

Research on Sawfish Sword

Jacob Caldwell

Harold Butner

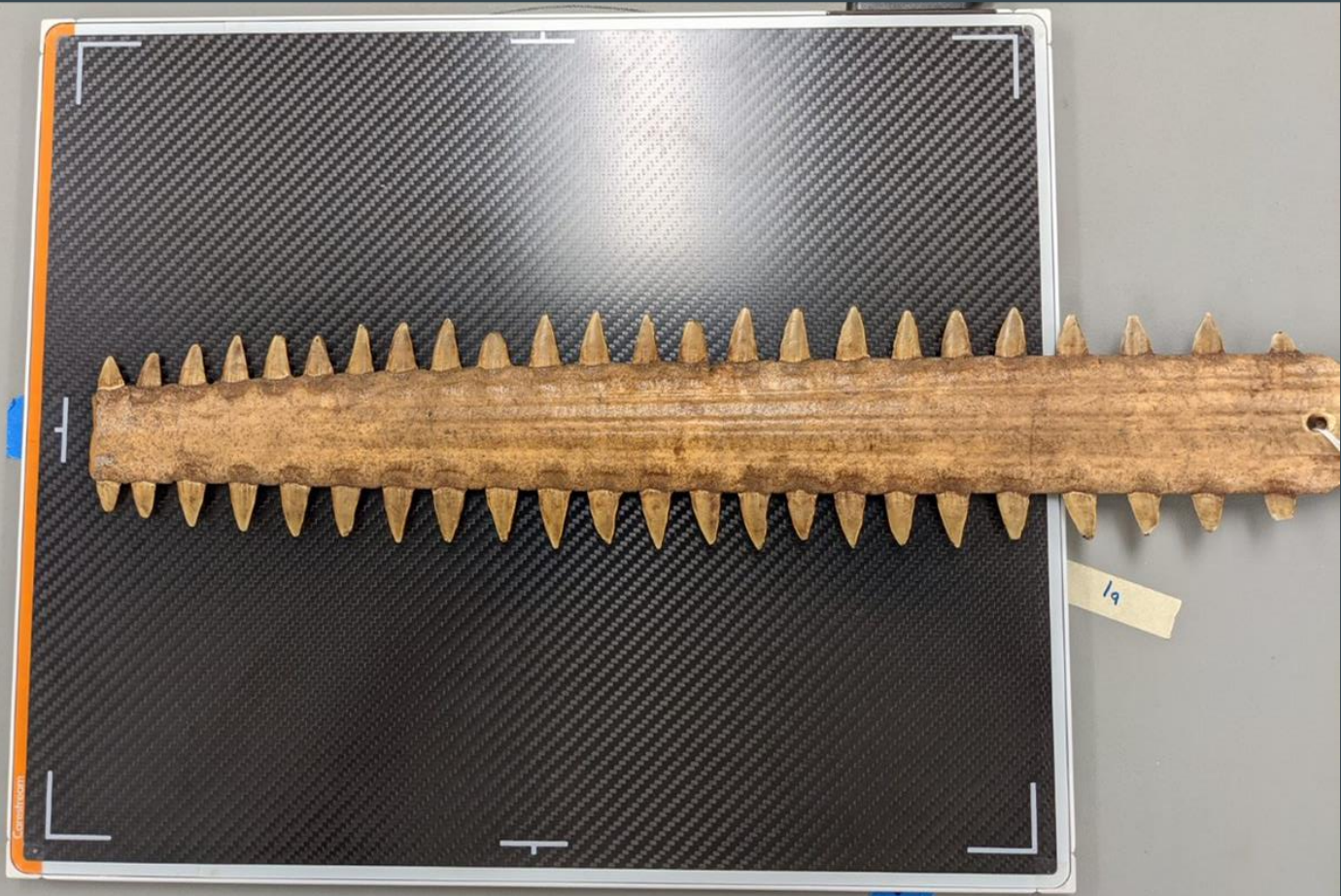
Department of Physics and Astronomy

Scottie Pendleton, Lab Manager

Madison Accelerator Lab, Department of Physics and Astronomy

Ginny Soenksen, Director

Madison Art Collection, Lisanby Museum



19

Where We Do The Imaging

Found over at Madison Hall, at the corner of E Grace Street and S Mason Street, across from the Student Success Center

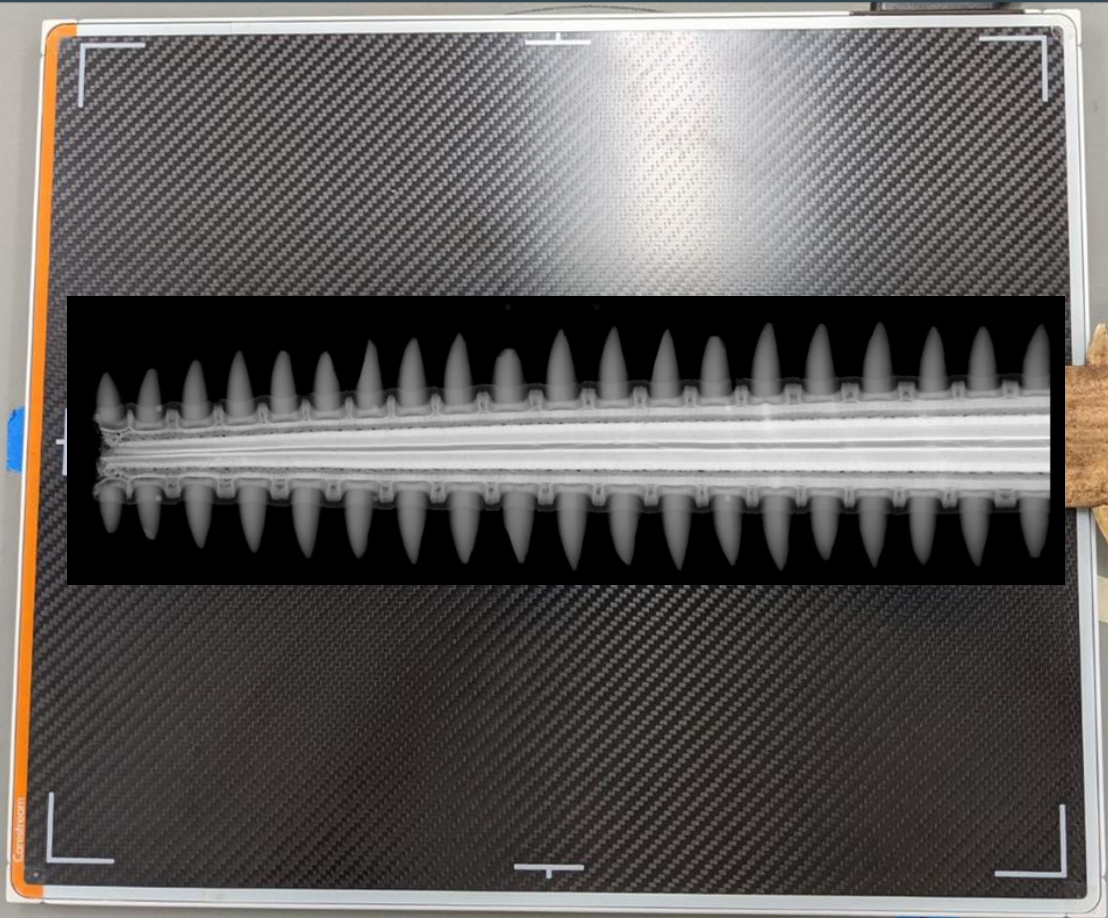


Where We Do The Imaging

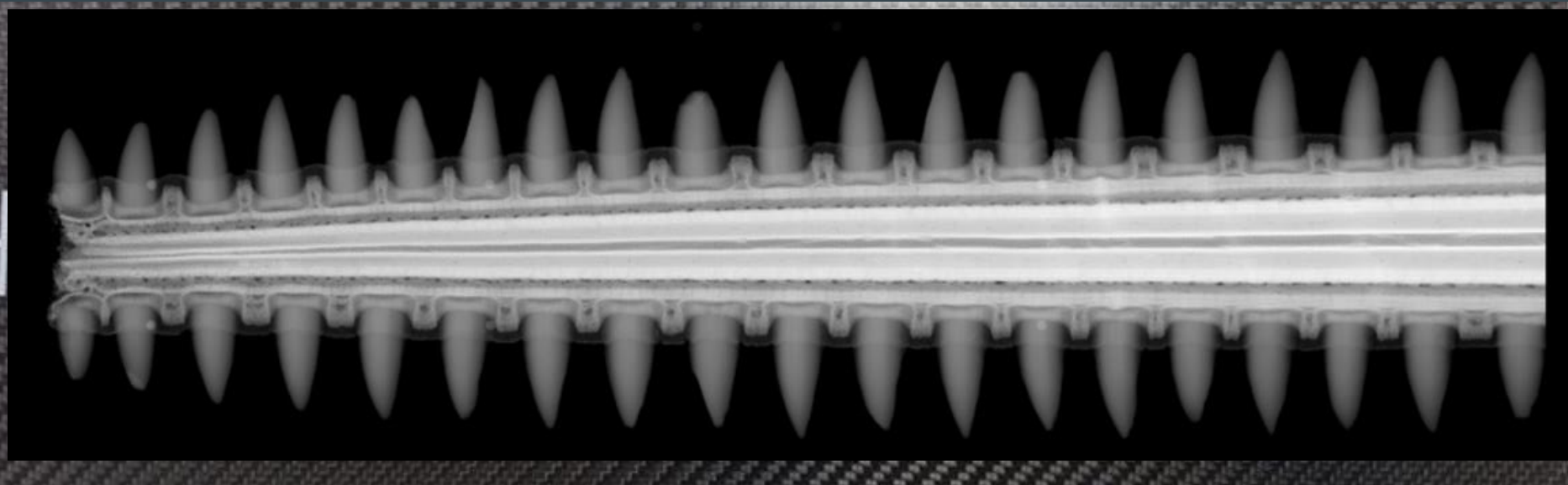


- Formerly a medical X-ray machine that has been repurposed by the Department of Physics and Astronomy
- 2-D X-ray imaging uses 40-140 kV
- Allows for imaging down to 0.1 mm spatial resolution





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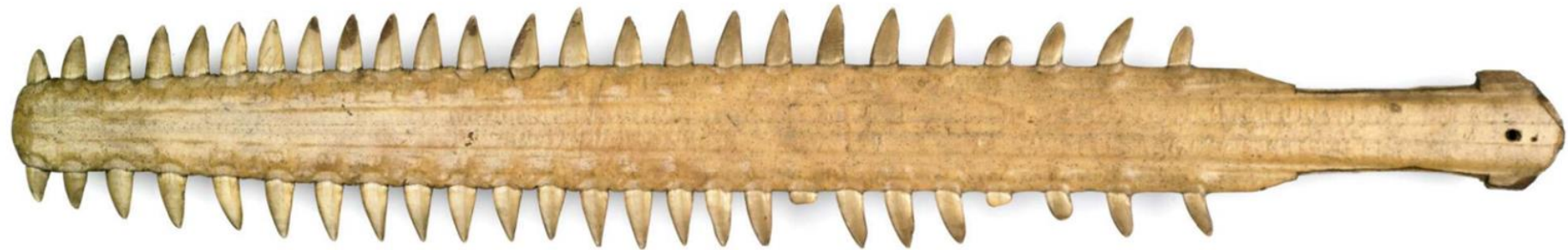


Why it's important to study the sword

- It is important to understand how and why a piece of art is created
- What is the story of the sword?
- What is its purpose?
 - Ceremonial? Combat? Tourism?

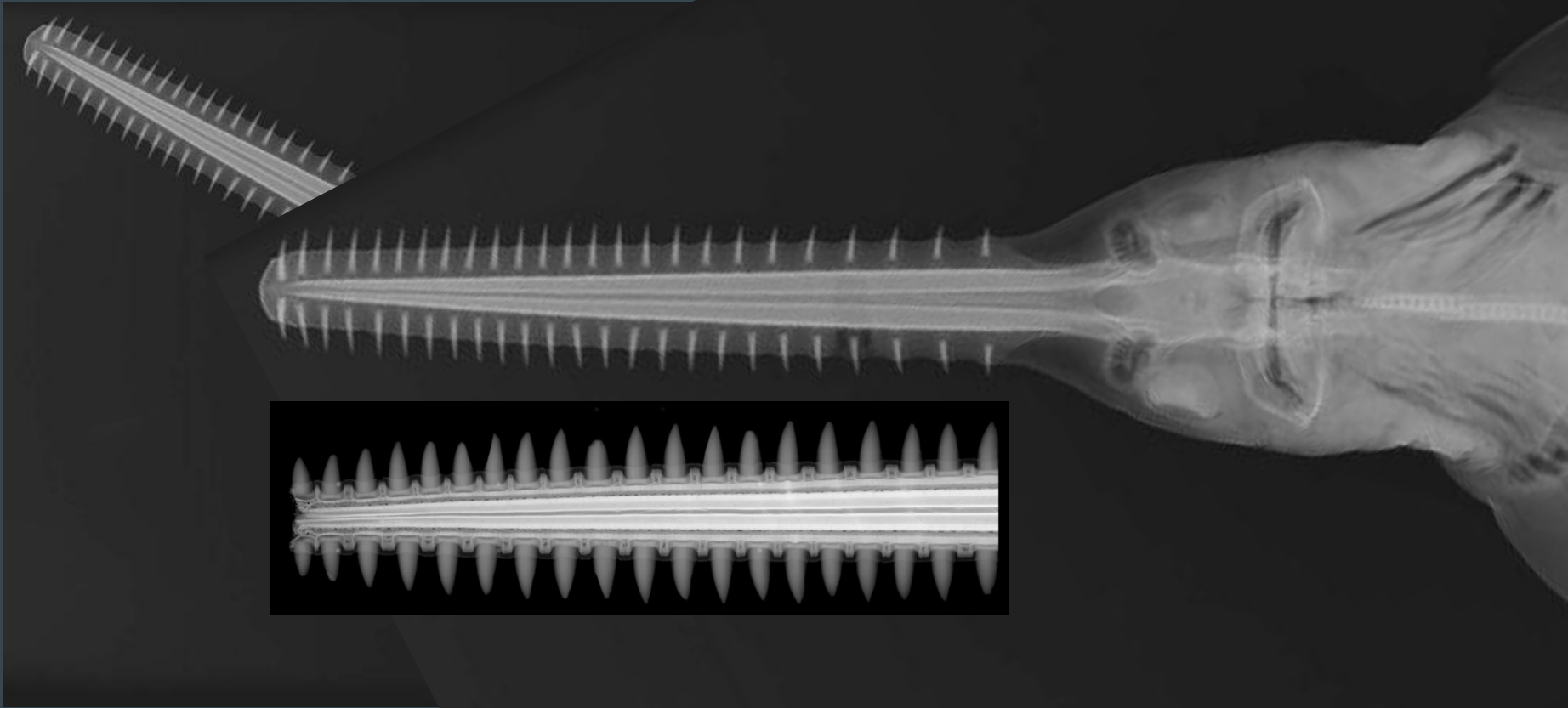
What We Knew From The Start

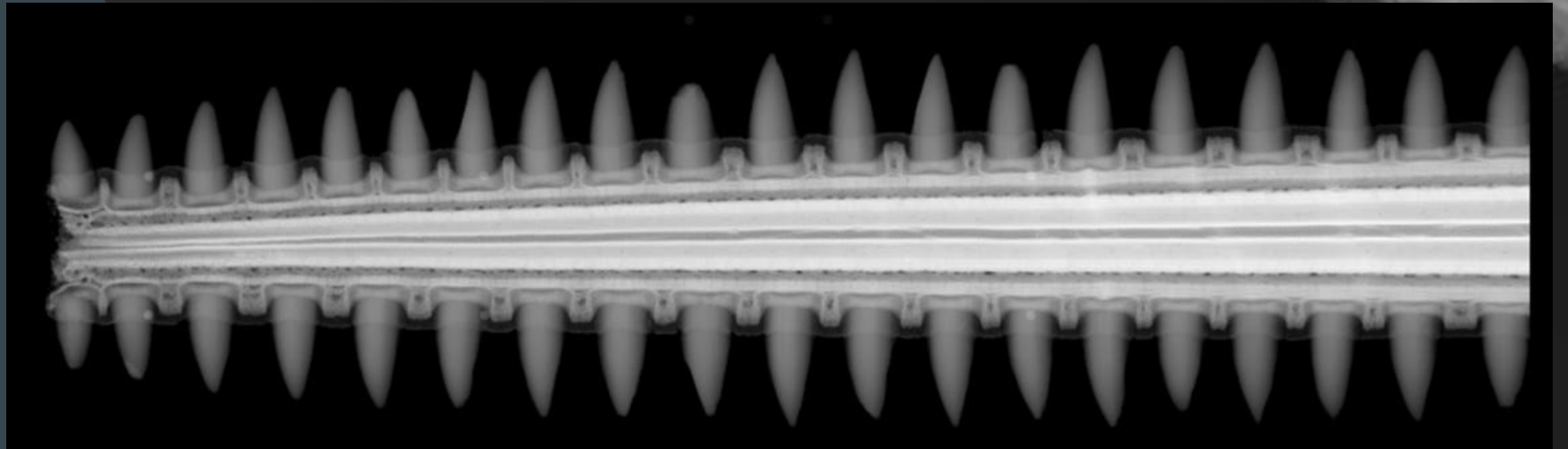
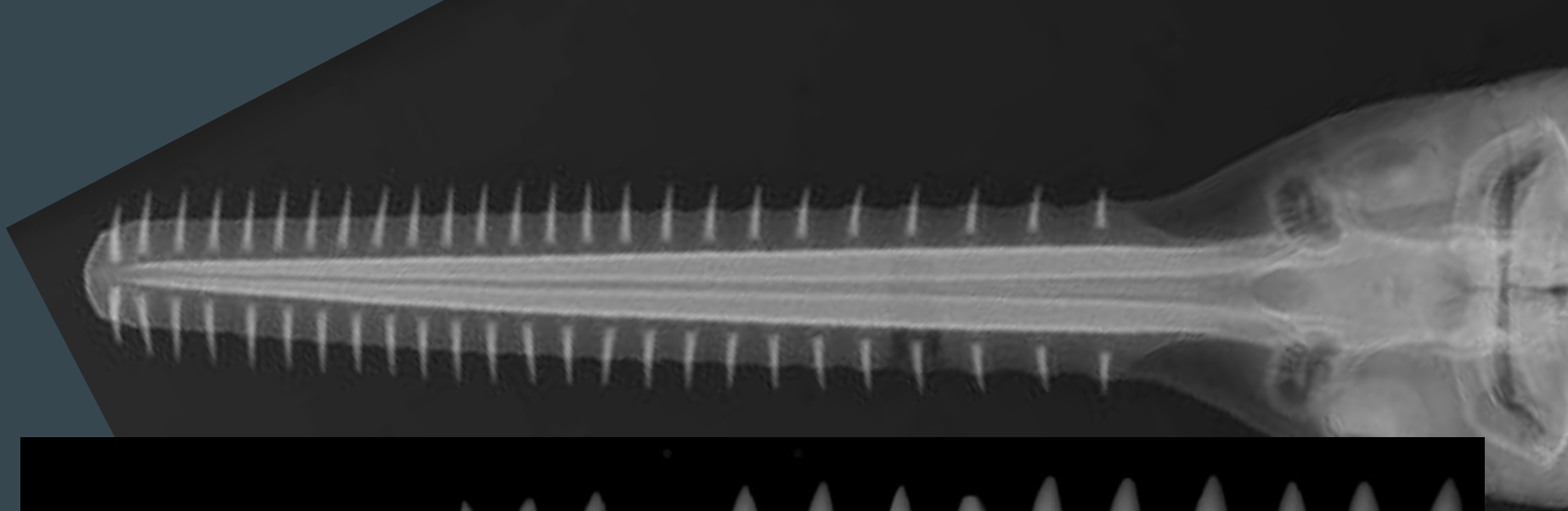
- Arrived as part of a collection
- History of the sword was not well known
- X-ray imaging at 100 kV energy, just to see what we could see
- We were initially puzzled by what we saw



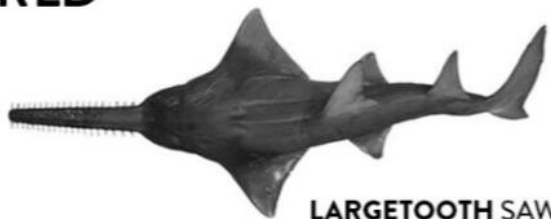








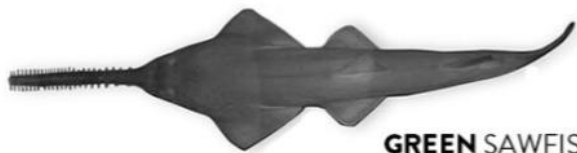
SAWFISH OF THE WORLD



LARGETOOTH SAWFISH



SMALLTOOTH SAWFISH



GREEN SAWFISH



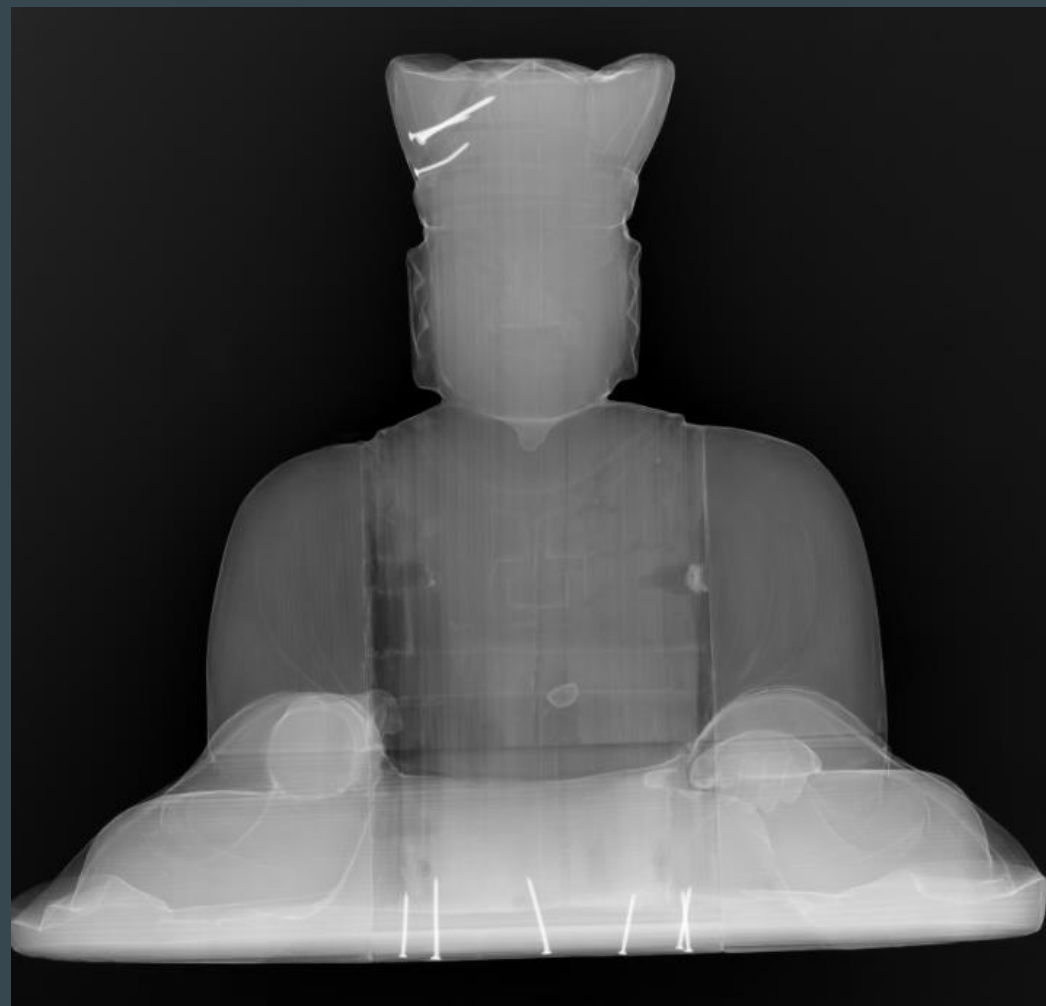
NARROW SAWFISH



DWARF SAWFISH

Where We Plan To Go Next

- Going back to gather more accurate measurements on the sword
 - Length and width
 - Mass
 - Size of teeth
- More X-ray imaging: 3d imaging through rotation of the sword
- Modeling the sword in a 3d environment
- Look at similar items in the collection



Acknowledgements

Lisanby Museum

Madison Art Collection

Madison Accelerator Lab

Department of Physics and Astronomy

Dr. Butner, Dr. Pendleton, and Director Soenksen

Sources

Lisanby Museum

Madison Art Collection

Madison Accelerator Lab

Department of Physics and Astronomy

<https://ocean.si.edu/ocean-life/fish/x-ray-image-smalltooth-sawfish>

https://www.britishmuseum.org/collection/object/E_Oc-1794

<http://www.vikingsword.com/vb/showthread.php?t=1005>