QUANTIFYING DIAGENESIS OF FLORIDA FISH SCALES USING IR SPECTROSCOPY

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Introduction

- In Florida, because of sea level rise archeological sites are being flooded.
- The reason of this study is to try to determinate how artifacts will be damaged when they get wet.
- To determinate how a specific type of artifacts get chemically damaged due to exposure to water, we using a chemical fingerprinting technique called IR spectroscopy.
- The type of artifacts that are been use are fish scales
- By comparing our fish scales to modern, we will have a better understanding on how between species this method can be use.

What will this tell us?

- Phosphate peaks/crystallinity will tell us if the scales are fossilizing or degrading
- Carbonate peaks tell us if other carbonate is replacing other chemical elements in the scale
- Comparing to the modern tells us if this method can be used to distinguish between species

About Me

My name is Ivett de la Rosa, and I was born in the Dominican Republic. At 12 years old, I moved to New York City, United States, where I received my pre-college education. I've always had a strong interest in science, and I want to study medicine in the future. I'm a sophomore at Lynn University and am currently enrolled in my second year of research. I enjoy working out, dancing, and spending time with the people I care about the most.

References

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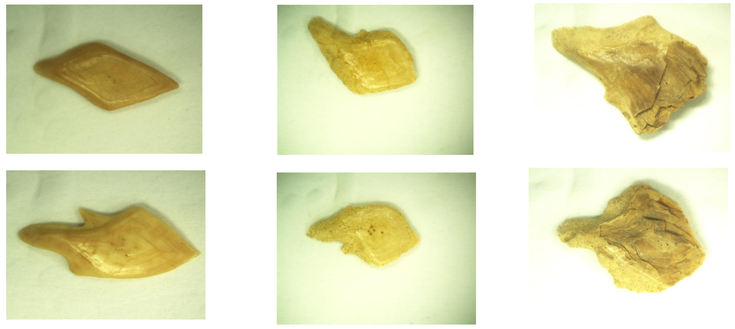
Methods

Category Degradation Status

The scale were classified in to 3 different categories, Pristine, Degrade and very degrade. Pristine show not damage, degrade show a small amount of damage and very degraded show the great amount of damage

Pristine | Degraded | Very Degraded



Weighed and Measured Length of Scales

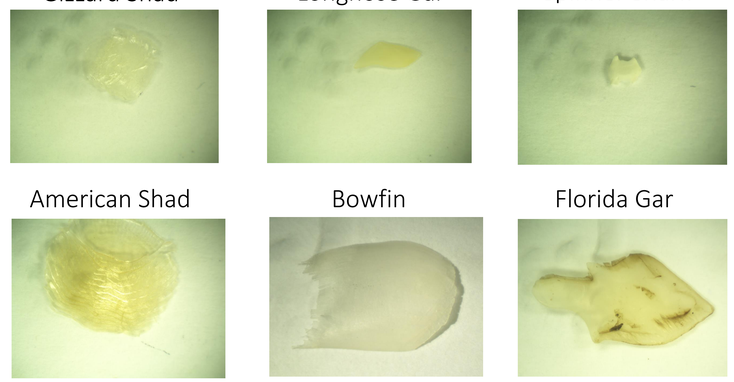
Photograph with Stereoscope

Picture were taken of each of the scale, before run them to through the IR.

Run on IR

Each of the scales, was run on the IR. Pressure was applied to the surface of the scales, to ensure contact with the diamond. Each run took about one minute.

Comparison to Modern



Chemical Degradation from the IR Spectra

On the spectra we are looking for two specific peaks for Phosphate and Carbonate. Phosphate tell us about the chemical damage on the scales and Carbonate tell us how can be compare to other species.