

Understanding and Controlling Shoreline Erosion on reservoirs with fine grain, cohesive shoreline soils

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Hank Sutton has over fifty years of engineering experience much of which entails riprap testing for IDOT approval, designing and producing Macoupin Mechanical Riprap Boats and establishing living shorelines with natural plant colonization. As he approaches retirement, he would like to share his extensive experience with lake managers dealing with shoreline erosion and bank recession.

Reservoirs with fine grain, cohesive shoreline soils have various challenges that degrade our valuable water resources, but virtually all midwestern reservoirs have one common problematic issue: excessive sedimentation and nutrient loading caused by shoreline and watershed erosion.

Issues addressed in this presentations:

Geomorphology of reservoir shorelines as influenced by physical and meteorological processes, The destructive power of freeze-thaw stresses and seasonality of shoreline erosion, Essential littoral zone topographic surveys to maximize cost effectiveness, Affordable living shorelines using Standard Off-shore Breakwaters with naturally colonized littoral habitat, The effectiveness of non-woven filter fabric, Down trees as a desirable element to the developing littoral habitat, Riprap durability based on laboratory test results, Visual inspection of riprap using key-stone method to ensure a well graded product, Over designing as an engineering failure of cost-effectiveness, Bank recession regardless of prevailing wind direction, Recreational boating and horsepower limits relative to shoreline erosion, Cheating in the No Wake Zone, Affordability of Bioengineering and Supplemental planting of the littoral zone, The importance of on-site construction inspection, Material budgeting, Project documentation, Required submittals and Weighted average water haul distance determination.

You may find some assumptions and conclusions in this presentation to be novel and counterintuitive. Questions, critique or requests for clarification are welcome.

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Link to the Presentation on the Illinois Lake Management website:

<https://ilma-lakes.org/sites/default/files/Understanding%20Shoreline%20Erosion.pdf>