

# Floating Wetlands

## Flood Adaptation Measure



### ECOLOGICAL INFRASTRUCTURE



#### WATER LEVEL RANGE:

Intertidal

#### SHORELINE LOCATION:



In Water



Manmade floating wetlands for water fowl – Baltimore, MD  
©Gallery via commons.wikimedia.org

#### DESIGN LIFE

5 to 10 years

#### ADAPTABILITY

High, Medium, Low

#### IMPACT ON THE WATERFRONT

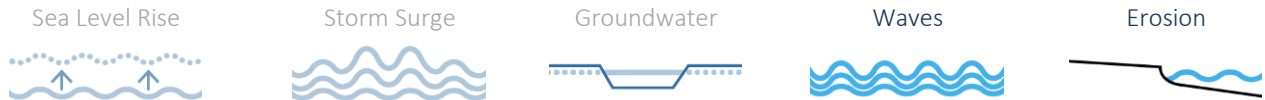
Minor Intervention

#### CONSTRUCTION COST

TBD

### COASTAL FLOOD HAZARDS MITIGATED:

Enhancements can provide flood protection when combined with other physical infrastructure



#### MEASURES COMPATIBILITY:

Flood

Seismic

All

All

#### ECOSYSTEM SERVICES: Measure may affect these shoreline values

↑	↑	↑	↑
Aquatic Habitat	Terrestrial Habitat	Water Quality	Carbon Storage
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### DESCRIPTION:

Constructed Floating Wetlands (CFWs) are designed and constructed ecosystems that mimic naturally occurring floating wetlands observed in various waterways around the world. Floating wetlands can serve a number of functions, such as creation of habitat and food production for various fish and wildlife species, reduction of wave energy approaching the shoreline, and/or improvement of water quality and clarity.

### CONSIDERATIONS:

- CFWs have had fairly wide usage in freshwater lakes and ponds as a water treatment technology, but experience from deployment in saltwater environments is fairly new and limited.

### ADVANTAGES:

- Ability to adapt to varying water levels.
- Can improve water quality through nutrient removal and encouraging deposition of suspended sediments.

### DISADVANTAGES:

- Generally, have little topographic relief with wetting and drying during the tidal cycle, limiting ecological diversity of habitats.

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- Can provide some wave attenuation but only for relatively small, short period waves.
- Should not be used in high wave energy environments. Consideration should be given to sheltered environments.

- Can provide riparian and fish habitat as well as food production for many species of fish and wildlife.

- Technology for use in saltwater/estuarine environments is in its infancy.
- Existing commercially available floating wetlands have a relatively short lifespan and would likely require ongoing maintenance and periodic replacement.
- Limited to low wave energy environments.

<p><b>CONSTRUCTION IMPACTS TO THE PUBLIC:</b></p> <ul style="list-style-type: none"> <li>• Floating wetlands are typically constructed off-site and towed to the site and installed from the water. Construction impacts would be short term and limited to on-water uses.</li> </ul>	<p><b>SEA LEVEL RISE ADAPTATION OPPORTUNITIES:</b></p> <ul style="list-style-type: none"> <li>• CFWs float on the surface of the water and therefore adapt to varying sea levels.</li> </ul>	<p><b>CASE STUDIES:</b></p> <ul style="list-style-type: none"> <li>• Baltimore Inner Harbor</li> </ul>
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**DESIGN OPPORTUNITIES:**

<p><b>Ecological Enhancements</b></p> <ul style="list-style-type: none"> <li>• Provides nearshore habitats and enhances biodiversity and food supply for wildlife. Improves water quality.</li> </ul>	<p><b>Urban Design</b></p> <ul style="list-style-type: none"> <li>• Habitat creation and associated wildlife and provide educational opportunities as well as additional greening of the waterfront.</li> </ul>	<p><b>Form</b></p> <ul style="list-style-type: none"> <li>• Form should be designed to maximize sustainability and habitat value.</li> </ul>
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**DESIGN CONSIDERATIONS:**

- Moorings should be designed to resist current and wave environment as well as potential impacts from floating debris or recreational watercraft.
- Moorings must accommodate expected water level variations/changes over the life of the project.
- Vegetation should be native and compatible with site salinity, exposure and water quality.
- Design should allow access to the wetland platform for periodic maintenance.

**SITE-SPECIFIC CONSIDERATIONS:**

- Wave and current conditions should be well defined.
- Conditions at the site should be consistent with the needs of the target vegetation/habitat.

**URBAN DESIGN CONSIDERATIONS:**

- Should consider potential for recreational water users to try to use CFWs as rest stops or platforms.

**INSTALLATION AND CONSTRUCTABILITY CONSIDERATIONS:**

- Can be manufactured and planted off-site and towed into place.

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### OPERATIONS AND MAINTENANCE CONSIDERATIONS:

- Initial monitoring and maintenance required to ensure that vegetation becomes successfully established.
- Ongoing monitoring and maintenance will be required to evaluate.