

Please answer the following questions for your restoration project. For assistance on any of the fields, please see the Inventory Help available at neri.noaa.gov.

GENERAL INFORMATION

What is the name of this project?

What type of project is this?

- Funded under the Estuary Restoration Act (ERA)
- Compensatory (required by state or federal law)
- All other projects.

1. Provide a topic sentence summarizing this project.

2. Does this project include monitoring to gauge the success of restoration efforts?

- Yes
- No

3. Does this project's monitoring plan meet ERA Council Monitoring Standards?

- Yes
- No

4. If monitoring data are available on the web, please provide a URL (web address).

5. What is the status of this project? Select One:

- Planning Stage
- Implementation Stage
- Implementation Complete
- Project Terminated

6a. Provide the dates for each stage of this project as it occurs.

Note: For projects in the planning stage, provide estimated implementation stage start date.

Planning start date: _____ (MM/YYYY)
Actual implementation start date: _____ (MM/YYYY)
Implementation completion date: _____ (MM/YYYY)

6b. If the project was terminated **before implementation was complete**, provide date of termination.

_____ (MM/YYYY)

7. What is the size of the area which was/will be directly manipulated?

_____ (Acres)

8. What is the overall size of the area being monitored?

_____ (Acres)

9. How were the measurements in questions 6 & 7 obtained (e.g. aerial photography, GIS, land surveys, etc)?

*****Questions for ERA-funded projects only: *****

10. Provide the name of project's non-federal sponsor.

11. Provide the name of the lead federal agency. Select One:

- Army Corps of Engineers (ACE)
- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Department of Agriculture (USDA)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (FWS)
- Department of Transportation (DOT)

12. Provide the date of the ERA funding agreement.

_____ (MM/YYYY)

13. Has this project qualified as an innovative technology project as defined by the Council's Strategy?

- Yes
- No

If yes, please briefly describe the innovative technology.

14. Provide the ERA project number. _____

PROJECT ABSTRACT

Multiple horizontal lines for text entry.

CONTACT INFORMATION

Provide information for up to two primary project contacts.

1. Information for Contact 1

Form fields for Contact 1: First Name, Last Name, Position Title, Office, Address 1, Address 2, City, State/Territory/Province, Zip Code, Phone, Fax, E-mail, Agency/organization/project Web site address.

2. Information for Contact 2

Form fields for Contact 2: First Name, Last Name, Position Title, Office, Address 1, Address 2, City, State/Territory/Province, Zip Code, Phone, Fax, E-mail, Agency/organization/project Web site address.

GEOGRAPHIC LOCATION

1. Where is this project located?

State/Territory/Province: _____
 County/Parish: _____
 City: _____
 Tribe: _____
 Region (see map in Help page): _____
 Zip Code (+4 if known): _____
 USGS 8-digit HUC: _____

Latitude/Longitude (center of project site in decimal degrees to a minimum of four decimal points):
 X coordinate (longitude) _____
 Y coordinate (latitude) _____
 USGS Topographic Quadrangle: _____
 Congressional District: _____

2. What method was used to obtain the latitude and longitude for the project site (e.g. GPS, Topographic map, website)? If known, please also provide the datum.

3a. Is there a GIS data layer (polygon) showing the boundaries of the area (to be) restored?

Yes No

3b. If yes and GIS contact is not listed as the primary project contact, please provide:

Contact first name _____ Contact last name _____
 Contact phone number _____ Contact e-mail _____

PROJECT BENEFITS

Please provide information on this project's benefits.

1. Project Benefits <small>(see Table 4)</small>	2. Description of benefit	3. If implemented, has this benefit been achieved?	4. Comments
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not yet known	
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not yet known	
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not yet known	
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not yet known	

HABITAT TYPES AND ACREAGE RESTORED

Please provide information on the habitat types which have been restored and/or will be restored by this project. Since a given project may restore multiple habitat types, please provide information for each habitat type restored.

Habitat types and acreage restored:

1. Habitat Type Restored (see Table 1) ¹	2. Tidal influence of habitat type:	3. Specifically describe this habitat type (e.g. comments on tidal influence, photic/aphotic, location in estuary, etc.)	4. Estimated acreage to be restored:	For acres already restored, indicate how many acres were:				
				5. Restored			6. Benefited (not counted toward million acre goal)	
				Created	Re-established	Rehabilitated	Enhanced ²	Protected ²
	<input type="checkbox"/> subtidal <input type="checkbox"/> intertidal <input type="checkbox"/> supratidal/spray zone <input type="checkbox"/> not applicable							
	<input type="checkbox"/> subtidal <input type="checkbox"/> intertidal <input type="checkbox"/> supratidal/spray zone <input type="checkbox"/> not applicable							
	<input type="checkbox"/> subtidal <input type="checkbox"/> intertidal <input type="checkbox"/> supratidal/spray zone <input type="checkbox"/> not applicable							
	<input type="checkbox"/> subtidal <input type="checkbox"/> intertidal <input type="checkbox"/> supratidal/spray zone <input type="checkbox"/> not applicable							

NOTES:

¹ For projects providing fish passage, please provide acreage information for habitat actually restored (e.g. via stream channel, restructuring, placement of woody debris, best management practices, etc.), AND for entire stream area opened to fish migration (this information can be provided at the end of this section).

² Acres reported in the "Enhanced" and "Protected" categories should not duplicate acres reported in the "Restored" category. If the same project acreage has been enhanced or protected as well as restored, report those acres only in the "Restored" category.

7. What method (e.g. aerial photography, GIS, land surveys) was used to determine the number of acres reported above as created, re-established, rehabilitated, enhanced and/or protected?

***** In-Stream projects only *****

8. If this project provided fish passage, how many stream miles were opened to anadromous fish?

_____ (Miles)

9. For the stream miles reported in #8 above, please provide an estimate of the acres (based on surface area) made accessible to anadromous fish.

_____ (Acres)

RESTORATION TECHNIQUES

For each of the habitats listed above, please add restoration techniques used to restore each habitat type. Since a given project may restore multiple habitat types, please provide information on restoration techniques for each habitat type restored.

Habitat Type Restored (from list above)	1. Restoration technique used to restore this habitat (see Table 2)	2. Description of Technique (e.g. materials used, plant spacing)	3. Success of this technique	4. Comments on success
			<input type="checkbox"/> Very successful <input type="checkbox"/> Somewhat successful <input type="checkbox"/> Not successful <input type="checkbox"/> Not yet known	
			<input type="checkbox"/> Very successful <input type="checkbox"/> Somewhat successful <input type="checkbox"/> Not successful <input type="checkbox"/> Not yet known	
			<input type="checkbox"/> Very successful <input type="checkbox"/> Somewhat successful <input type="checkbox"/> Not successful <input type="checkbox"/> Not yet known	
			<input type="checkbox"/> Very successful <input type="checkbox"/> Somewhat successful <input type="checkbox"/> Not successful <input type="checkbox"/> Not yet known	

MONITORING AND SUCCESS CRITERIA

For each of the habitat types listed above, please list the parameters that were used to monitor each habitat type. Since a given project may restore multiple habitat types, please provide monitoring and success information for each habitat type restored.

Habitat Type Restored from above:

1. Monitoring Parameter (see Table 3)	2. Description (e.g. methods, frequency, etc.)	3. Monitoring start date (MM/YYYY)	4. Monitoring end date (MM/YYYY)	5. Quantitative Success Criteria (e.g. water depth > x for x hours/day)	6. Have the success criteria been met?	7. Comments on success criteria
					<input type="checkbox"/> Not yet known <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None	
					<input type="checkbox"/> Not yet known <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None	
					<input type="checkbox"/> Not yet known <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None	
					<input type="checkbox"/> Not yet known <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None	

NOTE: This section must be repeated for each habitat type restored listed above.

REGIONAL RESTORATION PLANS

If this project is being carried out in support of an existing regional restoration plan, please provide the following plan information:

1. Plan Name	2. Lead Organizations	3. Type of Plan (select one)	4. Date (MM/YYYY)	5. Plan URL
		_ Business/industry _ Federal _ Local government _ Multistate/regional _ Nonprofit _ State/territory/ province _ Other		
		_ Business/industry _ Federal _ Local government _ Multistate/regional _ Nonprofit _ State/territory/ province _ Other		
		_ Business/industry _ Federal _ Local government _ Multistate/regional _ Nonprofit _ State/territory/ province _ Other		

BUDGET INFORMATION

1. Provide the original proposed project cost estimate (planning and implementation only).

2. Provide the total cost estimate for project monitoring.

3. If project implementation is complete, provide the total actual cost (planning and implementation only) of this project.

4. List amount(s) for all applicable funding sources:

Federal		Non-Federal	
\$	Cash	\$	Cash
\$	In-kind	\$	In-kind
\$	Lands, easements, etc.	\$	Lands, easements, etc.

5. If desired, provide additional information on the project budget below (e.g., operations and maintenance costs, specifics on in-kind contributions, etc.):

PARTNER INFORMATION

Add the following information for project partners:

1. Project Partner	2. Type of Partner (select one)	3. Web site URL for partner	4. Partner Roles (select up to three)	5. Additional information for partner
	<input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local <input type="checkbox"/> Non-profit <input type="checkbox"/> Business <input type="checkbox"/> Tribal <input type="checkbox"/> Private citizen		<input type="checkbox"/> Planning <input type="checkbox"/> Technical assistance <input type="checkbox"/> Project implementation <input type="checkbox"/> Monitoring <input type="checkbox"/> Funding <input type="checkbox"/> Lands, easement, etc. <input type="checkbox"/> Other (describe)	
	<input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local <input type="checkbox"/> Non-profit <input type="checkbox"/> Business <input type="checkbox"/> Tribal <input type="checkbox"/> Private citizen		<input type="checkbox"/> Planning <input type="checkbox"/> Technical assistance <input type="checkbox"/> Project implementation <input type="checkbox"/> Monitoring <input type="checkbox"/> Funding <input type="checkbox"/> Lands, easement, etc. <input type="checkbox"/> Other (describe)	
	<input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local <input type="checkbox"/> Non-profit <input type="checkbox"/> Business <input type="checkbox"/> Tribal <input type="checkbox"/> Private citizen		<input type="checkbox"/> Planning <input type="checkbox"/> Technical assistance <input type="checkbox"/> Project implementation <input type="checkbox"/> Monitoring <input type="checkbox"/> Funding <input type="checkbox"/> Lands, easement, etc. <input type="checkbox"/> Other (describe)	
	<input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local <input type="checkbox"/> Non-profit <input type="checkbox"/> Business <input type="checkbox"/> Tribal <input type="checkbox"/> Private citizen		<input type="checkbox"/> Planning <input type="checkbox"/> Technical assistance <input type="checkbox"/> Project implementation <input type="checkbox"/> Monitoring <input type="checkbox"/> Funding <input type="checkbox"/> Lands, easement, etc. <input type="checkbox"/> Other (describe)	

PROJECT PHOTOS

You may upload up to 3 pictures of your restoration project to the National Estuaries Restoration Inventory. These photos will be used in on-line project profiles that will appear on the NERI web site once your project has been approved. For each photo, please provide the following information:

1. Photo File Name	2. Photo Caption	3. Credit	4. Date of Photo (MM/YYYY)

NOTICE

Responses to this collection are required of grant recipients to support the Estuary Restoration Act. Collection of estuary habitat restoration project information will be undertaken in order to populate a restoration project inventory mandated by the Estuary Restoration Act of 2000. The inventory is intended to provide information to improve restoration methods, provide the basis for required reports to Congress, and track estuary habitat acreage restored. Estuary habitat restoration project information will be submitted by habitat restoration project managers through an interactive web site, and will be accessible to the public via Internet for data queries and project reports. Responses to this information collection are required to retain funding provided by the Estuary Restoration Act and optional for projects that are not funded through the ERA but meet project requirements for the National Estuaries Restoration Inventory. Confidentiality will not be maintained – the information will be available to the public. Public reporting burden for this collection of information is estimated to average four hours for new responses and two hours to update existing responses in the inventory, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden, to the NOAA Fisheries Office of Habitat Conservation, Restoration Division, F/HC3, 1315 East-West Highway, Silver Spring, MD 20910.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

The information collected will be reviewed for compliance with the NOAA Section 515 Guidelines established in response to the Treasury and General Government Appropriations Act, and certified before dissemination.

National Estuaries Restoration Inventory

Table 1: Habitat Types

ID	NERI Habitat
1	Beach
2	Coral Reef
3	Dune
4	Forested Wetland
5	Freshwater Marsh
6	Hard Bottom
7	In-Stream
8	Kelp
9	Mangrove
10	Maritime Forest
11	Oyster Reef/Shell bottom
12	Pond
13	Riparian Zone (non-wetland)
14	Rocky Shoreline
15	Salt Marsh
16	Shrub Swamp (non-mangrove)
17	Soft Bottom/Mud
18	Soft Bottom/Sand
19	Submerged Aquatic Vegetation
20	Upland
21	Water Column

Last updated 3/02/04

Table 2: Restoration Techniques by Habitat Type

Last updated 3/09/04

Techniques by Habitat Type	Beach	Coral/Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-Stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub Swamp (non-mangrove)	Soft Bottom/Mud	Soft Bottom/Sand	Submerged Aquatic Vegetation	Upland	Water Column
Construction																					
native plant nursery construction			x	x	x		x	x	x		x	x		x	x			x	x		
reef construction: artificial materials		x				x	x				x	x						x		x	
reef construction: natural materials		x				x	x				x	x						x		x	
stream pool construction							x														
terracing					x										x						
Fauna																					
bird habitat enhancement	x		x	x	x					x			x	x	x	x					x
coral reattachment		x																			
coral stabilization		x																			
coral transplant		x																			
fish hatchery construction							x					x									x
fish passage					x		x					x			x						
fish exclusion devices					x		x					x			x						
stock enhancement							x					x									x
disease control: fauna	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
invasives removal: fauna	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
oyster gardening											x										
species reintroduction (non-plant)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Hydrological manipulation																					
berm/dike modification (including replacement)				x	x		x				x	x		x	x	x	x	x			
berm/dike removal				x	x		x				x	x		x	x	x	x	x			
bulkhead removal				x	x		x				x	x		x	x	x	x	x			
culvert modification (including replacement)				x	x		x				x	x		x	x	x	x	x			
culvert removal				x	x		x				x	x		x	x	x	x	x			
dam modification (including replacement)				x	x		x				x	x		x	x						
dam removal				x	x		x				x	x		x	x						
stream channel rehabilitation/creation				x	x		x				x	x		x	x					x	
stream flow modification				x	x		x				x	x		x	x	x	x	x			
weir construction				x	x		x				x			x	x					x	
weir removal				x	x		x				x			x	x					x	
tide gate installation				x	x		x				x			x	x	x	x	x			
tide gate removal				x	x		x				x			x	x	x	x	x			

Techniques by Habitat Type	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-Stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub Swamp (non-mangrove)	Soft Bottom/Mud	Soft Bottom/Sand	Submerged Aquatic Vegetation	Upland	Water Column
tide gate modification (including replacement)				x	x		x		x			x			x	x	x	x	x		
storm water/runoff controls		x		x	x		x		x		x	x	x		x	x	x	x	x	x	x
Physical/Chemical Manipulation																					
beach nourishment	x		x																		
contaminant removal/remediation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
daylighting							x														
debris removal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
erosion control	x	x	x	x	x		x		x	x	x	x	x	x	x			x	x	x	
fill removal				x	x	x	x		x			x	x		x	x	x	x			x
large woody debris/structure placement							x														
nutrient management		x	X	X	X		x	X	X	X	X	X	X		X	X	X	X	X	X	X
placement of dredge material	x		x	x	x		x		x	x	x	x		x	x	x	x	x	x	x	
prescribed burn			x	x	x				x	x		x	x		x	x					x
substrate modification	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Protection																					
fencing/netting	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
land acquisition	x		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
signage	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
water rights acquisition							x					x									x
Vegetation																					
planting			x	x	x			x	x	x	x	x		x	x				x	x	
disease control: vegetation		x	x	x	x			x	x	x	x	x		x	x				x	x	x
invasives removal: vegetation		x	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x	x

Table 3: Habitat Type and Monitoring Parameter Matrix

Last updated 05/27/04

Physical Characteristics	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-Stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone	Rocky Shoreline (non-wetland)	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/Mud	Soft Bottom/Sand	Submerged Aquatic Vegetation	Upland	Water Column	
Channel characteristics							x															
Hydrology		x		x	x	x	x	x		x	x	x	x	x	x	x	x	x				
Light penetration/secchi		x		x	x	x	x	x		x	x	x	x	x	x	x	x	x				x
Temperature		x		x	x	x	x	x		x	x		x	x	x	x	x	x				x
Topography/Geomorphology	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Turbidity		x		x	x	x	x	x		x	x		x	x	x	x	x	x				x
Pool/riffle ratio							x															

Water Column Characteristics	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-Stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone	Rocky Shoreline (non-wetland)	Salt Marsh	Shrub Swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column	
Chlorophyll concentration in water		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Dissolved Oxygen		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Fecal coliforms		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Nitrogen		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Nutrient cycling		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Phosphorus		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Silicon		x		x	x	x	x	x		x	x			x	x	x	x	x				x
pH		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Salinity		x		x	x	x	x	x		x	x			x	x	x	x	x				x
Toxics		x		x	x	x	x	x	x	x	x			x	x	x	x	x				x

Soil and Substrate Characteristics	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub Swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Bulk density			x					x							x						
Moisture levels and drainage			x					x				x			x						
Nitrogen (pore water)	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	
Nutrient cycling	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	
Phosphorus (pore water)	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	
Silicon	x										x										
Organic content	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
pH (pore water)	x								x		x	x								x	
Salinity (pore water)				x					x		x	x		x						x	
Sediment texture	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Sedimentation rate and quality	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	

Vegetation	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Composition	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Basal area				x					x	x			x		x					x	
Biomass	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Canopy areal extent and structure				x	x				x	x			x		x				x	x	
Density	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Diversity	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Edge to area ratio				x								x		x							
Herbivory/disease	x		x	x	x			x	x	x		x	x		x	x			x	x	
Litter fall				x			x		x	x		x	x							x	
Growth rate	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Percent cover	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Productivity rate	x		x	x	x			x	x	x		x	x	x	x				x	x	x
Ratio of vegetation to open water				x	x				x			x		x	x				x		x
Recruitment	x		x	x	x	x		x	x	x		x	x	x	x				x	x	x

Survival	x		x	x	x	x		x	x	x		x	x		x	x			x	x	
Woody debris				x			x		x	x		x	x			x				x	

	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column	
Amphibians																						
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian vegetation (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column	
Birds																						
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Fish	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Biomass		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Density		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Disease		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Distribution		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Diversity		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Growth		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Population age composition		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Predation		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Recruitment		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Size		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x
Survival		x		x	x	x	x	x		x	x		x	x	x	x	x	x			x

Invasive Species (Fauna)	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invasive Species (Vegetation)	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrates	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Mammals																					
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Mixed Assemblage																					
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Reptiles	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Abundance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Density	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Disease	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Distribution	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Diversity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Growth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Population age composition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Predation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Recruitment	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Size	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survival	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Other	Beach	Coral Reef	Dune	Forested Wetland	Freshwater Marsh	Hard Bottom	In-stream	Kelp	Mangrove	Maritime Forest	Oyster Reef/Shell bottom	Pond	Riparian Zone (non-wetland)	Rocky Shoreline	Salt Marsh	Shrub swamp (non-mangrove)	Soft Bottom/mud	Soft Bottom/sand	Submerged Aquatic Vegetation	Upland	Water Column
Debris	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Qualitative assessment (e.g. photo interpretation)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

National Estuaries Restoration Inventory

Table 4: Project Benefits

Benefits
improve/provide habitat for migratory birds
improve/provide habitat for fish/shellfish
improve/provide habitat for Threatened & Endangered species
improve/provide habitat for other wildlife (general)
wildlife corridors/benefit to nearby habitat areas
improved water quality
increased water quantity
improve/restore natural hydrology
erosion control
flood control
increase/improve recreational opportunities
community revitalization/citizen participation
compensation for injuries to natural resources