

**Habitat Restoration and Protection – Workgroup**  
**October 4<sup>th</sup>, 2018**

**Group Participants:**

**Moderator:**

**Discuss and each participant write down their own answers on sticky notes.**

- a. How can we categorize projects to streamline/standardize the terminology of habitat restoration activities across the border, to be utilized in this project?  
*Use the list “restoration/protection techniques”, and broad “Nature Based Solution categories” provided.*



- b. What data are available? Sources, contacts, types, relevance



- c. How can data be shared? Now and moving forward



- d. What information is the most useful for the users of the tool, to be documented and displayed for each project?  
*Use the list provided as resource and example.*



- e. How can this mapping tool be useful for your work? In the office, in the field, in meetings, etc.



**Resources for a.**

**Nature Based Solutions**

Table of practices that qualify as Nature Based Solutions. Nature-Based Solutions (NBS) incorporate, mimic, and/or use natural systems and processes to address a range of environmental concerns from water quality to natural hazard mitigation.

<b>Broad Project Categories</b>	<b>Practices</b>
Low Impact Development (LID)	Bio-swales, bioretention, stormwater recharge areas
	Constructing wetlands (gravel/floating/natural)
	Establishing filter strips, grassed waterways on farm fields/roadsides
	Green roof initiatives
	Green Streets/Green Parking lots
	Permeable pavement
	Planting trees/urban trees, forests
	Rain gardens, victory gardens
	Rainwater harvesting
Living shorelines, ranging from non-structural vegetated treatments to hybrid hard structural/restorative natural treatments	Beach Nourishment
	Coastal Bank Protection, Natural and Engineered
	Living breakwaters (e.g. conserving/restoring oyster and shellfish reefs or using reefballs or similar structures)
	Dune Restoration, Natural and Engineered (e.g. dune nourishment, artificial dunes, cobble berms)
	Marsh Creation/Enhancement, with and without toe protection
	Seagrass conservation/restoration
Open space retentions	Conserving/restoring forests
	Conserving/restoring intertidal flats
	Conserving/restoring river corridors/riparian zones
	Conserving/restoring wetlands
	Greenways, bike trails
	Building parks, recreational spaces
	Open Space Acquisition
Aquatic Connectivity	Dam removal
	Daylighting Rivers and Streams
	Right-Sizing Culverts/bridges for passage and flood projections
Open space/ecological flood management	Conserving lands in watershed headwaters
	Establishing/Conserving flood bypasses
	Floodplain Restoration/Reconnection to River
	Horizontal Levees/Levee setbacks & realignment

	Protecting backwater areas
	Establishing flood water detention areas/ Waterfront Parks
Planning*	Mapping of climate projections, hazards, and/or open space opportunities (e.g. opportunities for marsh migration)
	Moving People Out of Harm's Way (aka buy-outs)
	Reviewing and Updating Relevant Planning Documents for climate change, hazard, and/or open space considerations
	Reviewing and Updating Regulations (zoning/ordinances/bylaws) for climate change, hazard, and/or open space considerations

\*Not for mapping purposes

Match “Restoration/Protection Techniques” by NBS categories as applicable. See some examples already incorporated in the table below.

- Add other “Restoration and Protection techniques” based on projects you have worked on and have not been included.
- If there are Restoration/Protection techniques or new added techniques that cannot be matched with NBS categories, try to create those “categories” to group them.

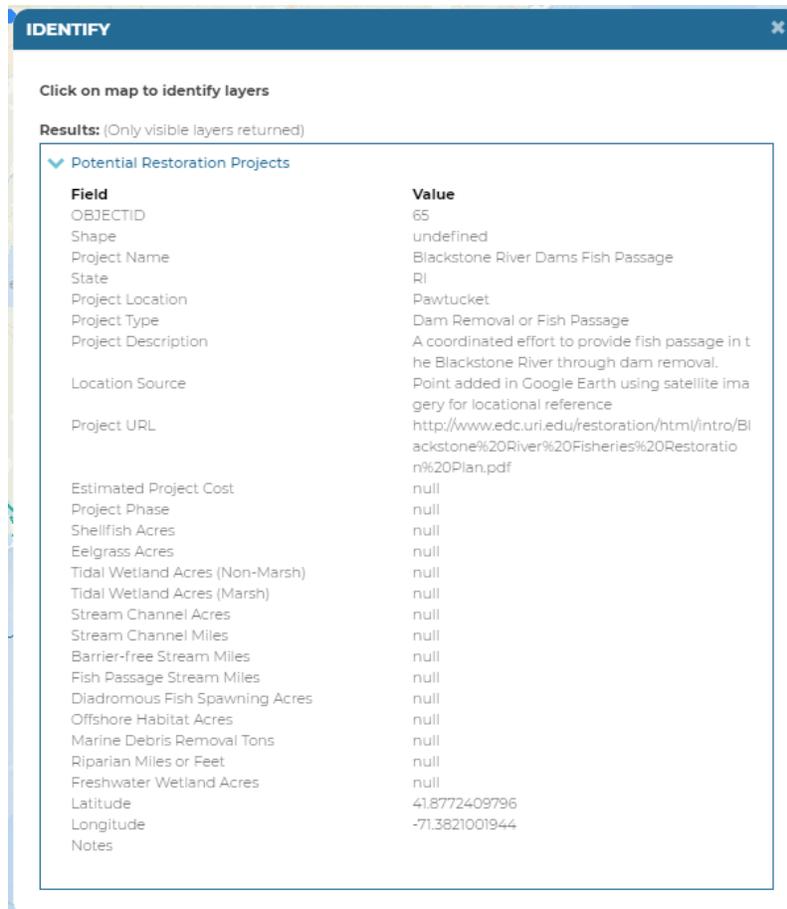
Restoration/Preservation Techniques <i>(Source, NEPORT EPA, 2018)</i>	Nature Based Solutions (NBS) Broad Project Category
• Beach Nourishment	▪ <i>Living shoreline</i>
• Berm/Dike Modification (including replacement)	▪
• Berm/Dike Removal	▪
• Bird Habitat Enhancement	▪ <i>Open Space (retention)</i>
• Bridge Replacement	▪
• Bulkhead Removal	▪
• Contaminant Removal/Remediation	▪
• Culvert Modification (including installation and replacement)	▪
• Culvert Removal	▪
• Dam Modification/Removal	▪
• Daylighting	▪
• Debris Removal	▪
• Ditch Removal, Filling, or Plugging	▪
• Easements	▪
• Erosion Control	▪
• Fencing/Netting	▪
• Fill Removal	▪
• Fish Ladder/Fishway	▪ <i>Aquatic Connectivity</i>



## Resources for *d*.

These are the type of information (Attributes) that can be included for each project documented and mapped; because this is going to be compiled in a GIS format, each project can only report a single choice, in this case, we can use the most predominant. Think of these as a dropdown list.

**Example of how data can be documented in the Attributes for each project reported and mapped. (Source: Northeast Ocean Data Portal)**



The screenshot shows a 'IDENTIFY' window with a blue header and a close button. Below the header, it says 'Click on map to identify layers'. Underneath, it says 'Results: (Only visible layers returned)'. A dropdown menu is open, showing 'Potential Restoration Projects'. Below this, there is a table with two columns: 'Field' and 'Value'.

Field	Value
OBJECTID	65
Shape	undefined
Project Name	Blackstone River Dams Fish Passage
State	RI
Project Location	Pawtucket
Project Type	Dam Removal or Fish Passage
Project Description	A coordinated effort to provide fish passage in the Blackstone River through dam removal.
Location Source	Point added in Google Earth using satellite imagery for locational reference
Project URL	<a href="http://www.edc.uri.edu/restoration/html/intro/Blackstone%20River%20Fisheries%20Restoration%20Plan.pdf">http://www.edc.uri.edu/restoration/html/intro/Blackstone%20River%20Fisheries%20Restoration%20Plan.pdf</a>
Estimated Project Cost	null
Project Phase	null
Shellfish Acres	null
Eelgrass Acres	null
Tidal Wetland Acres (Non-Marsh)	null
Tidal Wetland Acres (Marsh)	null
Stream Channel Acres	null
Stream Channel Miles	null
Barrier-free Stream Miles	null
Fish Passage Stream Miles	null
Diadromous Fish Spawning Acres	null
Offshore Habitat Acres	null
Marine Debris Removal Tons	null
Riparian Miles or Feet	null
Freshwater Wetland Acres	null
Latitude	41.8772409796
Longitude	-71.3821001944
Notes	

### **A. Habitat Type (Definitions)**

*(Source, NEPORT, EPA)*

***What habitat type is being restored/protected?***

**Agriculture/Ranch Land:** Land used for cultivating soil, producing crops, and raising livestock; farming and ranching.

**Beach:** The area of land at the ocean shore, marked by an accumulation of sand, stone, and other sediment that has been deposited by the water, and is exposed to and shaped by waves and wind; does not usually support permanent vegetation.

**Dune:** A hill or ridge of sand that has accumulated by wind-driven transport, representing a gradient from sea to land; serves as a habitat for various fauna and may support permanent vegetation.

**Estuarine Shoreline:** A sediment bank (e.g., bluff), or that area located immediately adjacent to the estuary/bay proper.

**Estuarine Water Column:** The volume of water extending from the surface down to, but not including, the substrate. Water column refers to the open water of an estuary.

**Field/Meadow:** A grassy area; a treeless clearing within a forest or on a mountainside, or an area on a farm on which alfalfa (for hay) is grown.

**Forested Wetland:** Areas dominated by woody vegetation 6 meters (20 feet) or taller which remain saturated throughout the year and may flood seasonally; also known as “swamps.”

**Forest/Woodland:** An area of land covered by trees and understory vegetation, sometimes mixed with pasture; forests are described in terms of crown cover, such as closed forest, open forest, woodland and open woodland, and in terms of height of the tallest stratum, such as tall (over 30 meters), medium (10-30 meters) and low trees (under 10 meters).

**Freshwater Marsh:** Low-salinity (less than .5 ppt) wetlands characterized by erect, rooted, herbaceous plants which extend above the water’s surface, and are present for most of the growing season in most years. Water levels can range tidally or seasonally from at the soil surface to a shallow depth.

**Grassland:** Open, treeless areas that are not managed as farmland and are generally dominated by native grasses. Wetlands are not grassland.

**Hard Bottom:** Shallow and deep-water habitats with substrates consisting of bedrock, rocks, boulders, gravel, or pebbles. The solid floor typically provides an attachment surface for sessile organisms as well as a rough three-dimensional surface that encourages water mixing and nutrient cycling. For the purposes of the Inventory, hard bottom refers to such habitat when found in an estuary or Great Lake system; restoration of stream or pond bottom habitats should be reported in the In-Stream or Pond category.

**In-Stream:** The area, including the water column and substrate, located within a stream or river, excluding the streambank.

**Island:** An island is defined as a piece of land which is separated from the mainland by a body of water open to the ocean, and which has a non-marsh dry interface (such as sand or rock) with the ocean. This includes both barrier and rocky islands.

**Lake/Pond:** A naturally confined body of freshwater located inland (including the water and substrate of the lake or pond, not including vegetation bordering the lake or pond).

**Riparian:** Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features, such as rivers, streams, lakes, or drainage ways. Riparian areas have one or both of the following characteristics: 1) distinctively different vegetative species than adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms.

Riparian areas are usually transitional between wetland and upland. Riparian areas help to reduce flood peaks and they also enhance water quality, soil stability, and groundwater replenishment.

**Rocky Shoreline:** Wave-exposed coasts with a substrate of boulders, rock, or cobble. Found along the ocean coast and the shores of the Great Lakes.

**Submerged Aquatic Vegetation (SAV):** Vascular plants that grow below the surface of the water on soft sediments in sheltered shallow waters of estuaries, bays, lagoons, and lakes. These plants are usually completely inundated throughout the growing season. Some SAV habitats may contain a mix of open water and rooted, floating-leaved, and short-emergent vegetation.

**Shell Bottom:** Shallow and deep-water habitats with substrates consisting of mollusk shells such as oyster reefs.

**Shrub Swamp:** Wetlands dominated by woody vegetation less than 6 m (20 feet) tall; vegetation includes true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions. Shrub swamps remain saturated throughout the year and may flood seasonally.

**Soft Bottom/Mud:** Intertidal mudflats or subtidal substrate containing organic material and particles smaller in size than sand. These areas of loose, unconsolidated substrate generally lack rooted vegetation, but may provide appropriate habitat for shellfish beds.

**Soft Bottom/Sand:** Intertidal sandflats or sandy subtidal areas; composed of loose, unconsolidated substrate characterized by fine to coarse-grained sediment, and normally lacking rooted vegetation.

**Tidal Wetland:** Sheltered waters along the coast which are affected by both tides and freshwater

**Other:** If multiple types of habitat are present, select the predominant type rather than selecting 'Other'.

### **B. Habitat Activity (Definitions)**

*(Source, NEPORT, EPA)*

#### ***What is the overall expected outcome of the project?***

**Enhancement:** The manipulation of physical, chemical, or biological characteristics of a site with a goal to heighten, intensify, or improve specific functions or for a purpose such as water quality improvement, flood water retention or wildlife habitat. Enhancement results in a change in function and can lead to a decline in function but does not result in a gain in acres. This item includes activities commonly associated with the term's enhancement, management, manipulation, and directed alteration.

**Establishment:** The manipulations of the physical, chemical, or biological characteristics present to develop a habitat that did not previously exist. Establishment results in gain in acres.

**Maintenance:** The additional work that involves manipulation of the physical, chemical, and/or biological characteristics present which are critical for the successful completion of the restoration

process. Maintenance does not result in a gain of acres or habitat function.

**Protection:** Removal of a threat to, or preventing the decline of habitat conditions. Protection includes mechanisms, such as land acquisition, conservation easements, deed restrictions, or other designation to prevent alteration of the site. This term also includes activities commonly associated with the term preservation. Protection does not result in a gain of acres or habitat function.

**Reestablishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic function to a former habitat. Reestablishment results in the rebuilding of a former habitat and a gain in acres for that habitat.

**Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of the degraded habitat. Rehabilitation results in a gain of habitat function but does not result in a gain of acres for that habitat.

### **C. Metrics**

*How can we measure the impact of this project?*

- Acres
- Stream miles
- Density (number of culverts improved in a river segment)

### **D. Project Benefits**

*What secondary benefits does the project provide?*

- Climate Change Adaptation
- Carbon sequestration
- Erosion control
- Flood control
- Wetland succession (i.e. migration of saltmarsh)
- Improve/increase educational or recreational opportunities
- Improve or protect water quality
- Increase or protect water quantity
- Protect/improve/provide habitat for birds
- Protect/improve/provide habitat for fish/shellfish
- Protect/improve/provide habitat for other wildlife
- Protect or preserve open space
- Restore natural hydrology
- Restore historical conditions (based on historical context of the site)
- Restore aquatic habitat passage
- Cultural/Economical/Ecological Assets

### **E. Status (as of the date the project has been reported to be included in the database)**

***What phase is in the project when reported or updated?***

- Implemented (design, permitting, construction is done)
- Ongoing (designed, permitting, on construction)
- Planned (designed/permitting)
- Prioritized (research/other mechanisms to prioritize, next step is the design)
- Not completed (designed/permitting but did not move forward)
- Partial (by phases)
- Historical (has some historical context of restoration activity)

**F. Scale (what is the overall impact of the project?)**

***Is the project designed or the purpose to have an impact at which scale?***

- Local
- Regional
- Watershed
- Stream segment