

## Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

### Online Proceedings

---

#### POSTER SESSION 2

MGH 241, Easel 155

12:45 PM to 2:15 PM

##### **Reconstruction of Sea-Level Rise through Evidence of Seafloor Inflection along the Continental Shelf of Vancouver Island, British Columbia**

*Clinton William (Clinton) Stipek, Senior, Oceanography*

*Mentor: Miles Logsdon, School of Oceanography*

With sea level projected to rise by as much as 2 meters by 2100, understanding historical sea level rise is imperative. This increase in sea level has the potential to displace up to 187 million people globally. Damages will exceed into the billions of dollars and the safety of coastal communities will be at great risk. Improved knowledge of historic sea level rise will significantly help reduce these potential losses. This project reconstructed sea level rise along the continental shelf since the last glacial maximum. Multibeam echo sounder (MBES) was used along with a subbottom profiler to reconstruct a continental shelf boundary adjacent to the coast. Transect lines were composed parallel to each other from 90 to 120 meters using MBES and a subbottom profiler to acquire measurements of the seafloor. These remotely sensed estimates of depth have provided evidence of a low-stand level as well as historic shorelines since the last glacial maximum. As sea levels continue to rise, understanding the history is vital to making a long term forecast for the future. Having this information will provide some insight into the extent and durability of shoreline building processes that must take place.

#### POSTER SESSION 2

MGH 241, Easel 154

12:45 PM to 2:15 PM

##### **Calibration of Multibeam Sonar Data for Investigating Seafloor Structure**

*Logan Warren Spencer, Senior, Oceanography*

*Mentor: Miles Logsdon, School of Oceanography*

Exploration of the geological structure of the seafloor is dependent upon acquiring accurate bathymetric data which includes representation of not only depth, but also a characterization of the acoustic backscatter due to absorption by

the seafloor. Calibration of the Multibeam Echo Sounder system (MBES) used to acquire these data while the vessel experiences movement in heave, pitch, and roll, provides for accurate and comparative data between vessels and over time. This research investigates the use of the calibration methodology available with new post-processing sonar software prior to data acquisition. A patch test was conducted off the coast of Washington in early 2013 aboard the R/V Thomas G. Thompson using the Kongsberg EM302 multibeam sonar. The data obtained from this patch test were used as a case study. The new post-processing software is predicted to provide a more accurate bathymetric surface representation after the calibration method is performed. Results and recommendation from the calibration test are presented.