**Teaching Notes**

By Erin Larson

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**Course Information**

Course: SC 33000 - Ecology

Department: Marine and Environmental Science

Level: **Upper Undergraduate**

Course type: **Both Lecture and Lab**

Students: **Majors**

Number of Students: 10

**Information**

Original Module Name: Investigating human impacts on stream ecology: locally and nationally

Link to Original: <https://qubeshub.org/qubesresources/publications/1095/1>

Files associated:

* Student handout and discussion questions
* Faculty notes
* Data for students
* Maps of landcover data, EPA regions, and sampling sites

Modification Learning Goals:

Students will be able to:

* Hypothesize about the effects of human land use on stream systems
* Compare local stream sites (Alaska) to streams with similar and different environmental characteristics
* Analyze and graph relatively large datasets

**Teaching Notes**

*(Think about what you would like to read about this activity if you came back to it in 2 years)*

Suggestions for this section (not all required, and extras always welcome):

* What did you change and why?
  + I made this activity become an asynchronous lab for an online course, where students worked through the discussion questions as their assessment of the material
  + I added in pilot data that was collected in Alaska as part of the Wadeable Streams Assessment to make it more locally relevant for Alaskan students
* How did the activity go?
  + What went well and why?
    - Students told me that they enjoyed learning about the Alaskan pilot program and comparing Alaska to areas in the Lower 48.
  + What went wrong and why?
    - For students that were less comfortable with Excel, boxplots were more challenging to make. While I included a link to a tutorial on how to make them in Excel, I wish I had instead given them a boxplot template Excel file, so that boxplots did not become an unnecessary hurdle.
* What was the prep like?
  + How much time went into prep?
    - Roughly 1-3 hours to review materials and make necessary edits/modifications for my course
  + Did you have to do any prep (i.e. grow cultures, grow seeds, order supplies) ahead of implementation?
    - No prep needed ahead of implementation
* Would you do this activity again? – Yes!
  + What would you change in the future?
    - I would include a tutorial on how to make boxplots in Excel
    - Although I intentionally made my lab activities asynchronous with the switch to online delivery during Covid-19, I wish I had scheduled more optional synchronous time to help students who were struggling with Excel. In the future for online classwork, I would provide more tutorials and be proactive about offering more synchronous opportunities to work together and get help, rather than expecting students to reach out if they were strug
* How does this activity fit in your overall course curriculum?
  + We did this activity at the end of the course when we were discussing nutrient cycling and human impacts on ecosystems.