

# Iowa's River Restoration Toolbox Level 2/Geomorphic Design

**2020**  
October 5<sup>th</sup> - 8<sup>th</sup>

**Clive Aquatic Center**  
1801 NW 114th St.  
Clive, IA 50325



## Course Details

Level 2 training focuses on geomorphic design and utilizes the skills acquired in the Level 1 training to develop ecologically sound restoration techniques. Includes outdoor exercises and development of conceptual designs for a restoration project in Clive.

Course topics include, but not limited to:

- Phases of Geomorphic Channel Design
- Multi-Staged Channels
- Alluvial vs. Threshold Channel Design
- Dimensionless Ratios
- Reference Reach Criteria
- Shear Stress
- Sediment Supply & Transport
- Sediment Transport Competency

Due to the COVID-19 pandemic, this class will be implemented using a combination of webinars, online interactive team activities, and live stream assessment using social distance protocols.

## Featured Speaker: George Athanasakes

George is the Ecosystem Restoration Program Leader for Stantec, and has 25 years of experience working on innovative stream restoration projects nationwide. George has taught at numerous restoration workshops, and worked with the IDNR river restoration planning team to create Iowa's River Restoration Toolbox. Additional instructors will supplement George's presentations.

## What to Expect

- Four days of team-based training in the latest stream assessment and restoration practices conducted by restoration experts, lunch included during field days
- Level 2 Certificate of Completion
- Listed on IRR and ISWEP websites as having completed the training requirements
- Certificate for Professional Development Hours (PDHs)
- Course Fee: \$700 per person

**Course Prerequisite: Participants must have completed Level 1/Base Training to register for Level 2.**

## Register Today!

[www.iowaRivers.org](http://www.iowaRivers.org)



## Questions?

Contact Sara Carmichael  
[sara@iowarivers.org](mailto:sara@iowarivers.org)

## Defining the Iowa River Restoration Toolbox

The Toolbox was developed by the Iowa Department of Natural Resources to assist Iowa designers and reviewers of stream stabilization and restoration projects by providing proven techniques that incorporate natural materials, such as logs, rocks, and live plantings. Among the many techniques included in the Toolbox are: longitudinal peaked stone toe protection, j-hook vanes, rock arch rapids, oxbows, riparian corridor restorations, and tree/shrub plantings. Included are an assessment method and reviewable design checklists to aid in decision making among multidisciplinary teams (i.e. – funding partners, designers, project managers, and contractors etc.). The Toolbox also provides detailed design guidance, drawings and specification requirements to assist with project bidding.

## Why Use the Toolbox?

The Toolbox will help you understand the driving factors that cause an unstable stream segment to erode or damage infrastructure prior to jumping to solutions, which leads to long-term stable, economically beneficial solutions. The Iowa DNR State Revolving Fund (SRF) Sponsored Project Program will be requiring its applicants to use the Toolbox to be eligible for the Clean Water Loan Program. Through this program, wastewater utilities can finance and pay for projects, within or outside the corporate limits, that cover best management practices for nonpoint source pollution control.

## What Should I Wear & Bring to the Training?

Plan on clothing and foot attire for muddy and wet conditions. Hip waders or long rain boots will be needed. Bring several pencils, clipboard, a laptop, and a notebook. Please download [RIVERMorph](#) in advance of the class.

### COVID-19 PRECAUTIONS

We care about your safety – and ours! While we are unable to completely eliminate all live classroom or fieldwork to offer a meaningful workshop, we will be practicing way to minimize virus hazards in the following ways:

- Anyone exhibiting cough, sore throat, or fever symptoms should not attend sessions.
- One travel day has been eliminated from the 4-day event.
- All participants will be expected to practice >6' distancing (12' distance between speakers and participants).
- Masks for participants will be required during seminars. They should be accessible at all times and be used during fieldwork or any other time if a <6' separation distance is anticipated between fieldwork team partners.
- Microsoft Teams will be used throughout the training for virtual collaboration and live attendance is optional, with the exception of the fieldwork portion of the training.
- Individuals can drive themselves to site visits.
- Hand sanitizer will be provided.
- Surfaces and equipment will be disinfected after use.
- All meals provided will consist of box lunches from a caterer.



## Questions?

Contact Sara Carmichael  
[sara@iowarivers.org](mailto:sara@iowarivers.org)

## Level 2/Geomorphic Design Training Agenda

*Due to pandemic conditions in Iowa, portions of this training have been converted to a virtual experience.*

### Monday, October 5<sup>th</sup> (Conducted via Webinar)

<b>8:00am - 8:30 am</b>	Module 1 – Welcome & Course Overview
<b>8:30 am - 9:15 am</b>	Module 2 – Phases of Geomorphic Channel Design
<b>9:15am - 10:015 am</b>	Module 3 – Concept of Multi-Staged Channel & Design Discharge
<b>10:15am - 10:30 am</b>	Break
<b>10:30am - 11:00am</b>	Module 4 – Alluvial Channel Design Versus Threshold Channel Design
<b>11:00am - 12:00pm</b>	Module 5 – Reference Reaches & Dimensionless Ratios
<b>12:00pm - 12:30pm</b>	Lunch
<b>12:30pm - 1:00pm</b>	Module 6 – Designing for Ecology
<b>1:00pm - 1:45pm</b>	Module 7 – Sheer Stress in Streams
<b>1:45pm 2:45pm</b>	Module 8 – Understanding Sediment Supply (BANCS) & Sediment Transport
<b>2:45pm - 3:00pm</b>	Break
<b>3:00pm - 4:15pm</b>	Module 9 - Sediment Transport Competency
<b>4:15pm - 4:30pm</b>	1st Day Wrap Up / Q&A

### Tuesday, October 6<sup>th</sup> (Arrive at Clive Aquatic Center)

<b>8:00am - 9:30am</b>	Module 10 - Sediment Transport Capacity
<b>9:30am - 10:00am</b>	Module 11 - Development of Conceptual Designs
<b>10:00am - 10:15am</b>	Break
<b>10:15am - 11:00am</b>	Module 12 - Overview of Project Site
<b>11:00am - 11:30am</b>	Teams Meet with Team Leaders to Discuss Field Work
<b>11:30am - 12:00 pm</b>	Lunch
<b>12:00pm - 4:30pm</b>	Field Work

### Wednesday, October 7<sup>th</sup>

<b>8:00am - 10:30am</b>	Data Work Up/Develop Concept Designs
<b>10:30am - 11:30am</b>	Module 13 – Use of Practices / Techniques in Stream Design
<b>11:30am - 12:00pm</b>	Lunch
<b>12:00pm - 2:30pm</b>	Teams Finalize Designs
<b>2:30pm - 2:45pm</b>	Break
<b>2:45pm - 3:15pm</b>	Team 1 Presents Overall BANCS Model Results
<b>3:15pm - 3:45pm</b>	Team 2 Presents Sediment Calcs
<b>3:45pm - 4:15pm</b>	Team 3 Present River Restoration Toolbox Results
<b>4:15pm - 4:30pm</b>	Teams Regroup to Discuss Designs

### Thursday, October 8<sup>th</sup>

<b>8:00am - 11:00am</b>	Teams Finalize Designs
<b>11:00am - 12:00pm</b>	Team 1 Presents Design
<b>12:00pm - 12:30pm</b>	Lunch
<b>12:30pm - 1:30pm</b>	Team 2 Presents Design
<b>1:30pm - 2:30pm</b>	Team 3 Presents Design
<b>2:30pm - 3:30pm</b>	Module 14 – Overview of Recommended Design & Course Wrap-Up