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Integrating Sustainability into BSCI 363 Conservation Biology

BSCI363 Conservation Biology is an upper level course that is elective for most biology majors. Last year, in my first year teaching the course, I gave two lectures on climate change, one which presented the scientific basis for climate change and a second that highlighted the most important effects on plant and animal populations on land and in the ocean (e.g. range shifts, disruption of food webs, ocean acidifications effects on calcifying organisms). Although we discuss climate change in other contexts, such as planning reserves that can harbor wildlife as the climate change, I would like to have more material on climate change in the course and do more to connect climate change to the connections between biodiversity, economic, and social welfare (i.e. the triple bottom line).

The triple bottom line of sustainability is an integrated theme in this course. For the purposes of this assignment, I would like to highlight the effects of sea level rise on the triple bottom line. Moreover, I would like to make this issue more personal for the students, as was done during our own Chesapeake Project training during MD DNR's Zoe Johnson's presentation on sea level rise impacts on Maryland eastern shore communities.

To this end, I will show the students two videos in class. First, we will watch a video of how Kiribati's President Anote Tong is helping his people adapt to sea level rise, which will ultimately destroy his small island nation, by giving them career skills and preparing them for migration (5 min). I will ask the class to describe the changes taking place in Kiribati to the society, economy, and biota. I will have the students discuss the factors that make the nation more or less vulnerable to sea level rise and better able to adapt (e.g. geography, planning & preparation, leadership) in small groups. Then, I will show a video about how Maryland will be affected by sea level rise (10 min), which describes the impact of sea level rise and storm surge on the low-lying lands in southern Maryland, as well as Baltimore's Inner Harbor. The class will continue their small group discussions about this region. We will conclude the class by coming together to list proactive steps we can take in the Maryland region to prepare people and species for sea level rise.

Finally, the students will be asked to do an assignment researching one of the 13 islands in the Chesapeake Bay that has been overtaken by sea level rise. In a 1-2 page paper, they will identify the island, when it went underwater or was abandoned. They will also be asked to describe what was on the island in terms of human infrastructure, ecosystems, and wildlife. Finally, they will be asked to identify if the island was likely important for any threatened, endangered, or locally extinct species. In the following class, I'll call on several students to briefly describe their findings.