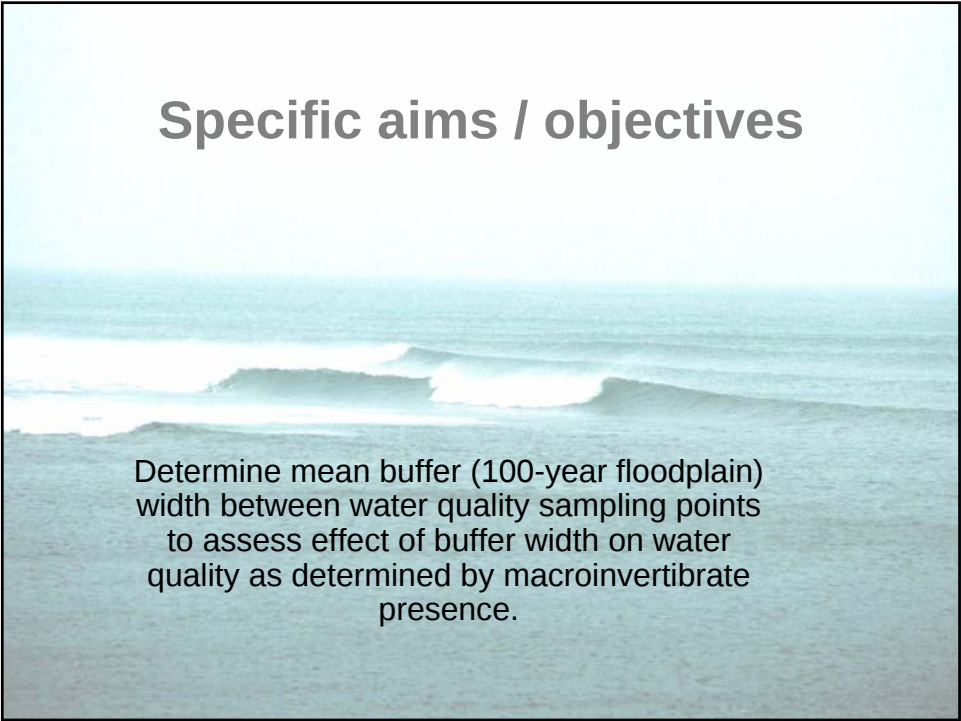




Tualatin and Clackamas Stream Buffer Width and Water Quality Comparison.



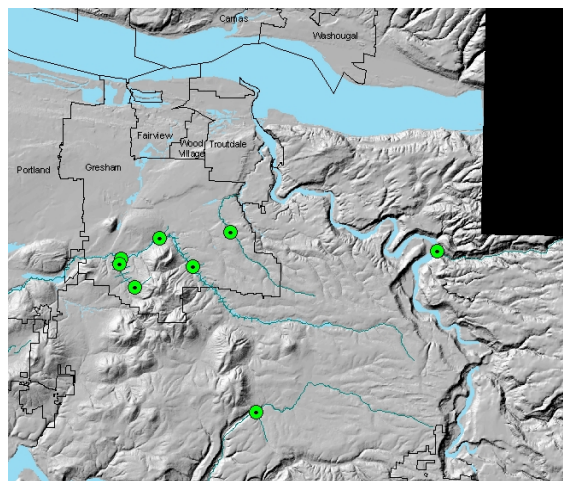
Specific aims / objectives

Determine mean buffer (100-year floodplain) width between water quality sampling points to assess effect of buffer width on water quality as determined by macroinvertebrate presence.

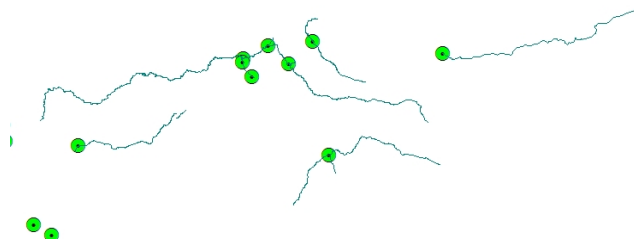
Study area and data layers

- General study area will be the upper Tualatin and Clackamas watersheds and tributaries.
- Data layers:
 - Metro water quality points and data
 - Metro/RLIS Stream Route (Line) layer
 - Water Quality Sampling Points (Points)
 - FEMA Floodplain (RLIS)
 - RLIS DEM

Study Area



Data Layers



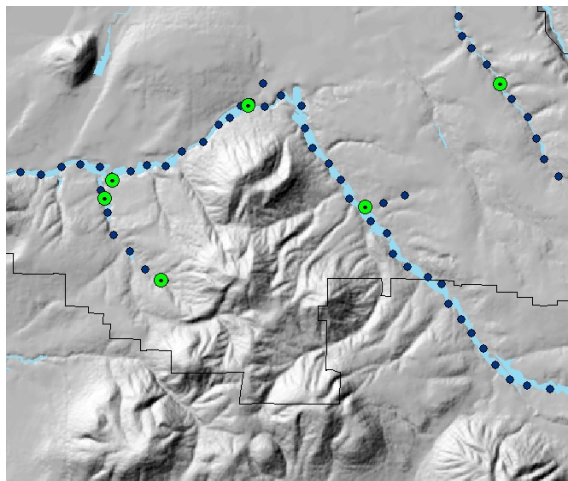
Methodology

- Created MS Access for route events
- Added events (points) every 1000 feet along streamline
- Inserted (manually) a transect at each event
- Downloaded a script from www.esriscrrips.com

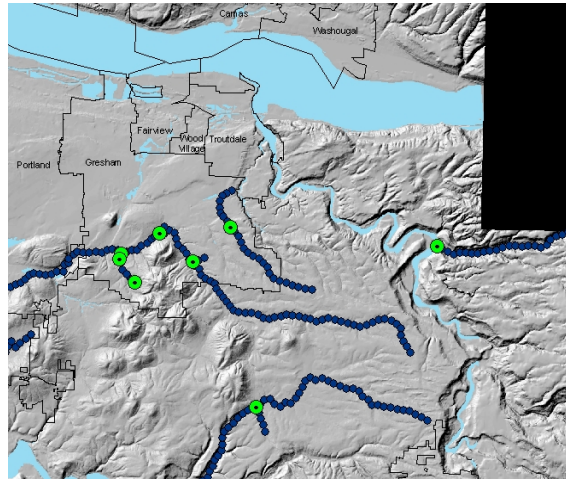
Techniques

- Tools/add event route
- Editor/create new feature (transect lines)
- Use Perpendicular option in Dynamic Segmentation to make transects perpendicular to stream centerline.
- Create new shapefile for the transect-measuring tool (has to be shapefile, not feature class)
- Run tool
- Conduct summary statistics (simple regression model)

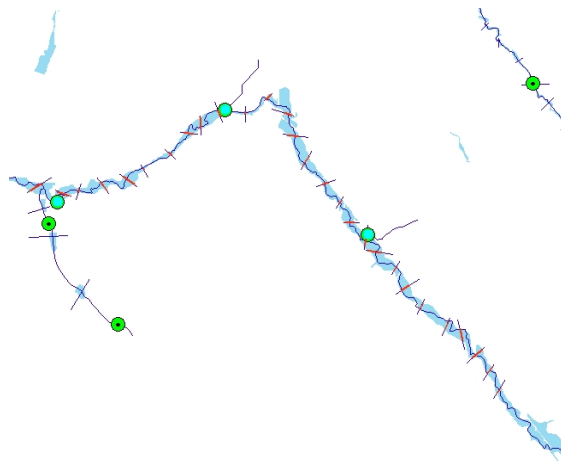
Route Events



Route Events



Transects



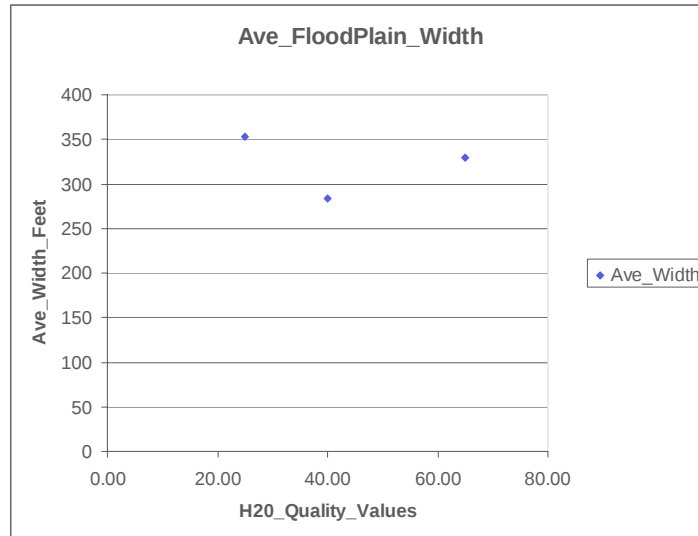
Assumptions

- There are no outside influences to water quality (ha!)
- Slow, broad stream segments would facilitate natural cleansing, and turbulent segments would not allow for pollution absorption.
- Macroinvertebrates are a good water quality parameter.

Limitations and Pitfalls

- ArcMAP will not calculate the average width of a variable-width polygon. The transect frequency (1000 feet) is relatively fine scale, but not fine enough.
- Too few water quality sampling points
- Not accounting for external influences

Conclusions



Lessons Learned

- Last Term, I learned to have the data in a usable format before beginning the project.
- This term, I learned to not ASS-U-ME that ArcMAP can perform a function within the time limits of a term.
- Don't promise the data provider your results.

Thanks David and Dr. Duh!