A. ACTIONS TAKEN TO IMPROVE STUDENT LEARNING

What actions did you take in 2012-2013, based on previous assessment findings, to improve student learning in your program? (Refer back to plans indicated in “Response to Assessment Findings “ in 2011-2012 Assessment Report.)

Student progress indices, publications and presentations, honors, and employment success were positive during 11-12. Because no critical concerns were indicated in the previous assessment, no specific actions were undertaken to improve learning. Although our standard assessment report has largely been in line with our original assessment plan, it has not contained all of the sorts of assessment of learning outcomes that the university now requires, and our program has also changed somewhat in focus. Thus in 12-13, we began to develop ways to better assess learning in our students.

B. STUDENT LEARNING OUTCOMES ASSESSED AND EXAMINED

Which Program Level Student Learning Outcomes did you assess and examine during 2012-2013?

Current Program-Specific Learning Outcomes (from the 2005 assessment plan) (to be revised):

1. Graduates will be proficient in laboratory methods and strategies appropriate for their area of investigation within the environmental sciences.
2. Graduates will have a mastery of knowledge appropriate to their course of study in core courses, advanced courses, and from the scientific literature.
3. The student will have a background in the interrelationships of biology, chemistry, and geology. They will possess an understanding of fundamental ecological processes applicable to environmental resources management.
4. The student will have an awareness of public health, environmental regulations and management issues associated with environmental quality, as well as the skills to address these issues with practical solutions.
5. The student will process analytical skills to create informed solutions. They will have skills to define problems, formulate hypotheses, design and carry out experiments, and interpret environmental data.

In 2012-13, we assessed outcomes 2 and 5 of our program-specific learning outcomes.

C. METHODS FOR COLLECTING DATA

Which students were included in the assessment?

We examined performance on preliminary exams for the five students who attempted this important milestone during the year. We looked at other performance indicators (passage through milestones, papers published, presentations, honors and awards, etc.) in all students across the program.

D. ASSESSMENT MEASURES

• What key assessments/assignments/student work did you examine to directly assess the Program Level Student Learning Outcomes listed above?

We examined performance on the preliminary exam, which primarily addresses outcomes 2 and 5 of our current list. The preliminary exam is multifaceted. It consists of a ~25 page written paper on a topic assigned by the dissertation committee of the student. In the written document, students are asked to do a literature review on a topic related to the dissertation research, identify gaps in our knowledge, and propose approaches for addressing those gaps. The written
component tests knowledge of content, critical thinking, hypothesis generation, experimental design, and writing ability. The students are also required to give an oral presentation of the exam and defend their work orally to the committee. Thus, it also tests the ability to produce an effective presentation, communicate orally, and answer questions on subjects pertinent to the student’s scientific area of emphasis. The dissertation committee of five faculty members (including one external to Wright State) critically evaluates each component, providing a score of pass, fail, or defer subject to revision on both the oral and written component. We examined first-time passage rate and overall passage rate, and reviewed the comments provided by each committee in their reports to the program office. Occasionally, preliminary exam documents have been revised for publication as a review paper.

- What, if any, indirect assessments (e.g. exit survey, alumni survey, focus groups, etc.) did you use to indirectly assess the Program Level Student Learning Outcomes listed above?

We tracked student publications, presentations, honors and awards and outreach activities during the year. We also conduct an exit survey for each graduate, producing yearly and running averages.

E. SIGNIFICANT FINDINGS
What did you find from your assessments? What did your data reveal about how well students are achieving the Program Level Student Learning Outcomes that you listed above?

Three of five students passed the preliminary exam on the first attempt, with few critical comments. This is a clear indication that they are achieving the learning outcomes that we assess in this exercise. Two of five students passed the oral component, but were asked to revise aspects of the written document and thus were weaker in at least one aspect of the exercise. Both of these students were successful in their second attempt.

Across the program, students were authors on approximately 17 papers and 35 presentations during the year. Four students won internal research grants (GSA grants or Biology research awards) and two students earned external fellowships or research grants (one from the Florida Fish and Conservation Commission and one from the ORISE program at WPAFB). One student is on the editorial board of a journal, and three students reviewed papers for journals during the year. One student won a travel award and a best student presentation award at a national meeting. Four students graduated during the reporting period.

Overall scores on exit surveys from four students graduating during the reporting period averaged 3.68/4 (with 4 being a response of “strongly agree”) on a series of questions about program quality and the student learning experience (see attached). The current overall average is 3.49/4, indicating that satisfaction of recent graduates is generally higher than the historical average.

F. DISCUSSION OF RESULTS
How were results shared? With whom were they discussed?

This assessment report was shared with the program faculty electronically.

G. ACTIONS PLANNED TO IMPROVE STUDENT LEARNING
Based on what you learned from your assessment of the Program Level Student Learning Outcomes, what actions do the faculty in your program plan to take to improve student learning in your program/area? Describe the steps faculty have taken/will take to use information from the assessments for improvement of student performance and the program. List additional faculty meetings or discussions and planned or actual changes to curriculum, teaching methods, approaches, or services that are in response to the assessment findings.

Performance of our students has generally been commendable, and all students who attempted the preliminary exam during the year were ultimately successful even if revision was necessary. Most current students are productive, although this varies somewhat from laboratory to laboratory, and graduating students have a very favorable view of the program. Should significant issues arise, we will address them as needed. At the moment, further efforts on assessment will include revising the program assessment plan (see below), as well as producing new assessment tools to use in our core courses and during critical milestone events in the program.
We also learned that our program-specific outcomes and assessment plan need to be revised to place them more in line with university learning outcomes and with thematic changes in our program. This will be a goal during 13-14, which is a process that will start with proposed changes drafted by the Director and Associate Director, proceeding through the Interdisciplinary Review and Policies Committee, and then the Program Faculty. In turn, we learned that some different ways of assessing achievement of learning outcomes are needed, and will be instituted in 2013-14.

H. SUPPORTING DOCUMENTS (recommended)
Please attach minutes of program faculty meeting where discussion of results and action planning occurred and any other relevant documents.

Sample exit survey form attached for information.