

# ECOSYSTEM MANAGEMENT AND RESTORATION RESEARCH PROGRAM

## QUARTER 1 WEBINAR SERIES

**DEC. 6  
1:00 PM (CT)**

**Integrating hydraulic analyses and population models to predict ecological effects of floodplain restoration for the Rio Grande Silvery Minnow**



**Dr. Ed Stowe**  
*ORISE*  
*Postdoctoral*  
*Researcher*  
ERDC-EL  
Athens, GA

Habitat suitability index models are frequently used by engineers and resource managers to evaluate the ecological consequences of management and restoration activities. While these and other habitat models are appropriate for some applications, incorporating additional ecological modeling methods into resource management practices may improve restoration outcomes from planning through operation, by more directly measuring project objectives and by improving communication regarding restoration benefits. In this webinar, we will showcase a case study analysis that uses a population modeling approach to assess the impact of floodplain restoration on the endangered Rio Grande Silvery Minnow (RGSM). We first developed a 2D hydraulic model of the Middle Rio Grande to estimate floodplain inundation through time, and then adapted a published RGSM population model to quantify the relationship between inundation and recruitment of young-of-year fish, a key RGSM life stage. Using this relationship between inundation and recruitment, we then created a tool to predict how different restoration and flow augmentation scenarios would affect RGSM populations. Our tool enables contextualized comparisons of different water management and restoration scenarios and can clearly communicate the potential effects of management activities to biologists and planners. More broadly, it highlights benefits of incorporating additional ecological modeling approaches into resource management practices.

### WEBEX



[https://usace1.webex.com/meet/  
brook.d.herman](https://usace1.webex.com/meet/brook.d.herman)



+1-844-800-2712



Access code: 1993 98 1224



<https://emrrp.el.ercd.dren.mil>



[brook.d.herman@usace.army.mil](mailto:brook.d.herman@usace.army.mil)



CEERD - Environmental Laboratory  
Vicksburg, MS