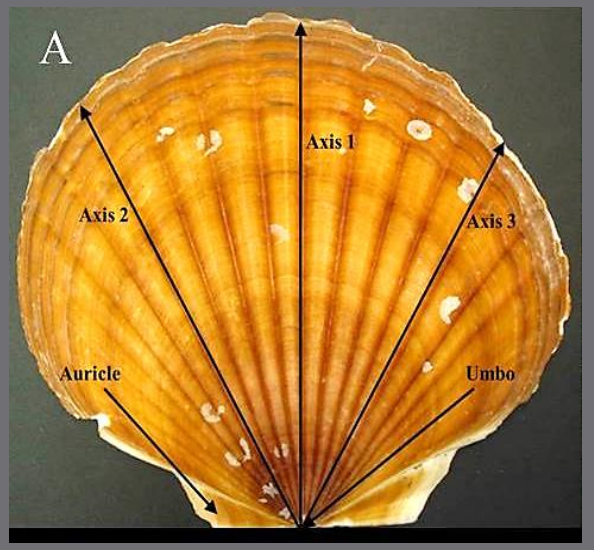
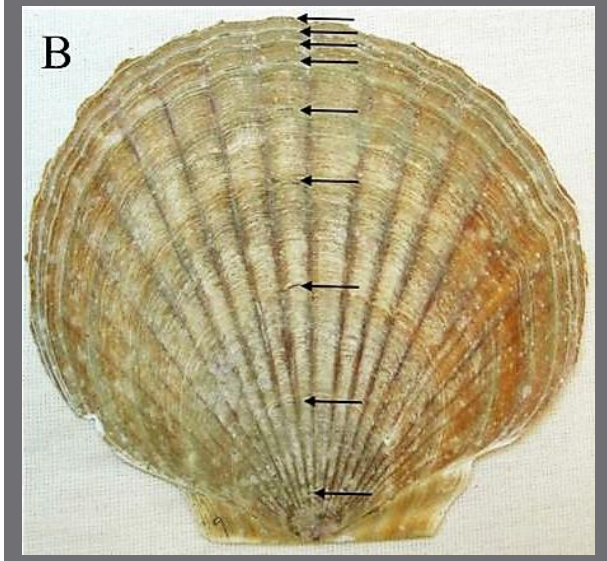
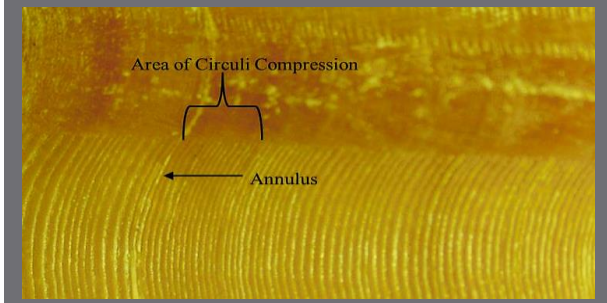
Weathervane Scallop Age Estimation

- Ages are estimated using annuli counts (light/dark banding) on the exterior surface of the exposed valve
- Multiple axes are counted from the umbo to the edge to corroborate ages
  - Axes include auricle counts
- To distinguish annuli, compact bands of circuli (small ridges), light tables, and magnification are used. Also, historical measurements of the first annulus are used to identify outliers.

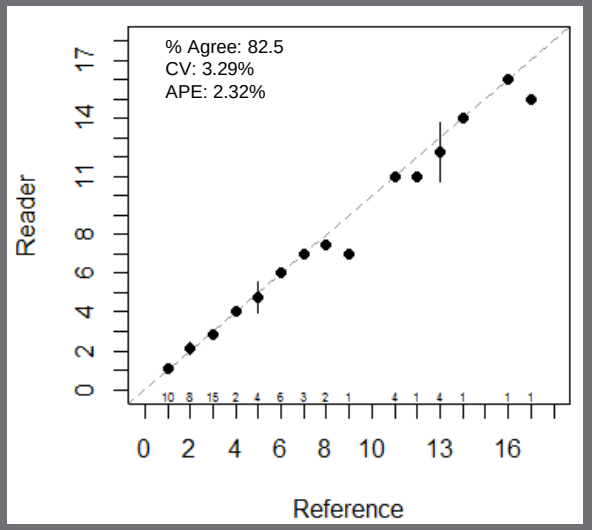


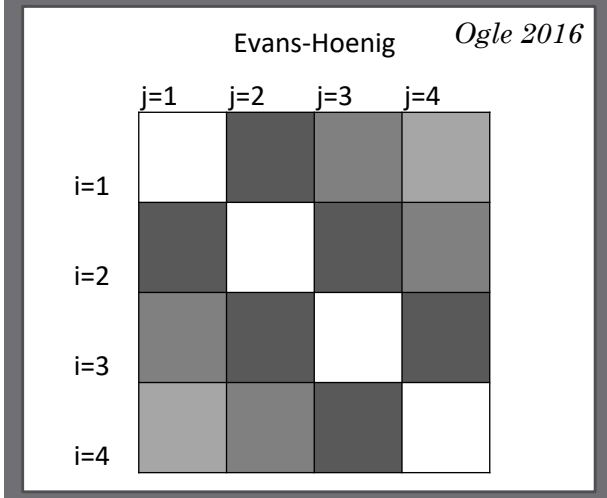


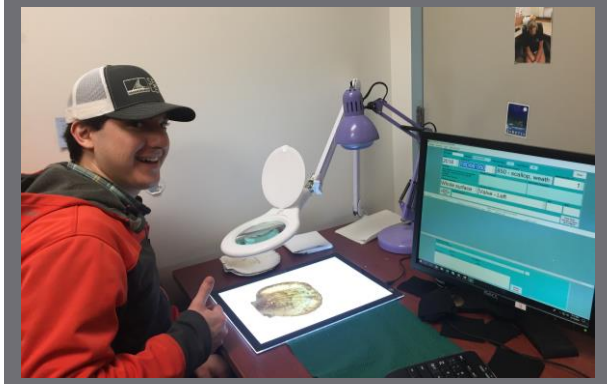


Weathervane Scallop Age Quality Control

- Age readers are trained using historically aged reference collections from targeted management areas
- Readers are trained and tested annually on management areas prior to age estimation
  - Visually assessed with bias plots
  - Precision Tests: CV and APE limits
  - Bias Tests: McNemar, Evans-Hoenig, and Bowker
- Data is directly entered into an Oracle database, 30% of specimens are read twice, and specimens with > 10% CV are resolved.







Weathervane Scallop Age Future Work

- Develop area specific growth models to improve quality control procedures
- Validating seasonal banding interpretation
  - $\delta^{18}O$ & $\delta^{13}C$ stable isotope analysis
  - Laboratory growth and calcium binding dye studies