

EROSION INTENSITY SCORESHEET

SHORELINE VARIABLES	DESCRIPTIVE CATEGORIES					EI VALUE
	EROSION INTENSITY (EI) VALUE IS LOCATED IN PARENTHESIS ON LEFT SIDE OF EACH CATEGORY BOX					
AVERAGE FETCH – Average distance (miles) across open water to the opposite shore.	(0) <1/10	(2) 1/10-1/3	(4) 1/3-1	(7) 1-3	(10) >3	
DEPTH AT 20 FEET – Depth of water (feet) 20 feet from the shoreline.	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12	
DEPTH AT 100 FEET – Depth of water (feet) 100 feet from the shoreline.	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12	
BANK HEIGHT – Measure from toe of bank to top of bank-lip (feet).	(1) <1	(2) 1-3	(3) 3-6	(4) 6-10	(5) >10	
INFLUENCE OF ADJACENT STRUCTURES – Likelihood that adjacent structures are causing flank erosion at the site.	(0) no hard armoring on either adjacent property	(1) hard armoring on one adjacent property	(2) hard armoring on both adjacent properties	(3) hard armoring on one adjacent property with measurable recession	(4) hard armoring on both adjacent properties with measurable recession adjacent to both structures	
AQUATIC VEGETATION – Type and abundance of vegetation occurring in the water off the shoreline.	(0) rocky substrates unable to support vegetation.	(1) dense or abundant emergent, floating or submergent vegetation	(4) scattered or patchy emergent, floating or submergent vegetation	(7) lack of emergent, floating or submergent vegetation		
BANK VEGETATION – Type and abundance of vegetation occurring on bank face and immediately on top of bank lip.	(0) bank composed of rocky outcropping unable to support vegetation.	(1) dense vegetation, upland trees, shrubs and grasses, including lawns	(4) clumps of vegetation alternating with areas lacking vegetation	(7) minimal vegetation(due to shading or erosion)		
BANK STABILITY – Degree to which bank and adjacent area (within 10 feet of bank lip) is stabilized by natural ground, shrub, and canopy vegetation. Human disturbance is typified by tree removal, brushing, mowing, and lawn establishment.	(0) established lawn with few canopy trees and/or shrubs	(1) established lawn with moderate to dense canopy trees and/or shrubs	(4) moderate to dense natural ground vegetation and canopy trees with shrub layer substantially reduced; or few canopy trees with moderate to dense natural shrub layer	(7) moderate to dense canopy trees with moderate to dense natural shrub layer; or other natural features prevents establishment of ground vegetation		
SHORELINE GEOMETRY – General shape of the shoreline at the point of interest plus 200 yards on either side.	(1) cove or sheltered area		(4) irregular shoreline or straight shoreline	(8) headland, point, or island		
SHORE ORIENTATION – Geographic direction the shoreline faces.	(0) <1/3 mile fetch	(1) north to east to south-southeast (349°-360°, 1°-168°)	(4) south to west-southwest (169°-258°)	(8) west to north-northwest (259°-349°)		
BOAT WAKES – Proximity to and intensity of boat traffic.	(1) broad open waterbody with limited traffic; constricted shallow water body; or no-wake zone	(4) limited traffic within 200 yards; moderate traffic 200 yards to ¼ mile offshore	(8) moderate traffic within 200 yards; or intensive traffic 200 yards to ¼ mile offshore	(12) intensive traffic within 200 yards		
TOTAL EROSION INTENSITY SCORE =						

EROSION INTENSITY CLASSIFICATION: LOW = 5-30, MEDIUM = 31-48, HIGH = 49-78

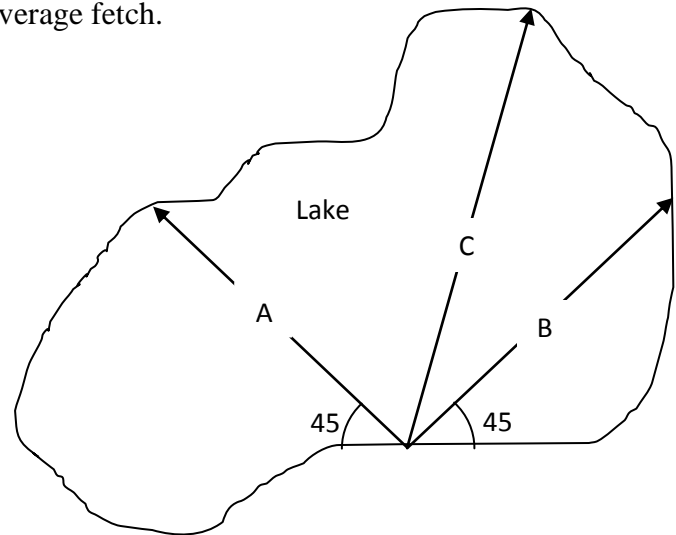
EROSION INTENSITY SCORESHEET GUIDANCE

1. **AVERAGE FETCH*** – Fetch is the distance (miles) across open water to the opposite shoreline. Fetch is measured at a 45° angle from the shoreline on either side. The longest possible fetch is also measured. The average of these 3 values represents the average fetch.

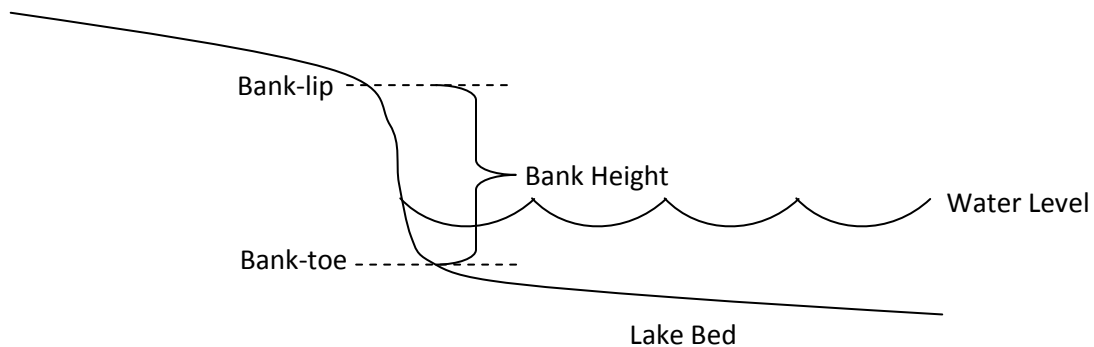
A = Fetch at 45°
B = Fetch at 45°
C = Longest possible fetch

$$\text{Ave. Fetch} = (A + B + C) / 3$$

Note: Fetch measurements should not be taken through a channel or other narrow area where waves would not maintain their energy.



2. **DEPTHS AT 20 AND 100 FEET*** - Depths (feet) can be estimated by MCWD staff using bathymetric maps, or more precise measurements can be provided by the applicant.
3. **BANK HEIGHT** – Bank height is the vertical measure (feet) from the bank-toe to the top of the bank-lip. (Note: bank-toe may be below the water level.)

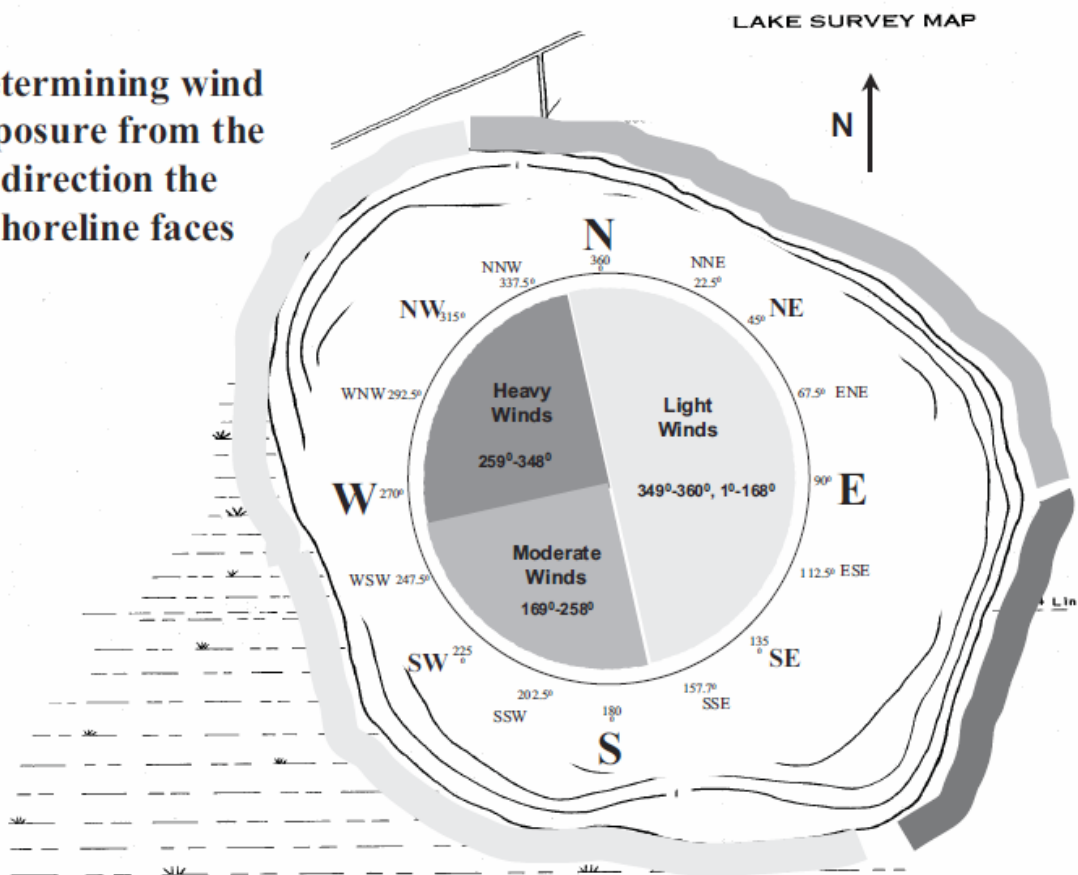


4. **AQUATIC VEGETATION** – Estimate of the percent of the lake bottom that is visually obstructed by plants during the growing season (June 1 - September 15):
 - > 50% - Dense or abundant
 - 5-50% - Scattered or patchy
 - < 5% - Lack of vegetation
5. **BANK VEGETATION** – Estimate of the percent of ground cover on the bank:
 - > 75% - Dense vegetation
 - 25-75% - Clumps of vegetation
 - < 25% - Minimal vegetation

6. **BANK STABILITY** – Represents the degree of human disturbance. A shoreline that has had little or no disturbance (with natural tree and shrub layers) but still exhibits erosion indicates that the existing vegetation may not be sufficient to stabilize the shoreline and a more structural solution may be needed. Alternatively, a shoreline that has an established lawn up to the bank may experience erosion simply due to the lack of deep-rooted vegetation, so a biological or bioengineering solution may be suitable.

7. **SHORE ORIENTATION*** –

Determining wind exposure from the direction the shoreline faces



8. **BOAT WAKES** – “Intensive traffic” is defined as a major thoroughfare or an area with regular recreational traffic such as a ski lane. “Limited traffic” means a channel, bay, or lake that is generally only used by the people who live in the surrounding area.

*Values will be provided by the MCWD at the request of the applicant.