

Digitizing Discovery: Creating a Virtual Museum for the EOAS Specimen Collection

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Introduction

- Over the course of the 2024-2025 school year, we have been working closely with the EOAS department and the Immersive Scholarship initiative to scan and process a variety of marine biota, including fossil and modern specimens collected by James F. Cowart and generously donated by his wife Marie, to create an educational website in which students can get a closer look at the biota without ever having to take the specimens out of the case.
- Virtual Museums have been shown to be an effective learning tool, especially when acting as a supplement to a physical museum (Baloian, et al., 2021). In this case, our website will act as a supplement to the displays housed in the EOAS building (Fig. 1).
- Several renowned institutions have already established online databases for their collections. Because of the proven effectiveness of these digital spaces and the limited access and information of the current displays at EOAS, we are working to build the 3D museum as a complement to the existing physical displays. The hope being that this can increase public engagement with the resources of the department and university.
- We hope to create a website that is intuitive and accessible for all users, offering a fun and engaging experience where every visitor can discover something new



Figure 1. EOAS specimen collection on display.

Methods

- Scanned EOAS specimens using 3D scanners such as Artec Leo and Artec Spider.
- Refined and processed scans using Artec Studio (Fig. 2, 3).
- Developed framework for literature searches.
- Conducted literature searches to identify and obtain information on specimens.
- Conducted literature searches to identify best way to present said information on webpages.
- Developed framework for webpage layout.
- Developed individual webpages for each specimen (Fig. 4).
- Enhanced and updated interactive map on website.
- Identified and created labels for specimens in display cases (Fig. 5).
- Scanned specimens at Florida Geological Survey to make 3D printed models as part of a bigger educational outreach project conducted by their faculty (Fig. 6).
- Created a spreadsheet labeling each specimen in the EOAS display case
- Utilized camera equipment to photograph specimen on the EOAS website (Fig. 7, 8).



Figure 2. 3D scan of a Titan Acorn Barnacle (*Megabalanus tintinnabulum*)



Figure 3. 3D scan of a Blue Coral (*Heliopora coerulea*)

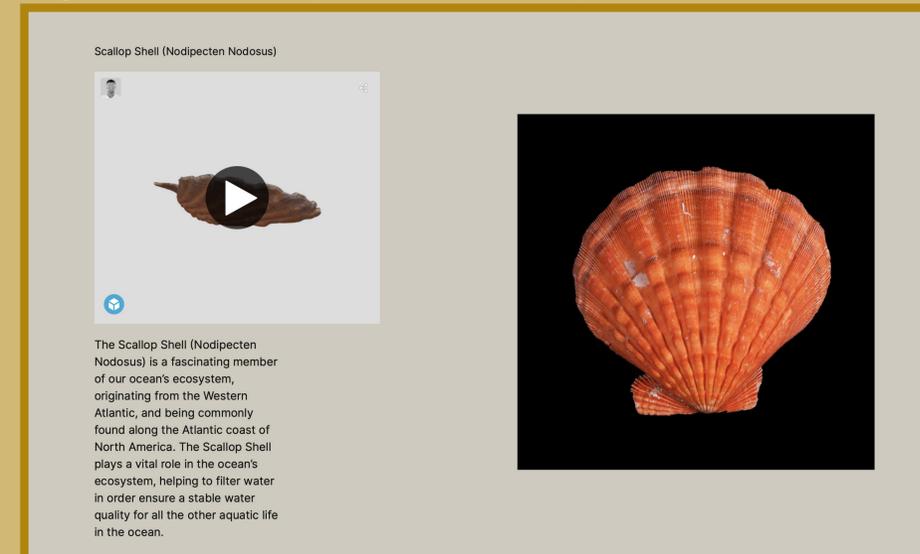


Figure 4. Sample of created webpage from the EOAS collections site.



Figure 5. One of the several labels we created for the specimens.

Results

- 10 webpages created for 10 specimens.
- 10 specimens scanned and processed.
- Interactive Map completed, which shows observers where each specimen originated.
- Individual labels made for each specimen in the EOAS display case.
- QR code added to EOAS display of specimens which takes users directly to the Virtual Museum, allowing them a closer look at the specimens and their history.
- Photographs taken for each specimen on the EOAS website.
- Scanned part of FGS's specimen collection and created 3D printed models of these specimens using the digital models we developed.



Figure 6. Scanning specimens at the Florida Geological Survey Tallahassee office.



Figure 7. Capturing a photograph of an EOAS specimen.



Visit the website by scanning this QR code!



Figure 8. Photo of Red Slate Pencil Urchin (*Heterocentrotus mamillatus*)

Impacts

- With the completion of our virtual museum and display case labeling, FSU students will be able to interact with and learn about the species of the EOAS collection found on the first floor of the building.
- By incorporating 3D models, photographs, and an interactive map, the website will enrich the existing display, offering a more dynamic and engaging way for students to learn about each specimen's history and significance.
- The website will also double as an outreach tool, showcasing FSU's EOAS department and its research; it increases visibility and draws attention to the unique work being done at our university.
- The development of the website is still ongoing. Even after the presentation of this material, new specimens will be continually added as they are scanned and processed, ensuring the site remains up-to-date.

Resources

Baloian, N., Biella, D., Luther, W., Pino, J., & Sacher, D. (2021). Designing, Realizing, Running, and Evaluating Virtual Museum – a Survey on Innovative Concepts and Technologies. *JUCS - Journal of Universal Computer Science*, 27(12), 1275–1299. <https://doi.org/10.3897/jucs.77153>