Living Shoreline Maintenance Checklist

Day 3: Maintenance & Monitoring

Routine inspection and maintenance are critical to living shoreline success. Use this form as a guide to identify the maintenance needs, then use the Maintenance Plan Template to schedule tasks and develop a summary. While conducting an inspection, it is important to photograph all areas of the living shoreline.

Date of Inspection:		Time:	48-hr Weather Conditions:
Property Owner(s):			
Property Address:			
Inspected by:			Project Install Date:

	Yes/No or N/A	Comments/Corrective Action Needed
Does the marsh have less than 90% vegetative coverage?		
Are there visible bare spots in the marsh?		
Are invasive plant species visible?		
Are there signs of erosion or loss of sand fill?		
Is the erosion severe?		
Has the exclusion fencing been removed, damaged, or come unstaked?		
Has the sill (coir log, oyster structure or bags, stone, etc.) shifted or been dislodged?		

Is the sill damaged?		
Has trash or other debris accumulated in the marsh?		
Are overhead branches shading the marsh plantings?		

Overall Condition of Living Shoreline: _____ Good _____ Needs Maintenance _____ Failing

Property owner concerns:

Additional Comments/Observations:

TMDL Verification & Calculations

VMRC JPA #	Year Constructed	Is Erosion Occurring?	Site Length	Bank Height	Plants Present?	Photo Taken?	Notes

**Adapted from DCR-SEAS Shoreline BMP TMDL Project Field Verification Form*

Calculating the Pollutant Removal Credit

Protocol 1: Prevented Sediment This protocol provides an annual mass sediment reduction credit for qualifying shoreline management practices that prevent tidal shoreline erosion that would otherwise be delivered to nearshore/downstream waters	There is a 4-step process to calculate nutrient and sediment reductions: **Step 1:** Determine if SAV is present and consult your local regulatory agency to determine if your project is eligible. **Step 2:** Estimate shoreline erosion rates to determine annual loadings. • MD estimates are available from the Shoreline Rates of Change layer of the MD DNR Coastal Atlas website • VA estimates are available from the Virginia Institute of Marine Science (VIMS) • Monitoring data can be used in the equation: V=LEB, where V=volume of sediment (cubic feet), L=length of shoreline (feet) project, E = Shoreline recession rate (feet/year) and B=bank height (feet) **Step 3:** Estimate the reduction in annual load due to the restoration project. • 100% reduction efficiency should be used since the practice prevents the fastland and nearshore erosion, while this protocol only accounts for the fastland sediment erosion. • Monitoring data can be used if available. **Step 4:** Adjust prevented sediment load to eliminate coarse grained sand. • In MD: Multiply load reduction by 0.551 • In VA: Multiply load reduction by 0.337
Protocol 2: Tidal Marsh Denitrification This protocol provides pollutant load reductions for shoreline management practices that incorporate vegetation and promote denitrification and remove nitrogen.	**Step 1:** Determine the total post construction area of the net increase in marsh plantings and convert to acres. **Step 2:** Multiply the acres of marsh planting by the unit denitrification rate (85 pounds total nitrogen/acre/year).
Protocol 3: Sediment Trapping This credit is based on the sediment trapping capabilities of both vegetative planting and/or on sediment deposition behind shoreline management structures. The pollutant load reduction is based on the square footage of wetland planting in conjunction with a shoreline management project.	**Step 1.** Determine the total post construction area of the net increase in marsh plantings and convert to acres. **Step 2.** Multiply the acres of marsh planting by the unit sedimentation value (6,959 lbs total suspended solids/acre/yr). **Step 3.** For total phosphorus load removed, multiply the acres of marsh planting by 0.76 mg/g (conversion = 0.00076) (5.289 lbs total phosphorus/acre/yr).
Protocol 4: Marsh Redfield Ratio This protocol is based on vegetative uptake of nutrients for vegetative growth in marshes. The pollutant load reduction is based on the square footage of wetland planting in conjunction with a shoreline management project.	**Step 1.** Determine the total post construction area of the net increase in marsh plantings and convert to acres. **Step 2.** Multiply the acres of tidal marsh planting by the unit marsh Redfield ratio value (6.83 pounds total nitrogen/acre and 0.3 pounds total phosphorus/acre). • In-lieu of the default pollutant load reduction, site determined values may be substituted, if based on scientifically defensible study design.