Name:_____

Cross Section Measuring Instructions

Directions: Make sure you have calibrated ImageJ before beginning this activity.

Enhancing the Image

1. Click **Process** on the menu bar.
2. Select **Enhance Contrast** from the drop down menu. The default setting in the **Saturated Pixels** box should be 0.5%. Change to 0.5% if this is not the default value.
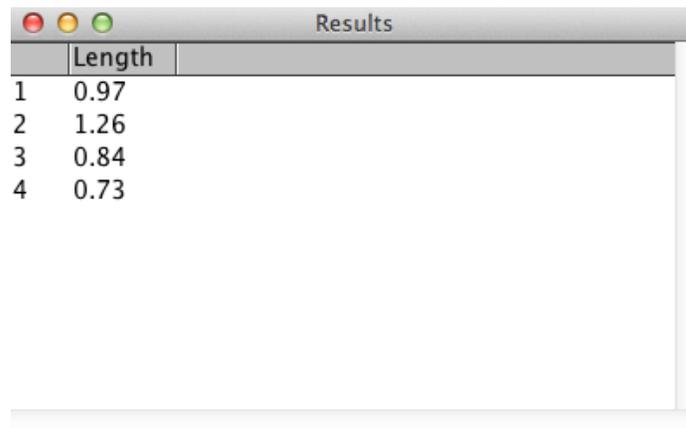3. Click **OK**. The image edges or lines should become sharper.

Taking Measurements with the Segmented Line Tool

4. Use the **Segmented Line** tool found in the Line Selection tool on the tool bar by clicking on the small triangle to access the drop down menu (mac users – ctrl click).

To use the Segmented Line tool for measurement:
 a. Click on the starting point of the distance you want to measure and then drag the mouse to the end point and double click. A line will appear on the image.
 b. Click **Analyze** on the menu bar and then click **Measure** from the pull down menu. A results table will appear. Move the results table off the image. DO NOT CLOSE THE TABLE.
 c. To make a new measurement: click anywhere on the image and the original line will disappear; then repeat step "a" to make a second measurement, this measurement will appear in the results table.
 d. Repeat process until all measurements are complete.
 e. To save your results: click on the table; click **File** on the menu bar and **Save As** from the drop down menu.

Measuring Tree Rings

5. Use the **Magnifying Glass** tool on the tool bar to zoom in on the tree rings.
6. Use the **Hand** tool on the tool bar to drag a segment of tree rings with sharp lines into the center of the window with the outer end (bark of tree) on the far right of the window.
7. Measure each year of tree growth starting with the outer most ring. Remember you are measuring a year of tree growth (dark and light band). Try to stay in a relatively straight line all the way to the center.
8. After measuring all of the rings save your data to your drive.

In the image below the lines represent 2 examples of annual growth.