

# Using Drawing and Representation to Design Nature-Based Infrastructure in Coastal Environments

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In the face of rising climate change concerns, the use of nature-based infrastructure becomes a promising solution to slow the process of rising sea levels through coastal resilience design [2]. This research explores the transformative role that drawing takes in expressing these solutions. Using softwares such as Photoshop, Illustrator, and Rhino, these drawings help conceptualize infrastructure that focuses on integrating nature-based design into coastal design. The coast is especially vulnerable to climate change. Rising sea levels and infrastructure development cause damage in many coastal communities. Through NOAA ESLR (Effects of Sea Level Rise Program), engineers and landscape architects work together to address sea level rise through a series of nature-based solutions to mitigate those effects [3]. Drawing and digital representation offer a way to visualize what is happening to the coast and develop design concepts effectively [1]. As nature-based infrastructure gains traction as a solution to rising sea levels, focus on drawing and digital representation in the field remains notably underexplored. The objective of this research is to explore digital software, test various ways to set up a drawing, and learn new representational strategies. Four methods are being tested for when it comes to the setup of a drawing. Collages prove effective in representing spatial sequencing and capturing the region's landscape through a series of altered photographs. Ecological Transects cut across various regions across the Fort Morgan Peninsula, displaying landscape elevation, plant communities, and significant site points drawn through technical line work. Typology analysis categorizes the infrastructure of the peninsula, organizing parcels of land from dynamic to fixed, showing the quality of land through a series of technical, yet illustrative drawings. Lastly, perspectives showcase the over-

all character of the region through a more illustrative lens. Research shows that nature-based drawing plays a crucial role in collaboration, enabling a deeper understanding of the designs.

## Statement of Research Advisor

Chase's research into landscape drawing methods has helped our lab get a better understanding of both existing landscapes and nature-based infrastructure concepts for a range of coastal sites in Florida, Alabama, and Mississippi. Landscape architects are increasingly involved in design nature-based infrastructure, and drawing methods are crucial for evaluating the aesthetic dimensions of these new infrastructures, which have the potential to simultaneously support social, ecological, and economic dimensions of coastal resilience. Chase's work engaged multidisciplinary collaborations both within Auburn University and externally with other universities and private consultants – much as all work on nature-based infrastructure is inherently multidisciplinary.

- Rob Holmes, School of Architecture, Planning and Landscape Architecture, College of Architecture, Design, and Construction.

## References

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## Authors Biography



Chase A. Hoytink is a junior-year student pursuing a B.S. degree in Landscape Architecture at Auburn University. She has played key research roles in representing nature-based infrastructure



Rob Holmes is an Associate Professor and Undergraduate Landscape Architecture Chair. His research and creative work is primarily concerned with infrastructure design, urbanization, and landscape change. He is a co-founder of the Dredge Research Collaborative, an independent nonprofit organization which aims to improve the design and management of sediment through publications, the DredgeFest event series, and design research.