

Engineering With Nature Project Fact Sheet



River Engineer: The Next Generation – An Engineering With Nature® (EWN®) River Class

Background

River engineering has traditionally been almost singularly focused on brute force navigation or flood control with the end result being to exert the greatest possible control over the channel. This approach led to unintended duplication in costs: first for project implementation and then again for mitigating damages. The traditional river engineering approach also typically lacked environmental or ecological considerations. Today we seek to impose less control, minimizing impacts by using less material and working with a channel's natural processes.

The goal of this project is to provide guidance to the next generation of USACE river engineers on best practices and novel ways to design and align waterways. This class will educate new personnel on working with – rather than against – the dynamics of large rivers and describe the current state of practice for working with nature when designing river navigation or restoration efforts.

Objectives

This project will develop a EWN® River Class curriculum on river design and alignment, teach the class to USACE river engineers, and make the course content available online for anyone to take advantage of. The class and course content will help train a new generation of USACE river engineers to be innovative and integrate EWN® elements into river navigation and restoration efforts.

Approach

The approach to designing the EWN® River Class is to 1) develop the course content for a course on applied river alignment, 2) hold the class for volunteers interested in the content, 3) make course content available online for others to take advantage of, and 4) publicize that the content is publicly available. Significant course content already exists, but additional content development and refinement is necessary to provide a thoroughly organized and coherent course that incorporates EWN® elements.

Outcomes

The EWN® river class will be a cost-effective program that will provide engineering and environmental benefits to USACE and the nation by training the next generation of river engineers. The class will introduce EWN® principles to traditional river engineering design that will re-invigorate potamology, or the study of rivers. Success in training the next generation of river engineers will lead to increased capacity for USACE to achieve its mission. The course will spur innovation at the USACE District level through knowledge of the best EWN® river engineering design and alignment practices that can also be shared with the wider river engineering community for even greater benefit. The EWN® River Class will also fill a current training need by making content available online.



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