TIEE Bald Eagle Migration module

Used by Lazella Lawson at The Master’s University in the Ecology laboratory

Teaching Notes

The QUBES module was modified slightly to fit the content of an upper division Ecology lab for majors.

Assignment Prep – In a previous lab, students were asked to read an article on “Varied Movement Strategies in Bald Eagles" by Wheat et al. (2017) and write a summary of the hypothesis and methods in that experiment.  Another published article on bald eagle movements (Harvey et al. 2012) was available to students in the Learning Management System as a resource, but not as required reading.

Assignment – In the next lab period, the TIEE module Instructions – Guided Approach (Beckstead et al. 2011) provided an introductory experimental design regarding the Bald Eagle Migration patterns. Students were to graph bald eagle population changes and the salmon population numbers from the EXCEL file posted at that website. For a final lab experience on this topic, students were to write a full descriptive lab report detailing what influenced eagle population sizes at Lake Coeur d’Alene, Idaho stopover, the methods of the experiment from meta-data provided with the data spreadsheet, results using graphs visualizing the eagle and salmon populations, and a conclusion of what could be next.

Beckstead J, Lagasse AN, Robinson SR. 2011. Volume 7. TIEE/ESA (http://tiee.esa.org)

Harvey CJ, Moriarty PE, Salathe Jr. EP. 2012. Modeling climate change impacts on overwintering bald eagles. Ecology and Evolution. [Internet]. DOI: 10.1002/ece3.204

Wheat RE, Lewis SB, Wang Y, Levi T, Wilmers CC. 2017. To migrate, stay put, or wander? Varied movement strategies in bald eagles (*Haliaeetus leucocephalus*). Movement Ecology. [Internet]. DOI: 10.1186/s40462-017-0102-4

Evaluation of Project – The lack of actual data has been the main deterrent to teaching about long-term studies in the Ecology lab. Now with the spreadsheets and meta-data that accompanied this module, incorporating this project in the Ecology lab was possible and I will keep it as an assignment in future labs. It was a little daunting at first to sort out the Open-ended from the Guided approaches to see which would work best in the lab with my students.