

# Biology 273: Marine Ecology

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## Overview

As part of my course on marine ecology (Biology 273) I developed a series of exercises addressing plagiarism, critical reading of scientific articles, and researching and writing a short critical review of a specific topic in marine ecology.

### A. Exercise on plagiarism

After a discussion of the basic copyright laws and the University's Academic Code of Honesty, I provided students with a series of examples of plagiarized texts and an example of non-plagiarized writing. I then provided them with a short article on a current topic in marine ecology and ask them to write a brief summary of it, being careful to avoid plagiarism. Students evaluated each others' unidentified work, checking it for clarity and lack of plagiarism. They then had the opportunity to revise their work before turning it in. I evaluated their work based on their ability to summarize a scientific text in their own words. I was pleased to see that all students avoided plagiarism and understood how to think critically about the paper they read.

### B. Comparison between a primary source and its presentation in the course textbook

Originally I intended to provide groups of students with pairs of articles on a similar topic, one from a peer-reviewed scientific journal and another from a non-peer reviewed magazine or website. I had trouble, however, finding appropriate pairs of papers that we had easy access to. Instead, I asked students to select a paper featured in their textbook and compare the primary source to the treatment in the text. This was possible because the text is extremely well-documented and includes many case studies from the scientific literature. Students addressed a series of questions regarding the evidence on which the authors based their statements and the confidence the students had in those statements. Each group presented their findings to the class as a whole. We also had a general discussion on evaluating information provided by diverse sources. Groups were assessed on their ability to discern distinctions between information gained from diverse sources. Students uncovered a surprising number of errors in citations in their text as well as inconsistencies between the primary source and the manner in which it was portrayed in their book.

### C. Research paper on marine fisheries

Each student selected one species for which there is a significant marine fishery or aquaculture market (examples include red snapper, tilapia, albacore tuna, shrimp, and oysters). Katie Duke provided a library presentation to help students locate resources appropriate for this project. Each student researched and wrote a paper to assess the resources available about that fishery, the reliability and usefulness of those resources, and a critical assessment of the fishery itself. Thus they evaluated both the fishery and the sources of information about the fishery. Students were evaluated on the appropriateness of their sources, their evaluation of those sources, and on their ability to integrate information from multiple sources. Their papers were also evaluated for clarity of writing, grammar, organization, and effective use of information to support their thesis regarding the state of the fishery. Several students had trouble finding enough information about their particular fisheries and needed to change the species they were studying. I tried to monitor their progress closely, but there were a few students who appeared to struggle with this assignment. Most students did quite well, but a

few had difficulty with the basic skills of writing a research paper, especially in having a thesis to the paper and using information from external sources to support their thesis.

### **Impact on teaching and student learning outcomes and assessment**

This stipend permitted me to expand my knowledge of resources available on marine ecology, especially marine fisheries. With the help of Katie Duke, I improved my ability to direct my teaching goals to specific student learning outcomes and how to assess these. I assessed the students' responses to the projects using an informal, anonymous, written evaluation. Of the 21 responses I received, 16 felt the exercises helped them be more careful to avoid plagiarism and provided them with new insights about evaluating resources. Several of them objected to the additional work and a few said that the exercises, especially the presentation in the library, repeated material they had already covered several times in other courses.