Expected Outcome 1: Demonstrate information literacy in the genre and the ability to think critically.

Students will be able to read, understand, and critically review scientific papers in the field of Marine Biology. They will also be able to effectively locate, evaluate, and summarize information relevant to a topic in Marine Biology.

**Assessment Method 1:** Evaluate Annotated Bibliography assembled by student on topic in Marine Biology

**Assessment Method Description**

All students in this major complete BIOL 4950: Undergraduate Seminar. In this course, students research and prepare an Annotated Bibliography on a particular research topic in the field of Marine Biology. Their ability to complete this assignment effectively measures their ability to locate, evaluate, and summarize information relevant to a topic in Marine Biology. The annotated bibliography generated by each student was assessed using a standardized rubric (see below).
Findings

Data were obtained from 9 students from the Fall 2013 section of BIOL 4950. Student mean scores were 93.4% of total points possible. These
Data show a high level of ability of students on this assignment, pointing to good ability to locate, evaluate, and summarize information relevant to a topic in Marine Biology.

**How did you use findings for improvement?**

Data from this assessment will be shared with faculty in a departmental Assessment Mini-Retreat held in October 2014. Faculty will be invited to discuss how assignments in their courses, which are taken earlier in students’ curricula, can help prepare students to improve their scores in this capstone course.

**Additional Comments**

**Assessment Method 2:** Evaluate student-generated Synopses of original research papers in Marine Biology

**Assessment Method Description**

All students in this major complete BIOL 4950: Undergraduate Seminar. In this course, students read, understand, and write Synopses of several original research articles in the field of Marine Biology. In these sections, students wrote Synopses for two articles during the semester. The Synopses were due at different times during the semester so that a time period was available to compare student improvement. The Synopses are assessed using the standardized rubric (see below).
Findings
Data were obtained from 9 students from the Fall 2013 section of BIOL 4950. Students performed at an overall mean score of 93%, showing a high level of ability to read, understand, and write Synopses of original

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<tbody>
<tr>
<td>Identification of Hypothesis</td>
<td>Clear and concise statement of paper's hypothesis in a single sentence.</td>
<td>States paper's hypothesis.</td>
<td>Partial statement of paper's hypothesis, or hypothesis statement contains some errors.</td>
<td>No statement of paper's hypothesis, or statement contains numerous errors.</td>
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<tr>
<td>Description of Research Findings</td>
<td>Clear description of the research, including methods and results. Clear &amp; concise description of the contribution of results to the paper's overall conclusions.</td>
<td>Adequate description of the research, including methods and results. Reasonable description of the contribution of results to the paper's overall conclusions.</td>
<td>Limited description of research, including methods and results. One or more experiments not described / evidence of misunderstanding of contribution of results to the paper's overall conclusions.</td>
<td>Little or no attempt to describe methods and results. Little or no evidence of understanding of the contribution of results to the paper's overall conclusions.</td>
</tr>
<tr>
<td>Summary</td>
<td>Contribution of the work to the field concisely and clearly summarized.</td>
<td>Contribution of the work to the field summarized adequately.</td>
<td>Contribution of work to the field incompletely summarized, or with misunderstandings evident.</td>
<td>No summary of contribution of the work to the field.</td>
</tr>
<tr>
<td>Usage</td>
<td>No errors in sentence structure and word usage. Scientific terminology used correctly throughout.</td>
<td>Very few errors in sentence structure and word usage. Very few errors in scientific terminology.</td>
<td>Few errors in sentence structure and word usage. Few errors in scientific terminology.</td>
<td>Several distracting errors in sentence structure and word usage. Little to no use of terminology.</td>
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Expected Outcome 2: Effective communication

Communicate effectively in the oral and written genres common to the discipline of Marine Biology.

Assessment Method 1: Evaluate oral powerpoint presentation of scientific research paper

Assessment Method Description

BIOL 4950 Undergraduate Seminar is a required course for all students majoring in one of the undergraduate degree programs administered by the Department of Biological Sciences. The course is taught both Fall and Spring semesters and has 18 or fewer students/section. We offer four sections per semester and typically most students in a section are in the same major and are juniors or seniors.

The purpose of BIOL 4950 is to provide experience in the professional written and oral communication genres used in the biological sciences. Each student presents a scientific paper using PowerPoint in a format typical of that used at professional scientific meetings. A rubric common to all sections is used by the instructor to assess each student’s presentation (see uploaded file).
### Findings

Data were obtained from 9 students from the Fall 2013 section of BIOL 4950. The overall mean score from the powerpoint presentation evaluation rubric was 88%. Scores in the major rubric categories of Language Use and Delivery, Organization and Preparation, and Content were all in the Exceeds Standard or Meets Standard areas, except for 1 student score falling twice into the Nearly Meets Standard category. No student scores were in the Does Not Meet Standard category.
Meet Standard area. These results show students have effective oral (and written in the context of the powerpoint slides) communication skills in the discipline.

**How did you use findings for improvement?**

At the September meeting there was discussion of student strengths and weaknesses. Strengths include a relatively high general competency of students for the major tasks involved in this course. Weaknesses included students who have trouble thinking thematically, and need for students to improve their information literacy skills. These results will be shared with departmental faculty at an Assessment Mini-Retreat to be held Oct. 16, 2014.

**Additional Comments**

**Expected Outcome 3: Preparation for professional advancement**

Completing the major has prepared students for entry-level positions in the field or to successfully enter graduate or professional programs

**Assessment Method 1:** Student self-reported survey of outcome

**Assessment Method Description**

Students respond to questions included in a graduation exit survey regarding their participation in undergraduate research, internships, study abroad and their future plans for graduate/professional school or employment in Marine Biology.

**Findings**

Data from 3 respondents were available from Spring and Summer 2014 graduates. Findings for each survey item are presented below.

1) Participation in undergraduate research. One of the 3 (33%) participated in undergraduate research.
2) Participation in internship. One of the 3 (33%, a different student from the one who did undergraduate research) participated in an internship during their curriculum.
3) Overall, I feel that my education has prepared me well for further education or a career in biological sciences. This was evaluated as Strongly
Agree=1, Agree=2, Neutral=3, Disagree=4, Strongly Disagree=5. The mean score for the ten students was 1 (all Strongly Agree).

4) Acceptance into a graduate program, professional program, or job. None of the students reported having a job or reported entry into professional/graduate school at the time of their taking the survey.

How did you use findings for improvement?
Data from this assessment will be shared with faculty in a departmental Assessment Mini-Retreat held in October 2014. Strategies for increasing student participation in undergraduate research and internships will be discussed, as well as how we can improve self-reported scores on student preparation for further education or a career in Marine Biology.

Additional Comments