COOPERATIVE LAKES MONITORING PROGRAM TRAINING FOR

Score the Shore

1

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3

Healthy Shorelines

- Valuable and important because…
- They provide habitat for fish, birds, amphibians, and other animals.
- They help maintain water quality, limit erosion, and slow rain runoff.

4

Healthy Shorelines

- But shorelines are threatened…
- Development often eliminates important components of a healthy shoreline
- Lawns, rock, and sea wall remove optimal habitat locations.
- Foot traffic, docks, and the desire for an unobstructed view remove the vegetation that stops erosion.

5

Healthy Shorelines

- A standardized approach will aid lake residents in finding priority areas on their lakes.

6

The process in a nutshell

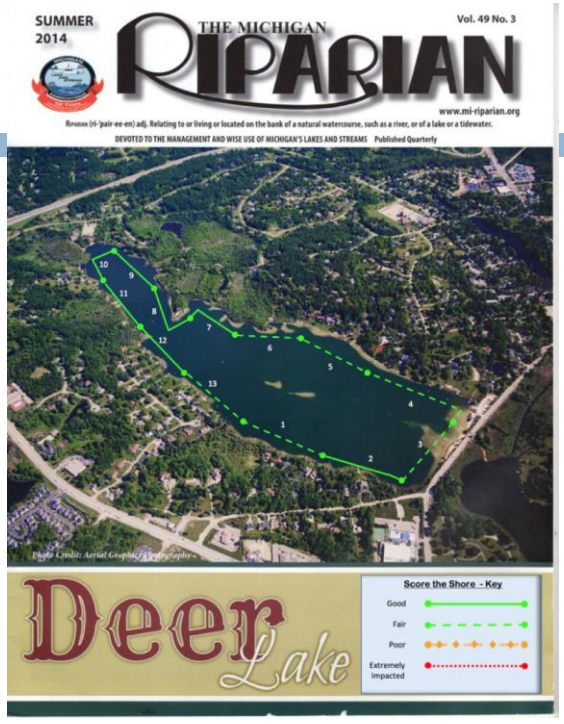
- A small team trolls around the edge of a lake and assesses the health of the shoreline using a scoring form.
- The shoreline is broken into 1000 foot sections which are assessed individually.

7

What good is this information?

- Local – lake associations
  - Support educational efforts
  - Inform lake management planning
- Region/state
  - Assess health of Michigan's lakeshores
  - Research
  - Reporting

8



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How to talk about the results

- The results from this survey are **not regulatory** and not intended be serve as enforcement for what people can or can't do with their property.
- The survey is a valuable educational tool; share results and give tips on how the lake residents can improve scores.
- We recommend newsletter articles, talks at neighborhood/association meetings, and friendly conversations.

10

Prepare to Score the Shore!

11

Score the Shore Handouts

- Score the Shore procedures
- Data Forms
  - Survey Cover Sheet (Only 1 needed)
  - Section data form
    - You will need to print/copy many of these
    - The digital version will be available at micorps.net/lake-monitoring/clmp-documents/

12

Equipment Checklist

- Boat
- Boating safety equipment
- Copies of Data Forms
- Copy of Procedure
- Pencils or waterproof pens
- Clipboard(s)
- GPS unit*
- Camera* (digital if possible)
- Binoculars*
- 2 Tally Counters*

*optional

13

Timing and effort

- No earlier than mid-June (need full leaf out, vegetative growth)
  - Northern lakes can begin later
- Length of time depends on the size of your lake (2 hours on a small lake; multiple hours on a big lake).
- 30-45 minutes per 1000 foot section while you are learning.
- 15-30 minutes per 1000 foot section once you get good at it.
- Repeat the survey every 3-5 years

14

Set up your shoreline sections ahead of time

- BEFORE you begin the survey
- 1. Use Google Earth or Maps to get aerial photo, either print it and draw on approximate 1000 foot sections or use some kind of graphics tool.

15

Set up your shoreline sections ahead of time

- 2. Ride around the lake to associate your map with GPS coordinates and/or shoreline landmarks.
- DON'T USE PEOPLE'S NAMES FOR LANDMARKS.

16

Set up your shoreline sections ahead of time

- Other methods are fine if you have different technology or different ideas, the important thing---
- Do it ahead of time!

17

The Scoring Process

18

General Process

- Your team: One driver, at least two others
- At least three passes of a 1000 foot section
  - Pass One: ~100 yards from shore
  - Pass Two: ~20-30 yards from shore
  - Pass Three: ~100 yards from shore
- Team answers questions on every pass (every member gets data sheets)
- Driver idles boat while team discusses questions and reaches consensus.
- One person records the final answers.
- Back at home, do the math to get your final scores.

19

Survey Cover Sheet

SCORE THE SHORE

Data Form

Cooperative Lakes Monitoring Program

Michigan Clean Water Corps

Lake Name:_____ County:_____

Township:_____ Lake Sampling Site (Field ID) Number:_____

Volunteer Monitor Name(s):_____

Date(s) of Survey :_____

Lake Level during survey was:_____ Average/Normal _____ Low _____ High

Does the lake have a legal lake level? ____ Yes ____ No

If yes, indicate level gage reading at time of survey, if possible: _____

Did the lake level impact survey results? If so, how?

_____

20

Total number of 1000' sections surveyed: _____

(If the final section was substantially shorter than 1000', note its approximate length here: _____)

Were photographs taken as part of this survey? ____ Yes ____ No

Development Density		**Overall Shore Score**	
A. Total no. of all buildings/docks		A. Add all of the overall section scores:	
B. Total no. of sections:		B. Total no. of sections:	
Divide A by B for the avg. number of structures per 1000 feet		Divide A by B for the Shore Score for your lake: *(It is a 0-100 scale)*	

CLMP Score the Shore Data Form Survey Cover Sheet

21

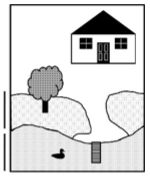
Section #: _____ Lake/County:_____ Date:_____

GPS/Landmark at Start of Section: _____

PASS 1 (Boat is 100 yards from shore):

Number of: Homes/Major Buildings: _____

Docks/Boatlifts:_____



PASS 2 (Boat is 20-30 yards from shore):

Littoral (Aquatic) Zone Characteristics and Shoreline Erosion: **Littoral Zone Raw Score:** ____

% Emergent/Floating Vegetation___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)

% Submerged Vegetation ___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)

_____ Unable to see

Is aquatic plant management evident/known? ____ No (0)____ Minor (at docks, swim areas; -1) ____ Major (-2)

Amount of Downed Trees/Woody Debris: ____ None (0) ____ Few: 1-5 (1)____ Several: 6-15 (2) ___ Many: 16+ (3)

Erosion along shoreline (check one):___ None observed (0) ____ Minor (-1) ___ Moderate (-2)____ Severe (-3)

22

PASS 3 (Boat back out to 100 yards from shore):

Riparian (Land Near Shore) Zone Characteristics: **Riparian Zone Raw Score:** ☐

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):

_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):

_____ None (0) _____ <10% (1) _____ 10-25% (2) _____ 25-75% (3) _____ >75% (4)

Average Unmowed Vegetation Belt Depth:

_____ None (0) _____ < 10 ft. (1) _____ 10-40 ft. (2) _____ > 40 ft. (3)

Shoreline Erosion Control Practices: **Erosion Control Raw Score:** ☐

Vertical Artificial: _____ None (0)_____ <10% (-1) ____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)

Types of Vertical Structure (check all that apply)_____ Seawall _____ Boulders /Rock Walls

_____Other - describe:

Sloped Artificial: _____ None (0)_____ <10% (-1) ____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)

Types of Sloped Artificial (check all that apply) _____Concrete _____ Rock/Riprap

_____ Other - describe:

Bioengineering (e.g. coir logs, branch bundles):

___ None (0) ___ <10% (-0.5) ___ 10-25% (-1) ___ 25-75%(-1.5) ____ >75% (-2)

GPS/Landmark at End of Section: _____

23

Final Scoring

These equations transform your raw scores into a 0-100 scale. You should round to the nearest whole number. Remember to multiply before you add.

Littoral Zone Raw Score (from other side): _____ x 6.2 + 31.3 = ☐ **Littoral Zone Final Score**

If "Unable to see" submerged vegetation use this: x 8.3 + 41.5 =

Riparian Zone Raw Score (from other side): _____ x 9.1 + 36.4 = ☐ **Riparian Zone Final Score**

Erosion Control Raw Score (from other side): _____ x 11.1 + 100 = ☐ **Erosion Control Final Score**

Add the Scores Above = ☐

Divide the Score Above by 3 = ☐ **OVERALL SECTION SCORE**

Comments or Concerns for this Section:

24

Docks

25

% Emergent/Floating Vegetation___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)

Emergent/Floating Vegetation

26

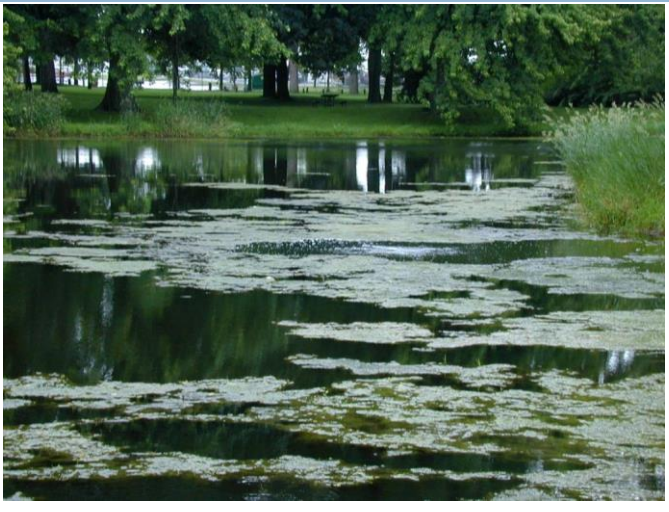
% Emergent/Floating Vegetation___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)

Emergent/Floating Vegetation

27

% Emergent/Floating Vegetation___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)

Emergent/Floating Vegetation? - YES



28

% Submerged Vegetation ___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)
_____ Unable to see

Submerged Vegetation

29

% Submerged Vegetation ___ None (0) ____ <10% (1) ___ 10-25% (2)____ 25-75% (3) ____ >75% (4)
_____ Unable to see

Submerged Vegetation

30

Is aquatic plant management evident/known? ___ No (0) ___ Minor (at docks, swim areas; -1) ___ Major (-2)

Aquatic plant management

31

Is aquatic plant management evident/known? ___ No (0) ___ Minor (at docks, swim areas; -1) ___ Major (-2)

Aquatic plant management

32

Is aquatic plant management evident/known? ___ No (0) ___ Minor (at docks, swim areas; -1) ___ Major (-2)

Aquatic plant management

33

Amount of Downed Trees/Woody Debris: ___ None (0) ___ Few: 1-5 (1) ___ Several: 6-15 (2) ___ Many: 16+ (3)

Woody Debris

34

Amount of Downed Trees/Woody Debris: ___ None (0) ___ Few: 1-5 (1) ___ Several: 6-15 (2) ___ Many: 16+ (3)

Woody Debris

35

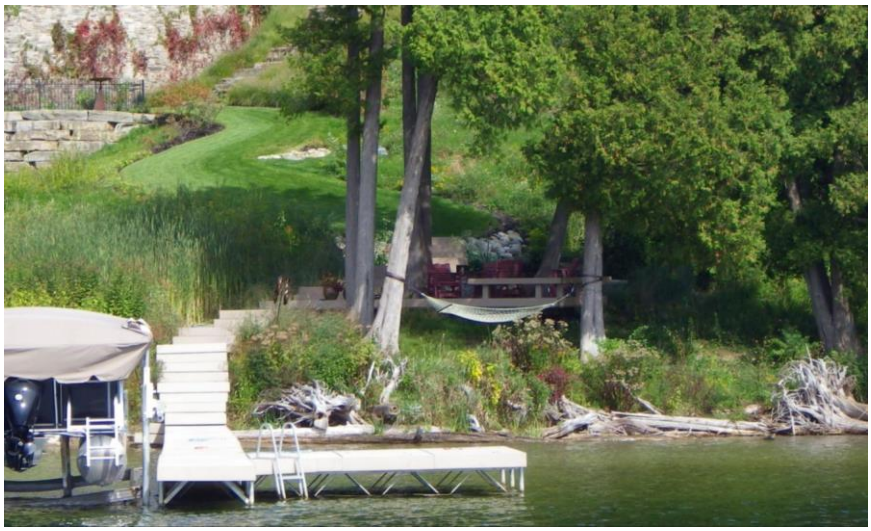
Amount of Downed Trees/Woody Debris: ___ None (0) ___ Few: 1-5 (1) ___ Several: 6-15 (2) ___ Many: 16+ (3)

Woody Debris

36

Amount of Downed Trees/Woody Debris: ___ None (0) ___ Few: 1-5 (1) ___ Several: 6-15 (2) ___ Many: 16+ (3)

Woody Debris



37

Erosion along shoreline (check one):___ None observed (0) ___ Minor (-1) ___ Moderate (-2) ___ Severe (-3)

Erosion

38

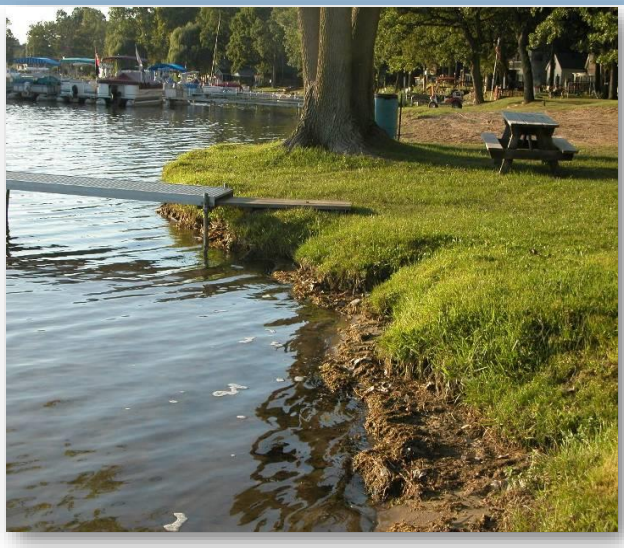
Erosion along shoreline (check one):___ None observed (0)____ Minor (-1) ___ Moderate (-2)___ Severe (-3)

Erosion

39

Erosion along shoreline (check one):___ None observed (0)____ Minor (-1) ___ Moderate (-2)___ Severe (-3)

Erosion



40

Erosion along shoreline (check one):___ None observed (0)____ Minor (-1) ___ Moderate (-2)___ Severe (-3)

Erosion

41

Erosion along shoreline (check one):___ None observed (0)____ Minor (-1) ___ Moderate (-2)___ Severe (-3)

Erosion

42

Erosion along shoreline (check one):___ None observed (0)____ Minor (-1) ___ Moderate (-2)____ Severe (-3)

Erosion

43

Does a beach count as "Erosion"?

44

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):
_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Maintained Lawn

45

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):
_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Impervious/Maintained Lawn

46

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):
_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Impervious/Maintained Lawn

47

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):
_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Impervious

48

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):
_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Impervious

49

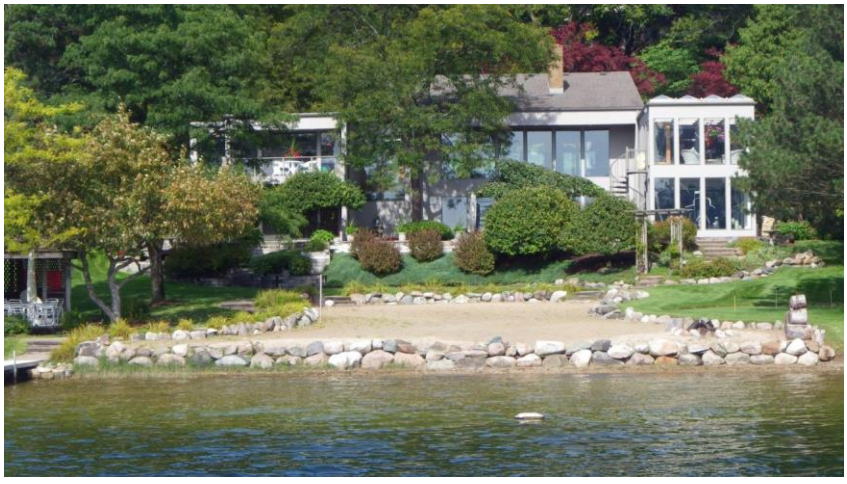
Maintained Lawn/Beach

50

% Maintained Lawn, Maintained/Artificial Beach, or Impervious (% of total section length):

_____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Maintained Lawn/Beach



51

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):

_____ None (0) _____ <10% (1) _____ 10-25% (2) _____ 25-75% (3) _____ >75% (4)

Unmowed Vegetation Belt

Average Unmowed Vegetation Belt Depth:

_____ None (0) _____ < 10 ft. (1) _____ 10-40 ft. (2) _____ > 40 ft. (3)

52

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):
____ None (0) ____ <10% (1) ____ 10-25% (2) ____ 25-75% (3) ____ >75% (4)

Unmowed Vegetation Belt

Average Unmowed Vegetation Belt Depth:
____ None (0) ____ < 10 ft. (1) ____ 10-40 ft. (2) ____ > 40 ft. (3)

53

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):
____ None (0) ____ <10% (1) ____ 10-25% (2) ____ 25-75% (3) ____ >75% (4)

Unmowed Vegetation

Average Unmowed Vegetation Belt Depth:
____ None (0) ____ < 10 ft. (1) ____ 10-40 ft. (2) ____ > 40 ft. (3)

54

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):
____ None (0) ____ <10% (1) ____ 10-25% (2) ____ 25-75% (3) ____ >75% (4)

Unmowed Vegetation Belt

Average Unmowed Vegetation Belt Depth:
____ None (0) ____ < 10 ft. (1) ____ 10-40 ft. (2) ____ > 40 ft. (3)

55

% Unmowed Vegetation Belt (any vegetation other than lawn; % of total section length):
____ None (0) ____ <10% (1) ____ 10-25% (2) ____ 25-75% (3) ____ >75% (4)

Unmowed Vegetation Belt

Average Unmowed Vegetation Belt Depth:
____ None (0) ____ < 10 ft. (1) ____ 10-40 ft. (2) ____ > 40 ft. (3)

56

Seawall

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

57

Seawall

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

58

Seawall

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

59

Boulders

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

60

Boulders

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

61

Boulders

Vertical Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) _____ 25-75% (-3) _____ >75% (-4)

Types of Vertical Structure (check all that apply) _____ Seawall _____ Boulders /Rock Walls

62

Riprap

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)
Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap
_____ Other - describe:

63

Sloped Artificial - Concrete

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)
Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap
_____ Other - describe:

64

Riprap

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)
Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap
_____ Other - describe:

65

Rock/Riprap

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)
Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap
_____ Other - describe:

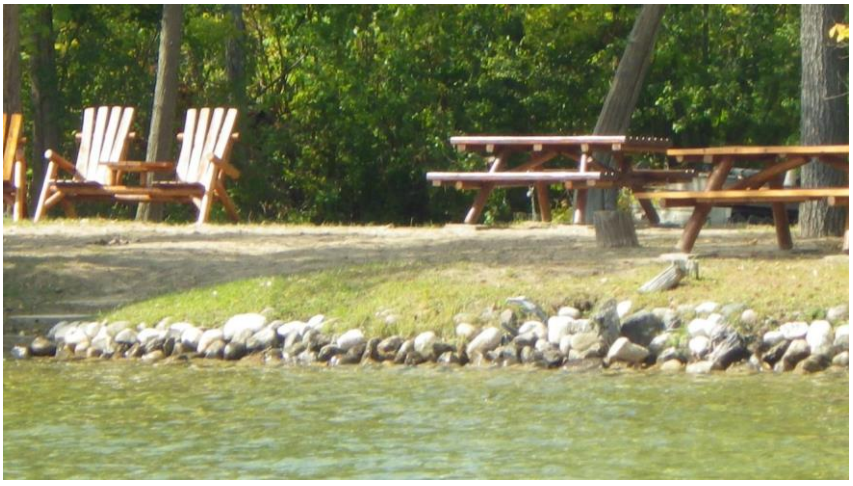
66

Rock/Riprap

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)

Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap

_____ Other - describe:



67

Rock/Riprap

68

Sloped or Vertical?

Sloped Artificial: _____ None (0) _____ <10% (-1) _____ 10-25% (-2) ___ 25-75% (-3) ____ >75% (-4)

Types of Sloped Artificial (check all that apply) _____ Concrete _____ Rock/Riprap

_____ Other - describe:

69

Seawall or riprap?

70

Seawall or Riprap?

71

Bioengineering - Coir Logs

Bioengineering (e.g. coir logs, branch bundles):
___ None (0) ___ <10% (-0.5) ___ 10-25% (-1) ___ 25-75%b(-1.5) ____ >75% (-2)

72

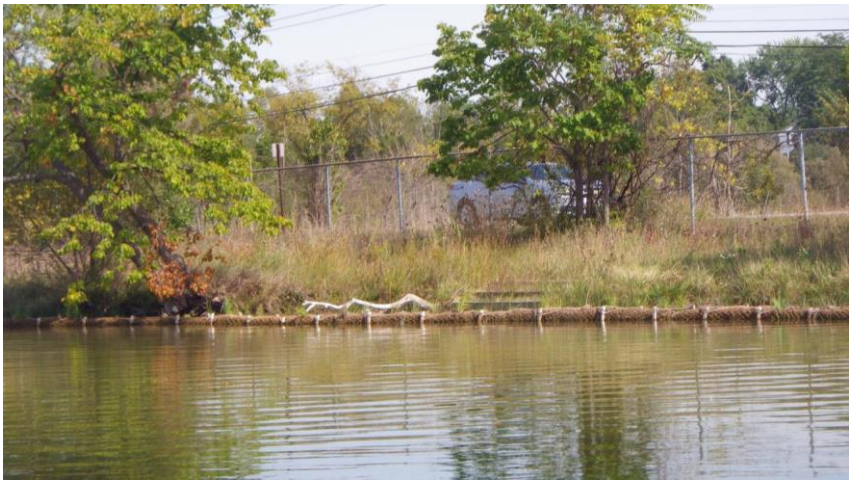
Bioengineering – Coir Logs

Bioengineering (e.g. coir logs, branch bundles):

___ None (0) ___ <10% (-0.5) ___ 10-25% (-1) ___ 25-75%b(-1.5) ____ >75% (-2)

73

Bioengineering – Coir Logs

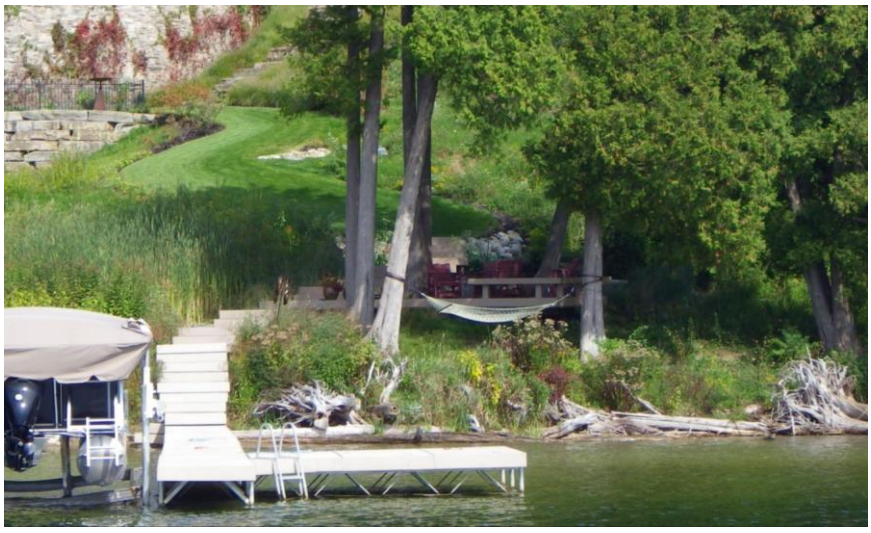


Bioengineering (e.g. coir logs, branch bundles):

___ None (0) ___ <10% (-0.5) ___ 10-25% (-1) ___ 25-75%b(-1.5) ____ >75% (-2)

74

Placed Stumps and Branch Bundles



75

What about stuff like this?

76

What about stuff like this?

77

Photography

- Rules for useful photos
  - TAKE lots of pictures
    - even if you think there are TOO many!
    - Be aware you can only upload 3 per section to the MDE
  - Delete blurry photos
    - pretty much useless
  - Location is essential
    - Label with section number
    - Take a picture of the section number written on a piece of paper before starting the next section

78

Submitting Your Data

1. Enter your data into the MDE.
   1. Get login/password from midata@glc.org
   2. Because of programming limitations– you need to enter all your lake sections at once. **DO NOT** close your browser until it is done.
   3. You can upload 3 photographs from each section– each one no bigger than 5 MB.

79

Submitting Your Data

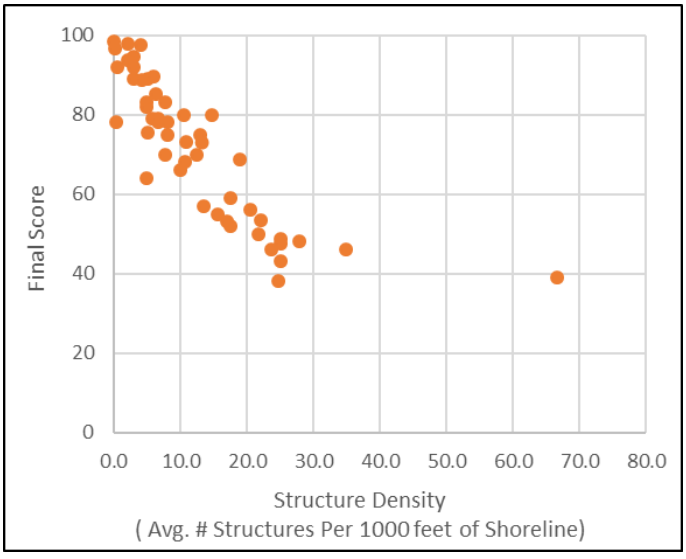
Whether you enter data into MDE or not, be sure to:

Send complete report to Paul Steen, either through mail (copies) or email (pdf). Address is in the procedures.

a. Survey Cover Sheet
b. All Data Forms
c. Survey Map
d. No Photographs- if you want these included in the long term record, you need to enter them yourself into the MDE

80

4 years into the program



81

Evaluation Form

- Yellow form
- Leave in box by the door

82