier (i.e., levee) • hydrologic connectivity between habitat types 	
<i>Restore...</i>	<ul style="list-style-type: none"> • historic habitat type • historic habitat functions 	
<i>Improve...</i>	<ul style="list-style-type: none"> • water quality • tidal circulation/flow/exchange • aesthetic qualities • habitat resilience/longevity/sustainability 	
<i>Provide...</i>	<ul style="list-style-type: none"> • recreational opportunities/access • habitat capable of supporting fisheries species • habitat for avifauna 	
<i>Decrease...</i>	<ul style="list-style-type: none"> • freshwater flooding of private property and infrastructure 	
<i>Stabilize...</i>	<ul style="list-style-type: none"> • dredge material for marsh creation 	
<i>Adapt for...</i>	<ul style="list-style-type: none"> • sea level rise by allowing for habitat migration OR creating mosaic habitats 	

Toolkit Resource #9: Project Objectives Worksheet

Common Objectives for Tidal Hydrology Restoration Projects	Your Project Objectives
<p><i>Reduce...</i></p> <ul style="list-style-type: none"> • Epiphytic cover on seagrasses to levels similar to reference seagrass meadows • Shoreline erosion by 90% 	
<p><i>Achieve...</i></p> <ul style="list-style-type: none"> • Tidal flooding of the marsh at a periodicity and depth comparable to nearby reference marshes (e.g., semi-diurnal, 0.4 m) • Resident fish density (e.g., X fish/m²) and communities similar to nearby reference system • Appropriate natural vegetation community or percent cover (e.g., 80% cover) • Sediment characteristics capable of supporting appropriate vegetation community (e.g., pore water salinity (e.g., X ppt), organic matter (e.g., X %DOM), or nutrients (e.g., X mg/L Nitrogen) • Benthic community composition similar to reference site 	
<p><i>Improve...</i></p> <ul style="list-style-type: none"> • Dissolved oxygen levels to those similar to nearby reference marshes (e.g., X mg/L) • Groundwater quality (e.g., X mg/L Nitrogen) • Public access for low-impact activities such as hiking and kayaking (e.g., 3 access points) • Community stewardship through hands-on volunteer activities (e.g., 4 volunteer activities/ year; target 200 volunteers) 	
<p><i>Create or enhance...</i></p> <ul style="list-style-type: none"> • Avifauna habitat suitable for nesting shorebird foraging and nesting (e.g., 2 acres intertidal foraging area; minimum 25 roosting trees) 	
<p><i>Manage/control/stabilize...</i></p> <ul style="list-style-type: none"> • Invasive species to X percent cover • Stormwater input (e.g., reduce the rate and quantity of runoff to 20% of pre-construction level) 	

Toolkit Resource #10: References for Adaptive Management

- Gunderson, LH, CS Holling, and SS Light. 1995. *Barriers and bridges to the renewal of ecosystems and institutions*. Columbia University Press, New York, NY, USA.
- Holling, CS, Ed. 1978. *Adaptive environmental assessment and management*. John Wiley, New York, NY, USA.
- Steyer, GD, and DW Llewellyn. 2000. Coastal Wetlands Planning, Protection, and Restoration Act: a Programmatic Application of Adaptive Management. *Ecological Engineering* 15(3-4): 385-395.
- Thom, RM. 2000. Adaptive Management of Coastal Ecosystem Restoration Projects. *Ecological Engineering* 15: 365-372.
- Thom, RM. 1997. System-development matrix for adaptive management of coastal ecosystem restoration projects. *Ecological Engineering* 8: 219-232.
- Walters, CJ. 1986. *Adaptive management of renewable resources*. McMillan, New York, NY, USA.
- Walters, CJ, and R Holling. 1990. Large-Scale Management Experiments and Learning by Doing. *Ecology* 71: 2060-2068.
- Walters, C. 1997. Challenges in adaptive management of riparian and coastal ecosystems. *Conservation Ecology* [online] 1(2): 1.



Tools, Tips, and Templates for: Project Design



The **design phase** of the project is initiated when the project site has been determined and the restoration goals and objectives defined. The design phase will evaluate the potential range of restoration techniques capable of achieving the desired project outcomes. Design options should be continually evaluated against the project goals and objectives.

Goals and Objectives Resources

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for the project design process:

- *Toolkit Resource #11*
Project Design Summary Recommendations
A summary of key recommendations from Chapter 4 of the *Returning the Tide Guidance Manual*, "Project Design."
- *Toolkit Resource #12*
Recommended Modeling Inputs
Hydrologic model development requires site specific data/inputs in order to yield accurate outputs/predictions. This resource outlines the data inputs needed to develop numerical hydrology models for project design.

- *Toolkit Resource #13*
Additional Design Resources
A list of resources offering valuable and detailed information on a range of design techniques applicable to site specific conditions.
- **Toolkit Resource #14: Modeling Inventories**
A list of websites providing information on a wide variety of available modeling software.
- **Toolkit Resource #15: Hydrological Model Summary Table**
Web resources for information on a wide variety of available modeling software.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #11: Summary Recommendations

1. Know your site. Understand important ecological and physical characteristic (historic and current).
2. Develop a site base map as this will aid in design and monitoring.
3. Remember that the optimal design still must be feasible to implement.
4. Give preference to low-maintenance (passive) strategies when possible.
5. Evaluate a range of design strategies and techniques.
6. Consider sea level rise. Strive to restore a mosaic of habitats at elevations that account for sea level rise, where possible.
7. Increase habitat edge where possible (islands, sinusoidal creeks/waterways, etc.).
8. Determine the model needed based on project specifics. Approach modelers for their opinion on best type for your project.

Toolkit Resource #12: Recommended (Minimum) Modeling Inputs

Input	Details / Examples
Water pulsing events	<ul style="list-style-type: none"> Tidal periodicity (Daily) Normal storm events (Weekly) Average river floods (Annual) Major storms (5 to 10 years) Major river flooding (50 to 100 years) River switching (1000 yrs)
Bathymetric data	<ul style="list-style-type: none"> Surveys with sufficient data to estimate volumetric capacity Surveys with sufficient data to identify sites where flow may be altered/interrupted
Topographic data	<ul style="list-style-type: none"> Surveys with sufficient data to identify locations of water sources (i.e. creeks) Surveys with sufficient data to identify areas of flood concern (i.e. infrastructure)
Average conditions	<ul style="list-style-type: none"> Rainfall Evaporation Runoff
Predicted or relative sea level rise	Account for... <ul style="list-style-type: none"> Sea level rise Subsidence Levee replacement, etc.

Toolkit Resource #13: Additional Design Resources

Resource	Web Address
U.S. Army Corps of Engineers: Tidal Hydraulics: Engineering Manual	http://140.194.76.129/publications/eng-manuals/em1110-2-1607/entire.pdf
U.S. Department of Transportation: Tidal Hydrology, Hydraulics, and Scour at Bridges	http://www.fhwa.dot.gov/engineering/hydraulics/hydrology/hec25.cfm
Federal Emergency Management Agency: Coastal Construction Manual	http://www.fema.gov/rebuild/mat/fema55.shtm
NOAA Tides and Trends: Sea Levels Online	http://tidesandcurrents.noaa.gov/sltrends/sltrends.shtml

Toolkit Resource #14: Modeling Inventories

Inventory	Web Address
Hydrology and Statistical Software	http://www.spatialhydrology.com/software_hydrostat.html
Scientific Software Group	http://www.scisoftware.com/
Boss International	http://www.bossintl.com/
Environmental Modeling Systems, Inc.	http://www.ems-i.com/Software/software.html
U.S. Geological Survey	http://water.usgs.gov/nrp/models.html

Toolkit Resource #15: Hydrological Model Summary Table

Software	Description	Output
HEC-RAS	<ul style="list-style-type: none"> Performs one-dimensional steady flow, unsteady flow, and sediment transport/mobile bed computations; Performs water temperature modeling. 	Water level Water temperature
HEC-HMS	<ul style="list-style-type: none"> Simulates precipitation-runoff processes. Applies to a wide range of geographic areas. Ranges in applications from large river basin water supply and flood hydrology to small urban or natural watershed runoff. 	Flow
WSP-2	<ul style="list-style-type: none"> Computes water surface profiles in open channels. Estimates head loss at restrictive sections, including roadways with either bridge openings or culverts. Limits of 15 profiles and 50 cross-sections maximum. 	Water level
TR20	<ul style="list-style-type: none"> Provides hydrologic analyses of a watershed under present conditions. Consists of peaks and/or flood hydrographs output. Uses the unit hydrograph, drainage areas, times of concentration, and SCS runoff curve numbers. 	Flow
RMA2	<ul style="list-style-type: none"> Consists of two-dimensional, depth averaged, finite element hydrodynamic numerical model. Computes water surface elevations and horizontal velocity components for subcritical, free-surface flow fields. 	Water level
RMA4	<ul style="list-style-type: none"> Accommodates all hydrodynamic options available in RMA2 (see above). Reads RMA2 hydrodynamic solution and a TABS geometry as input. Calculates advective diffusion equations. 	Constituent Transport
HEC-6	<ul style="list-style-type: none"> Calculates water surface and sediment bed surface profiles. Computes interaction between sediment material in the streambed and the flowing water-sediment mixture. 	Sediment (concentration)
SED2D	<ul style="list-style-type: none"> Computes sediment loadings and bed elevation changes. Uses hydrodynamic solution computed by RMA2 (See above). 	Sediment (concentration)



Tools, Tips, and Templates for: Permitting and Regulatory Compliance



Prior to construction, projects that have the potential to alter existing physical and ecological conditions, federally managed fish and invertebrates, or protected species under the Endangered Species Act are subject to regulatory review by federal, state, or local natural resource agencies.

Even beneficial barrier removal projects intended to increase tidal circulation patterns are required to undergo this process to ensure the project serves public interest while balancing a diverse set of physical, ecological, and socioeconomic criteria.

Restoration project teams should be sure to account for permitting cost and time required when planning and implementing tidal hydrology restoration projects.

Permitting and Regulatory Compliance Resources

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for navigating permitting and regulatory compliance:

- **Toolkit Resource #16**
Permitting and Regulatory Compliance Summary Recommendations
A summary of key recommendations from Chapter 5 of the *Returning the Tide Guidance Manual*, "Permitting and Regulatory Compliance."
- **Toolkit Resource #17**
Federal Regulatory Policies, Citations, and Websites
The project team will need to be familiar with the federal regulatory policies below when preparing to submit project designs for permit review and approval. All these policies can affect project design, construction, and completion.

- **Toolkit Resource #18**
U.S. Fish & Wildlife Endangered Species Act (ESA) Section 7 Consultation Template
The U.S. Fish and Wildlife Service administers ESA review for freshwater and terrestrial species. Under Section 7 of ESA, federal agencies cannot issue a permit for activities that adversely affect threatened or endangered species or their critical habitat. If a tidal hydrology project receives federal funding, the project team may be asked the types of questions included in this template to help federal staff determine how and to what degree the associated activities may impact endangered species.
- **Toolkit Resource #19**
NOAA Community-based Restoration Program National Environmental Policy Act (NEPA) Checklist
NEPA requires that the environmental impacts of proposed federal actions be considered. If a tidal hydrology project receives federal funding, the project team may be asked the types of questions included in this template to help federal staff determine any potential environmental impacts.
- **Toolkit Resource #20**
U.S. Army Corps of Engineers Contact Information
A list of physical and web addresses for the South Atlantic, Mississippi, and Southwest Divisions of the Army Corps of Engineers.
- **Toolkit Resource #21**
State Regulatory Agency Contact Information
A list of physical and web addresses for the regulatory agencies in each of the five Southeastern States.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #16: Summary Recommendations

1. Familiarize yourself with the permitting process in your local jurisdiction, region, and state.
2. Establish local points of contact with permitting agencies. Build positive working relationships to ease communication and increase efficiency.
3. Engage early with the local Army Corps of Engineers and/or state regulatory agency to identify permits.
4. Plan site visits and in-person meetings well in advance. Participate in a joint agency meeting before submitting project plans for permits.
5. Provide background information prior to any formal meetings.
6. Prepare visual aids to communicate project details (PowerPoint, printed maps). Provide electronic files to ease transferability and review.

Toolkit Resource #17:

Federal Regulatory Policies, Citations, and Websites

Name	Citation	Web Address
<i>Clean Water Act</i>	Section 404 Public Law 92-500 Codified at Title 33 U.S. Code Pts. 1251 et seq. (2006)	http://www.epa.gov/lawsregs/laws/cwa.html
<i>Coastal Zone Management Act</i>	Section 307 Public Law 92-583 Codified at Title 16 U.S. Code Pts. 1451-1466 (2007)	http://www.fws.gov/laws/lawsdigest/COASZON.HTML
<i>National Environmental Policy Act</i>	Public Law 91-190 Codified at Title 42 U.S. Code Pts. 4321-4347 (2006)	http://www.epa.gov/compliance/nepa/index.html
<i>Endangered Species Act</i>	Section 7 Public Law 93-205 Codified at Title 7 U.S. Code Pt. 136 and Title 16 U.S. Code Pts. 1531-1544 (2004)	http://www.fws.gov/laws/lawsdigest/ESACT.HTML
<i>Magnuson-Stevens Fishery Conservation and Management Act</i>	Section 2012 Public Law 109-479 Codified at Title 16 U.S. Code Pts. 1801-1892 (2006)	http://www.nmfs.noaa.gov/sfa/magact/
<i>Nationwide Permits (27)</i>	n/a	http://www.usace.army.mil/CECW/Pages/nw_permits.aspx

Toolkit Resource #18: U.S. Fish & Wildlife Service Endangered Species Act (ESA) Section 7 Consultation Template

Template and Guidance on Preparing an Initiation Package for Endangered Species Act Consultation¹

This document is intended to provide a general template and guidance on the type and detail of information that should be provided to initiate consultation with U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS). This document is formatted as a general template you can follow when preparing an initiation package. You may develop one document for projects that affect species under both NMFS and USFWS jurisdiction², but it is often advisable to prepare separate documents for each agency to avoid confusion. This is not intended to be an exhaustive document as specific projects may require more or less information in order to initiate consultation. The amount of information is typically correlated with the complexity of the project and severity of impacts, but in any case, is at least the minimum amount of information necessary to support the conclusions of the document. Also, note that this document contains guidance on the information required to initiate formal consultation procedures with USFWS and/or NMFS. Additional information needs may be identified during consultation. Texts in italics below are examples. Normal text is guidance. A glossary of terms (in bold, italic text) is appended.

Obviously, before you draft an initiation package, before you even know if an ESA consultation will be needed, you will need to have determined which species and critical habitat may be affected by the proposed action and any interrelated or interdependent actions. This “may affect” determination is the first trigger for an ESA section 7 consultation for federal actions. The first step in this determination is usually to request a list from USFWS and NMFS of species and critical habitats that occur in the vicinity of your project. Alternatively, your records may already include this information or you can collect the information from websites maintained by USFWS and NMFS. The next steps include reviewing the action area for proposed action (the determination of action area is described in section III below) and then reviewing the known, expected, or possible occurrence of listed species and critical habitat within the action area. If there is overlap between a species or critical habitat occurrence and the action area, then the action “may affect” the listed species and/or critical habitat. Additional analysis (described in later sections of this document) will allow you to determine whether the exposure of the species or critical habitat to the action is likely to adversely affect the species or critical habitat.

¹ Revised November 23, 2007

² With some exceptions, generally, marine and anadromous species are under the jurisdiction of NOAA Fisheries Service. Terrestrial species and freshwater aquatic species are under the jurisdiction of USFWS. Sec. 7 Consultation Template – SUBJECT TO REVISION 2

I. INTRODUCTION

Here is an example of introductory language:

The purpose of this initiation package is to review the proposed [project name] in sufficient detail to determine to what extent the proposed action may affect any of the threatened, endangered, proposed, or sensitive species and designated or proposed critical habitats listed below. In addition, the following information is provided to comply with statutory requirements to use the best scientific and commercial information available when assessing the risks posed to listed and/or proposed species and designated and/or proposed critical habitat by proposed federal actions. This initiation package is prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the Endangered Species Act (50 CFR 402; 16 U.S.C. 1536 (c)).

Threatened, Endangered, Proposed Threatened or Proposed Endangered Species

Example language:

The following listed and proposed species may be affected³ by the proposed action:

- *common name (Scientific name) T*
- *common name (Scientific name) E*
- *common name (Scientific name) PT*
- *common name (Scientific name) PE*

This list should include all of the species from the species lists you obtained from USFWS and NOAA Fisheries Service. If it doesn't, include a brief explanation here and a more detailed explanation in your record to help USFWS and NOAA Fisheries Service understand your thought process for excluding a species from consideration.

Candidate Species, Sensitive Species and Species of Concern (USFWS only)

Example language:

The following candidate species, sensitive species, and species of concern may be affected by the proposed action:

- *common name (Scientific name) [include state designation, if appropriate]*

Any State-listed species should be included here, if they are not federally listed. Do not forget that the action agency may have additional responsibilities to help prevent these species from becoming listed. Check your agency's guidelines.

Critical Habitat

Example language:

The action addressed within this document falls within Critical Habitat for [identify species].

³ This document will discuss making the "may affect" and subsequent determinations in later sections.

II. CONSULTATION TO DATE

Consultation under the ESA consists of discussions between the action agency, the applicant (if any), and the USFWS and NOAA Fisheries Service. Consultation includes the sharing of information between all parties about the proposed action and related actions, the species and environments affected, and means of achieving project purposes while conserving the species and their habitats. Under the ESA, there can be both formal and informal consultation. The consultation process in each is similar, but formal consultation has statutory timeframes and other requirements (such as the submission of the information in this package). Informal consultation typically concludes after the action agency makes a determination that the action “may affect, but is not likely to adversely affect” listed species or critical habitat and USFWS and/or NOAA Fisheries Service concur with this determination in writing. Formal consultation typically occurs when the action agency makes a determination of “may affect, likely to adversely affect” and concludes when USFWS and/or NOAA Fisheries Service issue a biological opinion. Alternatively, formal consultation can also lead to incorporation of additional protective measures that render the project “not likely to adversely affect” listed species or designated critical habitat.

In this section, summarize any consultation that has occurred thus far. For example, prior to initiating formal consultation or requesting concurrence, agencies and applicants may engage in a period of technical assistance to discuss the project and develop avoidance, minimization, and conservation measures. Identify when consultation was requested (if not concurrent with this document). Be sure to summarize meetings, site visits and correspondence that were important to the decision-making process.

III. DESCRIPTION OF THE PROPOSED ACTION

The purpose of this section is to provide a clear and concise description of the proposed activity and any interrelated or interdependent actions. The following information is necessary for the consultation process on an action:

1. The action agency proposing the action.
2. The authority(ies) the action agency will use to undertake, approve, or fund the action.
3. The applicant, if any.
4. The action to be authorized, funded, or carried out.
5. The location of the action.
6. When the action will occur, and how long it will last.
7. How the action will be carried out
8. The purpose of the action.
9. A description of any interrelated or interdependent actions, or that none exist to the best of your knowledge.

In other words, describe and specify:

- WHO is going to do the action and under what authority, include the name and office of the action agency and the name and address of the applicant;
- WHAT the project or action is;
- WHERE the project is (refer to attached maps);
- WHEN the action is going to take place, including time line and implementation schedules;
- HOW the action will be accomplished, including the various activities that comprise the whole action, the methods, and the types of equipment used;
- WHY the action is proposed, including its purpose and need; and
- WHAT OTHER interrelated and interdependent actions are known.

Include a clear description of all conservation measures and project mitigation such as avoidance measures, seasonal restrictions, compensation, restoration/creation (on-site and in-kind, off-site and in-kind, on-site and out-of-kind, off-site and out-of-kind), and use of mitigation or conservation banks.

Here are some examples of commonly overlooked items to include in your project description:

- Type of project
- Project location
- Project footprint
- Avoidance areas
- Start and end times
- Construction access
- Staging/laydown areas
- Construction equipment and techniques
- Permanent vs. temporary impacts
- Duration of “temporary” impacts
- Restoration areas
- Conservation measures
- Compensation and set-asides
- Bank ratios and amounts
- Mitigation: what kind and who is responsible?
- Dust, erosion, and sedimentation controls
- Whether the project is growth-inducing or facilitates growth
- Whether the project is part of a larger project or plan
- What permits will need to be obtained

NEPA Checklist for Projects Funded Under the NOAA Community based Restoration Program

The purpose of this checklist is to assist the National Oceanic and Atmospheric Administration (NOAA) in conducting an assessment of potential significant effects that may result from funding or implementing a restoration project, as required by the National Environmental Policy Act (NEPA). NOAA will use the answers to these questions to determine the next steps to comply with NEPA. These steps may include documenting consistency with previous environmental analysis (e.g., Programmatic Environmental Assessments, Categorical Exclusions), drafting project specific environmental analysis (e.g., Environmental Assessments, Environmental Impact Statements), and/or initiating consultations with other federal agencies to ensure compliance with regulations (e.g., Essential Fish Habitat, Endangered Species Act, National Historic Preservation Act).

I. Summary of Significance and Impacts

Answer each item below. For guidance, see the corresponding CRP NEPA Considerations in the Attachment. Questions 1-10 evaluate the proposal’s significance under NEPA. Question 11 addresses whether the impacts of the proposal are analyzed under the CRP PEA and SPEA. Determine whether the proposed action will:

No Maybe* Yes

- | | | | |
|-----|-----|-----|---|
| ___ | ___ | ___ | 1. Have impacts on public health or safety? |
| ___ | ___ | ___ | 2. Affect the unique characteristics of the geographic area? |
| ___ | ___ | ___ | 3. Have impacts on the human environment that are likely to be highly controversial? |
| ___ | ___ | ___ | 4. Have highly uncertain or unique or unknown risks? |
| ___ | ___ | ___ | 5. Establish a precedent for future actions with significant impacts or represent a decision in principle about a future consideration? |
| ___ | ___ | ___ | 6. Have individually insignificant but cumulatively significant impacts? |
| ___ | ___ | ___ | 7. Adversely affect entities listed/eligible for listing in the National Register of Historic Places, or cause loss/destruction of significant scientific, cultural, or historic resources? |
| ___ | ___ | ___ | 8. Adversely affect endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973? |
| ___ | ___ | ___ | 9. Violate a Federal, state, or local law for environmental protection? |
| ___ | ___ | ___ | 10. Result in the introduction or spread of a nonindigenous species? |
| ___ | ___ | ___ | 11. Is there any category above for which impacts are not adequately described in PEA or SPEA? |

II. Clarifying Questions

1. Is the degree to which the proposed action affects public health or safety significant? Consider the following:

- *Water Use and Quality*
 - a. Will there be a change to the water supply and/or water table?
Please address any changes to groundwater, surface water, or any interbasin transfers.
 - b. Will there be any impacts on wastewater disposal?
 - c. Will there be a change to stormwater flow in the area?
 - d. Will there be a change to the location of the floodplain or the depth of flood waters?

- *Geological Resources*
 - a. Is construction on or near any other natural feature that could affect the safety of the public part of this project? (Examples include known active geological faults.)
 - b. Will implementation result directly or indirectly in construction on slopes greater than 15%?
 - c. Will blasting be necessary?
- *Air and Noise Impacts*
 - a. Will air quality be affected?
 - b. Will there be an increase in noise in the area?
- *Energy Resources*
 - a. Will the capacity of any generating facility be changed?
 - b. Will the length or capacity of fuel or transmission lines be changed?
- *Traffic*
 - a. Will implementation change traffic patterns or increase traffic volumes?
- *Contaminants*
 - a. Will implementation result in the use, storage, release and/or disposal of toxic, hazardous, or radioactive materials, or in exposure of people to such materials? (Historical data such as chains of title and tax records can reveal whether activities have taken place there that could have released hazardous, toxic, or radioactive materials into the site, and whether underground storage tanks are likely to be present. Field inspection may reveal evidence of USTs such as vent pipes or fill caps, and evidence of site contamination such as stressed vegetation, soil surface stains, suspicious other possible waste containers, or ponds, pits, sumps or ditches with suspicious odors or smells. Check for evidence of or past history of PCBs, local Superfund sites, asbestos, etc.).
 - b. Will sampling for contaminants be necessary based on the results of your investigation as detailed above?
- *Environmental Justice*
 - a. Is the project likely to have adverse economic/environmental impacts on minority or low income groups, or Native American tribes that are out of proportion with its impacts on other groups?
 - b. Is the project likely to alter the sociocultural character of such a group's community, or religious practices or use of land and other resources?

If the answer to any of the above questions is yes, is there a significant effect expected? Are these impacts described in the PEA or SPEA? Include if the effect is negative or beneficial.

2. Is the degree to which the proposed action affects unique characteristics of the geographic area significant? Consider the following:

- Will implementation result in changing the use of park lands, prime farmlands, and/or a floodplain?
- Will implementation alter a wetland? (The project may be altering a wetland if it results in construction on or near hydric soils, wetland vegetation, or other evidence of a wetland)
- Will the project be located on or near ecologically critical areas, such as a wildlife refuge, a designated wilderness, a wild and scenic river, a National Natural Landmark, designated open space, or a designated conservation area; or located on or near an area under study for any such designation?
- Will the proposed action have substantial impacts on biodiversity and/or ecosystem function within the affected area (e.g. benthic productivity, predator-prey relationships, etc.).

If the answer to any of the above questions is yes, is there a significant effect expected? Are these impacts described in the PEA or SPEA? Will the project change the use for which the ecologically critical areas above were designated? Why or why not? Include if the effect is negative or beneficial.

3. What is the degree to which this project and its impacts on the human environment are likely to be highly controversial?

- Are there currently any members of the public objecting to this project?
- Is there any sector of the public that has not been fully educated about the benefits and possible adverse impacts of the project?
- Do any of the following have the potential to be highly controversial?
 - a. Ecological impacts
 - b. Aesthetic impacts
 - c. Economic impacts
 - d. Social impacts
 - e. Affects on public health
 - f. Affects on historic sites
 - g. Cultural resource impacts-

If the answer to any of the above questions is yes, please explain 1) how project proponents plan to educate the public and reduce or relieve the actual or potential controversy or 2) if an individual EA, at a minimum, is needed to address the controversial impacts (required of highly controversial projects).

4. What is the degree to which possible impacts on the human environment are highly uncertain or involve unknown risks?

- Does this project involve new techniques in the field of habitat restoration?
- Does the proposed site have characteristics that make it unique when compared to projects frequently implemented in the field of habitat restoration?
- Are their historic uses of the site that make it likely that contaminants will be uncovered? (Conduct a search of previous deed holders/site uses.)

If the answer to any of the above questions is yes, please explain what has been done reduce the uncertainty involved in the project. Are these impacts described in the PEA or SPEA?

5. What is the degree to which the proposed project may establish a precedent for future actions with significant impacts or represents a decision in principle about a future consideration?

- Does funding this project predisposes you toward funding another project in the future?
- Will a change in local zoning or a local ordinance be needed?

If the answer to either of the above questions is yes, will significant impacts result from future activities? Are these impacts described in the PEA or SPEA?

6. Consider whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

- Is the project one of a series of projects that together may change the pattern of pollutant discharge, traffic generation, economic change, flood plain, or land use change in the area? Consider other past, present, or reasonably foreseeable future impacts, including those not caused by CRP-funded projects.

If the answer to the above question is yes, is there a significant effect expected? Are these impacts described in the PEA or SPEA? Include if the expected effect is negative or beneficial.

7. Consider the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. Loss or destruction may occur through physical alteration or by altering its visual, social, or other characteristics.

- Is there a building or other structure that is over 45 years old? Will loss or destruction occur?
- Is there a neighborhood or commercial area that may be important in the history or culture of the community? Will loss or destruction occur?
- Is there a known or probable cemetery on site? Will loss or destruction occur?
- Is the project on a rural landscape that may have cultural or esthetic value? Will loss or destruction occur?
- Is the site a place of traditional cultural or spiritual value in the eyes of a Native American group or other community? Will loss or destruction occur? Will the proposed project impede access to such a place?
- Is the site a known archeological site? Will loss or destruction occur?

If the answer to any of the above questions is yes, please explain what has been done to mitigate such losses. (In addition, if proximity to any of the locations/sites listed are likely to generate controversy, please address this under question 3, above.) Has the State Historic Preservation Office been contacted? Where is the record of consultation with the SHPO filed? Are these impacts described in the PEA or SPEA?

8. Consider the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. Consider the following:

- Will the project alter a natural ecosystem?
- If yes, are endangered or threatened species, their critical habitat, or a species under consideration for listing present in the area? How have you determined their presence or absence? List the species present.
- If yes, have Section 7 ESA consultations been received from USFWS or NMFS? Where are these documents on file?
- If “likely to adversely affect” was concluded, have sufficient steps been taken to mitigate potential loss? Explain.

Do the answers above lead you to believe that the degree to which the action may adversely affect listed species is minimal, and will be beneficial in the long term? Are these significant impacts? Are these impacts described in the PEA or SPEA?

9. Consider whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. Consider whether the action is likely to have impacts that would be inconsistent with such authorities as:

- Archaeological and Historic Preservation Act (16 U.S.C. 469 and 36 CFR Part 800);
- National Historic Preservation Act (16 U.S.C. 470 and 36 CFR Parts 61, 63, 65, 68, 79, and 800);
- Clean Water Act (33 U.S.C. 1251-1387) Permits are required if the project includes a regulated liquid discharge (Section 402 NPDES), or discharge of fill in wetlands or intertidal areas (Section 404);
- Coastal Zone Management Act (15 CFR 930 Subpart D and 15 CFR 923) Federal fishery management actions are required to be in compliance with states coastal zone management plans. Requires a Consistency determination;
- Endangered Species Act (See question 8, above);
- Marine Mammal Protection Act (16 U.S.C. 1631-1421) Prohibits, with certain exceptions, the take of marine mammals in U.S. waters;
- Farmland Protection Policy Act (7 CFR 658) requires Federal agencies to minimize the extent to which Federal programs including technical assistance or financial assistance contribute to the unnecessary and irreversible conversion of important farmland to nonagricultural uses

- Magnuson-Stevens Fishery Conservation and Management Act applies to fishery management plans, amendments to fishery management plans, and federal fisheries management notices, rules and regulations. The Act stipulates ten National Standards to which fishery conservation and management actions must conform. Section 303 requires essential fish habitat (EFH) descriptions. The agency has guidance for EFH consultations which should be followed. A Fisheries Impact Statement is needed;
- E.O. 11988 (Floodplain management);
- E.O. 11990 (Wetlands protection);
- E.O. 12072 (Development in central business areas);
- E.O. 12898: (Environmental Justice in Minority Populations and Low Income Populations);
- E.O. 13006 (Priority use of historic properties);
- E.O. 13158 (Marine Protected Areas);
- E.O. 13175 (Consultation and Coordination With Indian Tribal Governments);
- EPA's solid waste management guidelines;
- Occupational Health and Safety Administration (OSHA) noise standards;
- A State Implementation Plan (SIP) under the Clean Air Act;
- Other applicable state, tribal, or local environmental, historic preservation, noise, visual, or social impact ordinances.

List all documentation showing compliance with the above laws and requirements and where documents are located. Are these impacts described in the PEA or SPEA?

10. Will the Federal action result in the introduction or spread of a nonindigenous species?

- Are these impacts described in the PEA or SPEA?

Toolkit Resource #20: U.S. Army Corps of Engineers Contact Information

USACE District Office	Contact information
South Atlantic Division	
Wilmington, NC	69 Darlington Ave. Wilmington, NC 28403 Tel: 910-251-4511 http://www.saw.usace.army.mil/
Charleston, SC	69A Hagood Ave. Charleston, SC 29403-5107 Tel: 843-329-8044 , 866-329-8187 Fax: 843-329-2332 http://www.sac.usace.army.mil/
Savannah, GA	100 W Oglethorpe Ave. Savannah, GA 31401 Tel: 912-652-5279, 912- 652-5770 http://www.sas.usace.army.mil/
Jacksonville, FL	701 San Marco Blvd. Jacksonville, FL 32207-8175 Tel: 1-800-291-9405 http://www.saj.usace.army.mil/
Mobile, AL	P.O. Box 2288 Mobile, AL 36628-0001 Tel: 251-694-3776 http://www.sam.usace.army.mil/
Mississippi Valley Division	
New Orleans, LA	7400 Leake Ave. New Orleans, LA 70118 Tel: 504-862-2257 http://www.mvn.usace.army.mil/
Southwest Division	
Galveston, TX	2000 Fort Point Rd. Galveston, TX 77550 Tel: 409-766-3943 http://www.swg.usace.army.mil/

Toolkit Resource #21: State Regulatory Agency Contact Information

Agency	Contact information
Texas – General Land Office (TXGLO) http://www.glo.state.tx.us/coastal/cmp.html	
TXGLO: Permit Center (Galveston) http://www.glo.state.tx.us/psc	Texas A&M University-Galveston 200 Seawolf Pkwy., Bldg. 3027 Galveston, TX 77554-1675 Tel: 409-741-4057, 1-866-894-7664 Fax: 409-741-4010
TXGLO: Permit Center (Corpus Christi) http://www.glo.state.tx.us/psc/	Texas A&M University-Corpus Christi 6300 Ocean Dr., NRC #2800, Unit 5841 Corpus Christi, TX 78412-5841 Tel: 361-825-3050, 866-894-3578 Fax: 361-825-3465
Louisiana – Department of Natural Resources http://dnr.louisiana.gov	
Main Office	617 N Third St. LaSalle Building Baton Rouge, LA 70802 Tel: 225-342-4500 Fax: 225-342-5861
Mississippi – Department of Marine Resources http://www.dmr.state.ms.us	
Main Office	1141 Bayview Ave. Biloxi, MS 39530 Tel: 228-374-5000, 800-374-3449
Alabama – Department of Conservation and Natural Resources http://www.outdooralabama.com/public-lands/stateLands/landsCoastal/	
Main Office	5 Rivers - Alabama's Delta Resource Center 3115 5 Rivers Blvd Spanish Fort, AL 36527 Tel: 251-621-1216
Florida – Department of Environmental Protection (FLDEP) http://www.dep.state.fl.us/cmp/default.htm	
FLDEP: Northwest Office http://www.dep.state.fl.us/northwest/	160 Governmental Center Pensacola, FL 32502-5794 Tel: 850-595-8300 Fax: 850-595-8417
FLDEP: Northeast Office http://www.dep.state.fl.us/northeast/	7825 Baymeadows Way, Suite B200 Jacksonville, FL 32256-7577 Tel: 904-807-3300 Fax: 904-448-4362
FLDEP: Central Office http://www.dep.state.fl.us/central/	3319 Maguire Blvd., Suite 232 Orlando, FL 32803-3767 Tel: 407-894-7555 Fax: 407-897-2966

Agency	Contact information
Florida – Department of Environmental Protection (FLDEP) - continued http://www.dep.state.fl.us/cmp/default.htm	
FLDEP: Southwest Office http://www.dep.state.fl.us/southwest/	13051 N Telecom Parkway Temple Terrace, FL 33637-0926 Tel: 813-632-7600 Fax 813-632-7665
FLDEP: Southeast Office http://www.dep.state.fl.us/southeast/	400 North Congress Ave., Suite 200 West Palm Beach, FL 33401 Tel: 561-681-6600 Fax: 561-681-6755
FLDEP: South Office http://www.dep.state.fl.us/south/	2295 Victoria Ave., Suite 364 Fort Myers, FL 33901-3881 Tel: 239-332-6975 Fax: 239-332-6969
Georgia – Department of Natural Resources http://crd.dnr.state.ga.us/content/displaynavigation.asp?TopCategory=6	
Main Office	1 Conservation Way Brunswick, GA 31520 Tel: 912-264-7218 Fax: 912-262-3143
South Carolina – Department of Health and Environmental Control (SCDHEC) http://www.scdhec.net/environment/ocrm	
SCDHEC: Charleston Office (Main)	1362 McMillan Ave., Suite 400 Charleston, SC 29405 Tel: 843-953-0200 Fax: 843-953-0201
SCDHEC: Beaufort Office	104 Parker Dr. Beaufort, SC 29906 Tel: 843-846-9400 Fax: 843-846-9810
SCDHEC: Myrtle Beach Office	104 Parker Dr. Beaufort, SC 29906 Tel: 843-846-9400 Fax: 843-846-9810
North Carolina – Department of Environment and Natural Resources, Division of Coastal Management http://dcm2.ehnr.state.nc.us	
Main Office	400 Commerce Ave. Morehead City, NC 28557 Tel: 1-888-4RCOAST dcmfrontdesk@ncmail.net



Tools, Tips, and Templates for: Construction and Maintenance



Full project implementation involves construction preparation, actual construction, and post-construction management. During the construction phase, the project team will carry out and maintain the tidal hydrology restoration project. Referring back to project goals and objectives during this phase is important for keeping construction on track.

Construction and Maintenance Resources

The tools included in this section are designed to be detailed and user-friendly. In this toolkit chapter you will find the following interactive resources for construction and maintenance:

- *Toolkit Resource #22*
Construction and Maintenance Summary Recommendations
A summary of key recommendations from Chapter 6 of the *Returning the Tide Guidance Manual*, "Construction and Maintenance."

- *Toolkit Resource #23*
Example Construction Process Outline
With typical tasks from pre-construction preparation to post-construction monitoring, as well as suggestions for who should be involved at each stage.
- *Toolkit Resource #24*
Example Multi-Funder Project Budget
Includes typical budget categories and organization critical to granting agencies (e.g. current expenditures vs. grant funds awarded, match, etc.).
- *Toolkit Resource #25*
Match analysis tool
To aid project teams discover match scenarios to fulfill grant requirements.
- *Toolkit Resource #26*
Example Independent Cost Estimates
Includes examples of the different approaches for generating estimates.



Digital versions can be downloaded at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #22: Summary Recommendations

1. Refer to example projects of comparable size and scope to help with estimating costs and writing a statement of work.
2. Provide as much detail in the statement of work as possible, but still allow room for contractors to demonstrate innovation and cost-effectiveness.
3. Require that contractors and the design team visit the site, or have local knowledge of the site, for effective construction design and implementation.
4. Confirm construction details carefully with all parties, such as hydrology requirements, elevations, slopes, substrata, and seeding and planting (if applicable).
5. Be aware of construction challenges in a tidal and saline environment (i.e., tidal regime may limit the timing of construction; salt water may rust metal equipment).
6. Control the footprint of activities as much as possible to limit any unintended secondary impacts of construction.
7. Expect the unexpected – construction oversight and contingency planning are critical.
8. Monitor and maintain construction elements during and after construction. In addition to scientific evaluation of the restoration project, it is important to evaluate engineered structures and make adjustments if necessary.

Toolkit Resource #23:

Example Construction Process Outline

Construction Stage	Personnel Involved
<i>Pre-Construction Preparation</i>	
1. Develop budget and estimate construction costs	Project Team
2. Draft Statement of Work (SOW)	Project Team
3. Select contractor based on response to SOW (proposal and bid)	Project Team
4. Negotiate with contractor <i>a. Determine cost</i> <i>b. Develop final schedule</i>	Project Team and Contractor
5. Develop construction plans	Contractor with Project Team approval
<i>Implementing Construction Activities</i>	
1. Plant preparation	Contractor with Project Team oversight
2. Site preparation	Contractor with Project Team oversight
3. Construction	Contractor with Project Team oversight
<i>Post-Construction Management</i>	
1. Construction monitoring <i>a. As-built survey</i>	Contractor, Project Team, and/or other expert (Other expert for as-built survey)
2. Construction Maintenance <i>a. Repair</i> <i>b. Plant Replacement</i> <i>c. Invasive species control</i> <i>d. Herbivore/ Predator control</i>	Contractor and/or Project Team

Toolkit Resource #24: Example Multi-Funder Project Budget

MULTI-FUNDER BUDGET EXAMPLE									
Provided by the NOAA Restoration Center									
Budget Categories	Total Budget	Total Funds Available (Sum of Funders)	Non-Federal Funding Sources		Federal Funding Sources		Unmet Need	Costs to Date	Remaining Funds In Hand
			Funder A confirmed	Funder B confirmed	Funder C confirmed	Funder D pending			
Personnel/Salary	\$9,900	\$9,900	\$9,900				\$0	\$2,475	\$7,425
<i>Person A (30 hours @ \$30/hr)</i>	\$900								
<i>Person B (150 hours @ \$60/hr)</i>	\$9,000								
Fringe Benefits	\$2,970	\$3,000	\$3,000				-\$30	\$740	\$2,260
Travel	\$1,000	\$1,000			\$1,000		\$0	\$213	\$787
Equipment Purchase	\$0	\$0					\$0	\$0	\$0
Supplies	\$1,000	\$1,000			\$1,000		\$0	\$234	\$766
Contractual	\$160,500	\$159,000	\$54,000	\$50,000	\$30,000	\$25,000	\$1,500	\$36,000	\$123,000
Pre-construction monitoring	\$36,000								
Contractor Mobilization	\$25,000								
Earth-moving	\$18,000								
Culvert installation	\$28,500								
Vegetation planting	\$20,000								
As-built monitoring	\$18,000								
Contractor Demobilization	\$15,000								
Total Direct Costs	\$175,370	\$173,900	\$66,900	\$50,000	\$32,000	\$25,000	\$1,470	\$39,662	\$134,238
Overhead/Indirect Costs (15%)	\$26,306	\$23,100	\$8,100	\$7,500	\$2,500	\$5,000	\$3,206	\$7,900	\$15,200
Total	\$201,676	\$197,000	\$75,000	\$57,500	\$34,500	\$30,000	-\$4,676	\$47,562	\$149,438

Toolkit Resource #25: Match Analysis Tool

MATCH ANALYSIS WORKSHEET								
<small>(Provided by the NOAA Restoration Center)</small>								
Tool verifies:								
<input checked="" type="checkbox"/> If sufficient match is provided to each funder (Row 25) and if total match needs have been met (Row 28).								
<input checked="" type="checkbox"/> If additional matching funds are available to dedicate to future funders (Total Match Unused, Cell I15), and if more match has been provided than is actually needed for any given funder (Row 31)								
<input checked="" type="checkbox"/> If matching funds were incorrectly dedicated to more than one funder (if the "provided by" row sums to more than the "available match", Row 30)								
<input checked="" type="checkbox"/> If the federal/non-federal status of matching funds is appropriate (Row 32).								
Pending/Secured Grants								
		Funder A	Funder B	Funder C	Funder D	Funder E	Funder F	Total
Information	Total Available as Match	\$75,000	\$57,500	\$34,500	\$30,000			\$197,000
	Are These Federal Funds?	Yes	Yes	No	No			
	Match Required	\$50,000	\$57,500	\$10,000	\$0			\$117,500
	Match Restrictions	Nonfederal Only	Nonfederal Only	None	None			
	Unused (see below)	\$65,000	\$27,500	(\$10,500)	\$5,000	\$0	\$0	\$87,000
Match Provided								
		To Funder A	To Funder B	To Funder C	To Funder D	To Funder E	To Funder F	Total
Match Provided	By Funder A			\$10,000				\$10,000
	By Funder B	\$30,000						\$30,000
	By Funder C	\$45,000						\$45,000
	By Funder D		\$25,000					\$25,000
	By Funder E							\$0
	By Funder F							\$0
	Remaining Match Needed	-\$25,000	\$32,500	\$0	\$0	\$0	\$0	\$0
WARNINGS!!!								
		Funder A	Funder B	Funder C	Funder D	Funder E	Funder F	
Has the funder's match requirement been met?	Yes	No	Yes	Yes	Yes	Yes	Yes	
Is match from this funder used more than once? <small>A matching source may be split to match multiple sources, but an individual dollar of matching funds may only be used one time.</small>	No	No	Warning! You have used more funds than you have indicated are available from this source. Check with the funder to see if this is allowable.	No	No	No	No	
Have you provided more match than needed? <small>Allotting more match to a funder than you indicated was required in the table above may impact your ability to provide matching funds to other sources.</small>	Warning! You may have provided more match than needed. Consider reducing your match.	No	No	No	No	No	No	
Are all match type requirements met? <small>Federal funding sources often require non-federal match.</small>	Warning! You have used federal funds to match a source that requires non-federal match. Please revise your matrix above.	Yes	Yes	Yes	Yes	Yes	Yes	
Key to colors:								
Data to be entered by Project Manager								
A Caution, Federal Funding Source. Make sure to check match restrictions.								
Caution, cells contain formulas. Use caution when editing cell.								

Toolkit Resource #26a:

Example Independent Cost Estimate

Engineering and Design Costs Itemized by Labor

Line Item	Cost/unit	Units	Total Cost
Senior engineer	200/hr	20	\$4,000.00
Project manager	125/hr	140	\$17,500.00
Project engineer	125/hr	30	\$3,750.00
Project engineer, 2	95/hr	50	\$4,750.00
Environmental scientist	75/hr	30	\$2,250.00
Junior project engineer	75/hr	30	\$2,250.00
Technician	50/hr	25	\$1,250.00
Clerical	35/hr	10	\$350.00
Labor Subtotal			\$36,100.00
Airfare/ person	400	2	\$800.00
Lodging per diem	104	4	\$416.00
ME&I Per diem	54	4	\$216.00
Reproduction, mailing	1200	4	\$4,800.00
Rental car/gas	95	1	\$95.00
Mileage/parking	125	1	\$125.00
Reimbursables total			\$6,452.00
Other Subtotal			\$12,904.00
Total Cost			\$49,004.00

Toolkit Resource #26b:

Example Independent Cost Estimate

Engineering and Design Costs Itemized by Task

Line Item	Cost/unit	Units	Total Cost
Data collection	2000/ day	3	\$6,000.00
Survey	3600/day	3	\$10,800.00
Conceptual design	3200	2	\$6,400.00
Engineering design	17000	1	\$17,000.00
Permit development/submittal	7500	1	\$7,500.00
Regulatory requests for information	3800	3	\$11,400.00
Total Cost			\$59,100.00

Toolkit Resource #26c:

Example Independent Cost Estimate

Construction Costs Itemized by Labor

Line Item	Cost/unit	Units	Total Cost
Senior scientist	125/hr	40	\$5,000.00
Project scientist	95/hr	120	\$11,400.00
Junior scientist	70/hr	150	\$10,500.00
Senior project manager	200/hr	240	\$48,000.00
Construction foreman	150/hr	200	\$30,000.00
Heavy equipment operator	105/hr	120	\$12,600.00
Front end loader	250/day	15	\$3,750.00
Dump truck	175/day	15	\$2,625.00
General labor	50/hr	400	\$20,000.00
Nursery subcontract	15000	1	\$15,000.00
Senior engineer	200/ hr	12	\$2,400.00
Engineer project	125/ hr	24	\$3,000.00
Total Cost			\$164,275.00

Toolkit Resource #26d:

Example Independent Cost Estimate

Construction Costs Itemized by Task

Line Item	Cost/unit	Units	Total Cost
Pre-construction monitoring	3600/day	10	\$36,000.00
Contractor mobilization	25000	1	\$25,000.00
Earth-moving	18000	1	\$18,000.00
Culvert installation	9500	3	\$28,500.00
Vegetation planting	4/plant	5000	\$20,000.00
As-built monitoring	3600	5	\$18,000.00
Contractor demobilization	15000	1	\$15,000.00
Total Cost			\$160,500.00



Tools, Tips, and Templates for: Scientific Evaluation and Monitoring



Scientific monitoring is the systematic collection of data that provides information on changes that can indicate problems and/or progress toward achieving restoration project goals and objectives (NOAA Wetland Guide). Monitoring requires the measure of certain habitat attributes or physical parameters at regular intervals before and after project implementation. This record of habitat changes, along with comparison to a reference condition, will indicate if objectives are being met.

Scientific Evaluation and Monitoring Resources

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for conducting scientific evaluation and monitoring:

- *Toolkit Resource #27*
Scientific Evaluation and Monitoring Summary Recommendations
A summary of key recommendations from Chapter 7 of the *Returning the Tide Guidance Manual*, "Scientific Evaluation and Monitoring."

- *Toolkit Resource #28*
Monitoring Data Collection Form
Includes templates for collecting data on core parameters such as hydrology, soil salinity, vegetation, and nekton.
- *Toolkit Resource #29*
Example Wildlife Monitoring Datasheet
An example spreadsheet for collecting behavioral observation data for wildlife.
- *Toolkit Resource #30*
Monitoring Plan Template
Provided by the NOAA Restoration Center as an example of information collected from funded projects to meet minimum monitoring standards.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #27: Summary Recommendations

1. Ensure that all projects receive a basic level of monitoring to provide some degree of confidence that the individual project is meeting goals and objectives. A subset of projects should receive a more robust level of scientific evaluation.
2. Plan to conduct one year of pre-construction monitoring at the project and references sites – this is critical for determining the effect of restoration actions. Post-construction monitoring should extend long enough to evaluate project effectiveness (minimum five years; ideally twenty years).
3. Choose parameters for monitoring that closely match the highest priority objectives of the projects.
4. Utilize the four core scientific monitoring parameters for tidal hydrology restoration: hydrology, vegetation, soil, and nekton.
5. Consider initiating an effort to create regional core, or standard, parameters and methods to allow for improved comparison among project sites within a geographic region.
6. Disseminate the results of the project monitoring broadly to advance the science of tidal hydrology restoration – with the goal of better understanding and improved restoration in the future.

Toolkit Resource #28: Monitoring Plan Template

Monitoring Plan Template	
Project Name:	
Project Proponent:	
Project Goal:	<i>(the overall intent of the habitat restoration effort; in some cases, it can be long-term and exceed the life of the immediate available funding)</i>
Structural Objective	
Parameter	<i>(what will be measured and in what units)</i>
Technique for Measurement	<i>(optional)</i>
Baseline	<i>(pre-construction or earliest available post-construction numerical value for the structural parameter)</i>
Reference	<i>(ideal numerical value for the structural parameter)</i>
Target	<i>(proposed numerical value desired for the structural parameter)</i>
Timing	<i>(sampling frequency and end date)</i>
Functional Objective	
Parameter	<i>(what will be measured and in what units)</i>
Technique for Measurement	<i>(optional)</i>
Baseline	<i>(pre-construction or earliest available post-construction numerical value for the functional parameter)</i>
Reference	<i>(ideal numerical value for the functional parameter)</i>
Target	<i>(proposed numerical value desired for the functional parameter)</i>
Timing	<i>(sampling frequency and end date)</i>

Toolkit Resource #29a: Monitoring Data Collection Form Core Parameter: Hydrology

Core Parameter: Hydrology	
Date	
Time	
Weather Condition	
Wind Speed	
Wind Direction	
Tide	
Staff Gauge #	
Water Height	
Time	
Weather Condition	
Wind Speed	
Wind Direction	
Tide	
Staff Gauge #	
Water Height	
Time	
Weather Condition	
Wind Speed	
Wind Direction	
Tide	
Staff Gauge #	
Water Height	

Toolkit Resource #29b: Monitoring Data Collection Form Core Parameter: Soil

Core Parameter: Soil	
Date	
Characteristic (e.g. Salinity)	
Station 1	
Time	
Salinity	
Station 2	
Time	
Salinity	
Station 3	
Time	
Salinity	
Station 4	
Time	
Salinity	
Station 5	
Time	
Salinity	

Toolkit Resource #29c: **Monitoring Data Collection Form** Core Parameter: *Vegetation*

Core Parameter: Vegetation				
Date				
Weather Conditions				
Transect #1	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
Time				
% Cover (Native/Non-native)				
Plant Height (10 samples)				
Reproduction ?				
Transect #2	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
Time				
% Cover (Native/Non-native)				
Plant Height (10 samples)				
Reproduction ?				
Transect #3	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
Time				
% Cover (Native/Non-native)				
Plant Height (10 samples)				
Reproduction ?				
Transect #4	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
Time				
% Cover (Native/Non-native)				
Plant Height (10 samples)				
Reproduction ?				
Transect #5	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
Time				
% Cover (Native/Non-native)				
Plant Height (10 samples)				
Reproduction ?				

Toolkit Resource #29d: Monitoring Data Collection Form Core Parameter: Nekton

Core Parameter: Nekton						
Capture Method (e.g. seine)						
Date						
Weather Conditions						
Capture #1						
Time						
Tide						
	Species #1	Species #2	Species #3	Species #4	Species #5	Species #6
# individuals						
Length/ Weight						
Individual #1						
Individual #2						
Individual #3						
Individual #4						
Individual #5						
Individual #6						
Individual #7						
Individual #8						
Individual #9						
Individual #10						
Capture #1						
Time						
Tide						
	Species #1	Species #2	Species #3	Species #4	Species #5	Species #6
# individuals						
Length/ Weight						
Individual #1						
Individual #2						
Individual #3						
Individual #4						
Individual #5						
Individual #6						
Individual #7						
Individual #8						
Individual #9						
Individual #10						
Capture #1						
Time						
Tide						
	Species #1	Species #2	Species #3	Species #4	Species #5	Species #6
# individuals						
Length/ Weight						
Individual #1						
Individual #2						
Individual #3						
Individual #4						
Individual #5						
Individual #6						
Individual #7						
Individual #8						
Individual #9						
Individual #10						



Tools, Tips, and Templates for: Community Support



Often the public is not highly informed about the ecological impacts of historic tidal hydrology modifications in the Southeast United States. To increase demand for tidal hydrology restoration and gain public support for projects, practitioners must commit resources to develop intensive community relations programs. Governmental and nongovernmental organizations, as well as environmental nonprofit groups should adopt strategies that nurture the development of an informed and politically active constituency for the widespread restoration of tidal areas.

Resources for Community Support

The tools included here are designed to be detailed and user-friendly. In this toolkit chapter you will find the following resources for successfully integrating community involvement into your tidal hydrology restoration project:

- *Toolkit Resource #31*
**Community Support
Summary Recommendations**
A summary of key recommendations from Chapter 8 of the *Returning the Tide Guidance Manual*, "Community Involvement."

- *Toolkit Resource #32*
**Non-Governmental Organizations
Focusing on Coastal Restoration
and Community Involvement in the
Southeastern United States**
A list of organizations that serve as models for incorporating community involvement in habitat restoration projects. The listed organizations may also serve as a regional resource for new projects seeking to incorporate volunteers into their own programs.
- *Toolkit Resource #33*
**Resources for Developing
Volunteer Management Programs**
Includes a variety of organizations and studies designed to strengthen and support volunteering, volunteer management, and volunteer monitoring.



Electronic versions of these resources are available for download at http://www.habitat.noaa.gov/partners/toolkits/tidal_hydro.html

Toolkit Resource #31: Summary Recommendations

1. Build organization capacity for community involvement and dedicate staff in areas of education, advocacy, and volunteer coordination.
2. Commit resources to developing intensive community relations programs.
3. Take into account concerns of the affected community. Do not overlook public perceptions and needs during the project.
4. Develop a comprehensive volunteer strategy to build public support.
5. Implement monitoring practices specifically for volunteers. This will provide multiple cost-effective project benefits.

Toolkit Resource #32:

Non-Governmental Organizations Focusing on Coastal Restoration and Community Involvement in the Southeastern United States

- **The North Carolina Coastal Federation**
For over 25 years, the North Carolina Coastal Federation (NCCF) has served as the only non-profit organization focused exclusively on protecting and restoring the coast of North Carolina. NCCF has designated community involvement as a key component in its education, advocacy, and habitat preservation and restoration strategies. For more information, visit <http://www.nccoast.org/>.
- **Tampa Bay Watch**
Tampa Bay Watch, Inc., is a non-profit stewardship program dedicated exclusively to the charitable and scientific purpose of protecting and restoring the marine and wetland environments of the Tampa Bay estuary. Tampa Bay Watch trains and organizes citizen volunteers, students, at-risk youth, and civic organizations to participate in environmental projects while heightening community awareness of the fragility and importance of the environment. For more information, visit <http://www.tampabaywatch.org/>.
- **Gulf of Mexico Foundation**
The Gulf of Mexico Foundation promotes conservation and preservation of the Gulf through voluntary and cooperative stewardship by individuals, communities, and economic enterprises of the U.S. and Mexico. Only through awareness, understanding, and stewardship can the Gulf be conserved and nurtured for the benefit of future generations. For more information, visit <http://www.gulfmex.org/>.
- **Galveston Bay Foundation**
The Galveston Bay Foundation serves to preserve, protect, and enhance Galveston Bay – one of the world’s most productive estuaries. The Foundation’s balanced programs in advocacy, conservation, education, and research strive to ensure that Galveston Bay remains a beautiful and productive place for future generations. For more information, visit <http://www.galvbay.org/>.
- **Alabama Coastal Foundation**
The Alabama Coastal Foundation (ACF) works to create a healthy balance between the conservation needs of our priceless coastal resources and the inevitable pressures of economic growth. The mission of the ACF is to improve and protect Alabama’s coastal resources by encouraging citizens to educate themselves about local issues, and to work together to preserve the areas natural resources through participation in preservation and educational projects. For more information, visit <http://www.joinacf.org/index.htm>.

Toolkit Resource #33:

Resources for Developing Volunteer Management Programs

- **Corporation for National and Community Service – Volunteer Resource Center**
The Resource Center is a clearinghouse of materials designed to strengthen national service and volunteer programs – including free downloadable tools; a specialized collection of books, videos, and other publications on loan; the Effective Practices Collection; and a growing catalog of online courses. Discover incredible resources related to national and community service – search the site, browse by topic, and collaborate with other service professionals. http://www.nationalservice.gov/for_organizations/tta/index.asp.
- **ServiceLeader.org: For Volunteer Managers**
This area provides information on all aspects of volunteer management, including getting your organization ready to involve volunteers, volunteer screening, matching, record-keeping and evaluation, legal issues/risk management, volunteer/staff relations, online activism by volunteers, and volunteer management software. <http://www.utexas.edu/lbj/rgk/serviceleader/leaders/>.
- **The Volunteer Monitor’s Guide to Quality Assurance Project Plans**
A quality assurance project plan, or QAPP, outlines the procedures that those who conduct a monitoring project should take to ensure the data they collect and analyze meets project requirements. This document is designed to encourage and facilitate the development of volunteer QAPPs by clearly presenting explanations and examples. Readers are urged to consult the additional resources listed in the appendices of this document, and to contact their state or U.S. Environmental Protection Agency Regional quality assurance staff for specific information or guidance on their projects. <http://www.epa.gov/OWOW/monitoring/volunteer/qappcovr.htm>.
- **Habitat Restoration Volunteer Study**
A study to assess the effects of community-based restoration on stewardship in communities, including recommendations for improving volunteer activities and outcomes. http://galvbay.org/docs/GBF_Human_Dimensions_FinalReport_March%202007.pdf.

