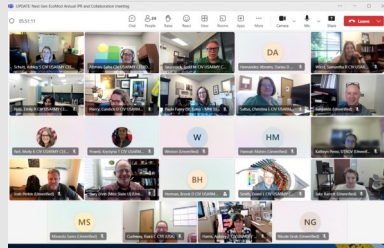




Team EcoMod News

NextGen Annual Meeting



The annual collaboration meeting for the Next Generation Ecological Modeling effort was held virtually 25 June 2025. There were 20 presentations from the Technical Director for Environmental Science and Engineering, ERDC Pls (EL & ITL) and academic partners. The meeting highlighted the over 500 documented and tangible deliverables developed over the last 5 years, including the state-of-the-art computation models being developed for increased predictive

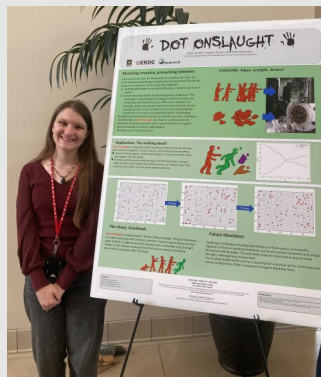
Levee Workshop

Drs. Candice Piercy and Thomas Huff were invited to attend a workshop on a new USACE Levee Vegetation Webtool. This national project aims to develop a web tool to better understand the role of vegetation on levees. Dr. Piercy is currently working on the GenVeg model as part of the NextGen effort, so she is considered a subject matter expert on vegetation, and while Dr. Huff is a recent addition to the EcoMod team he is already known for his spatial analysis and data integration work. They will be great representatives for utilizing ecological modeling in this research.



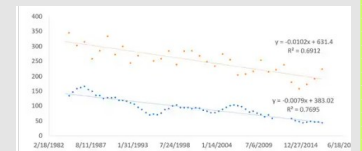
Student Poster

Student Karen Smith from The University of Mississippi is visiting ERDC during her summer break. Team EcoMod tasked her with creating an agent-based model that simulated a 'zombie' scenario, whereby a few invasive species contaminate a contained area. This creative representation illustrates the issues that plague waterbodies throughout the US, with a spotlight on invasive species like Zebra Mussels. She proudly presented her poster at the EL Student Poster session.



Model Spotlight– NESSI

The National Exposed Sediment Search and Inventory (NESSI) utilizes a combination of satellite imagery data obtained and processed using Google Earth Engine and machine learning algorithms applied at known dredged material placement sites to develop a time series of dredged material placement events and subsequent site recovery. These disturbance-to-recovery time series are then used in a landscape analysis application to better understand site evolution within the context of the surrounding areas.



Model available Email ecomodteam@usace.army.mil

August 2025

NextGen Webinar Dates

- September 3
Todd Swannack
- September 17
Garrett Menichino

Team member spotlight

Thomas Huff

Dr. Thomas Huff first met Drs. Piercy and Swannack at a presentation in 2014 on simulating oyster spat movement using a Lagrangian particle tracking model. His first thought was 'cutting edge' and his goal became to work with these researchers. In March 2023, he heard from a colleague at TX A&M that the EcoMod team was looking for a modeler and he jumped at the chance to join. His goal is to expand work with machine learning and artificial intelligence in a spatial context. So far, he's been focused on the National Exposed Sediment Search and Inventory (NESSI) model, and is gearing up to share his skills with the CSTORM team at the Coastal and Hydraulic Lab. He splits his time between the computer screen and the farm, taking care of horses and dogs on his Mississippi homestead.

