AY 2014-2015 Annual Report Bachelor of Science in Biology; Bachelor of Science in Marine Biology Bachelor of Arts in Biology

The Biology faculty developed the curriculum for the Bachelor of Science in Marine Biology/Biology that provides a solid foundation for students in biology with a strong core in either marine biology or general biology. It is a rigorous program that produces graduates ready to gain employment or pursue graduate study in biological and medical fields. The BS degree in Biology and the BS degree in Marine Biology are designed to serve the needs of three groups of undergraduate students. First, they are designed to serve students seeking entry-level employment in fields related to marine biology, wildlife management, and fisheries, including with state and federal agencies. Second, they are directed toward students preparing to enter postgraduate courses of study; either in graduate studies in the fields of oceanography, marine biology, ecology, evolutionary biology, and fisheries, or in medical or veterinary schools. Third, they are designed to serve students preparing to enter the M.A.T. program in secondary education at UAS, and thus reflect the requirements for certification in science. The BS degrees in Marine Biology and Biology are both designed to capitalize on the unique natural setting in Southeast Alaska. Many courses involve hands-on field and laboratory exercises. Independent research with a faculty mentor is encouraged.

We also have developed curriculum for a Bachelor of Arts in Biology that provides a broader liberal arts background and fewer analytical courses. This degree was designed to inspire students interested in the biological sciences but who are unlikely to pursue technical research careers the more classic science curriculum prepares for. The degree is also designed to serve students entering the M.A.T. program in secondary education.

Program Assessment Components

- 1) Data Collected on Program Students for AY 2011-2015
- 2) Evaluation of the Data
- 3) Exit Interviews with our Graduates
- 4) Biology Advisory Committee
- 5) Potential Future Changes

1) Data Collected on Program Students for AY 2011-2015

Program Student Head-counts (including pre-majors):

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|---------------|---|-------------------|------------|-------|
| Academic Year | BA Biology | BS Biology | BS MarBiol | Total |
| 2010/2011 | 26 | 63 | 62 | 151 |
| 2011/2012 | 32 | 64 | 63 | 159 |
| 2012/2013 | 38 | 63 | 68 | 169 |
| 2013/2014 | 34 | 57 | 60 | 151 |
| 2014/2015* | 16+ | 21+ | 32+ | 69+ |

* Head-counts for 2014/2015 do not include pre-majors, all previous years include both premajors and majors, thus the discrepancy in numbers. Pre-major head-counts were not made available this year.

| Graduating S | Students |
|--------------|----------|
|--------------|----------|

| Academic Year | BA Biology | BS Biology | BS MarBiol | Total |
|---------------|------------|------------|------------|-------|
| 2010/2011 | 2 | 8 | 4 | 14 |
| 2011/2012 | 0 | 3 | 4 | 7 |
| 2012/2013 | 5 | 5 | 10 | 20 |
| 2013/2014 | 4 | 6 | 6 | 16 |
| 2014/2015 | 1 | 7 | 1 | 9 |

Average GPA of Graduating Students

| Academic Year | # of Students | GPA | BA Biology | BS Biology | BS MarBiol |
|---------------|---------------|------|------------|------------|------------|
| 2010/2011 | 14 | 3.06 | 2.89 | 3.03 | 3.03 |
| 2011/2012 | 7 | 3.03 | NA | 2.83 | 3.17 |
| 2012/2013 | 20 | 3.21 | 2.97 | 3.24 | 3.31 |
| 2013/2014 | 16 | 3.27 | 3.19 | 3.42 | 3.27 |
| 2014/2015 | 9 | 3.06 | 2.79 | 3.14 | 2.18* |

*2014/2015 GPAs are for all students enrolled in respective degree programs; previous years' GPAs are for graduates only.

| Exit Interviews | | | |
|--|---------------------------------|-----------------------|----------------------------------|
| Academic Year | # Graduates | # Completed Interview | vs Return Rate |
| 2010/2011 | 14 | 2 | 14% |
| 2011/2012 | 7 | 7 | 100% |
| 2012/2013 | 20 | 6 | 30% |
| 2013/2014 | (exit interviews not conducted) | | |
| 2014/2015 | 9 | 5 | 56% |
| Data from Exit Int | terviews 2014/201 | <u>15</u> | |
| Number of respondents | | | 5 |
| Number of students that gained research experience | | | 2 |
| Satisfied with Program | | | 3 either agree or strongly agree |

2) Evaluation of the Data

We have seen an overall steady number of total program students since 2010, with some increases and decreases over that time. In 2012/2013 we graduated a record number (20) of students in all programs, and saw a slight decrease to 16 students in 2013/2014, and again to 9 students in 2014/2015. (However we currently have 18 students graduating in all programs in

2015/2016: 4 BS MarBiol, 7 BS Biol, 7 BA Biol). We continue to have seen a steady number of students enrolled in all 3 degree programs.

UAS is an open enrollment university and many of our students do not maintain high grades through their academic career, which can be seen by analyzing the graduates' Grade Point Average (GPA). However, our most recent group of graduates (n=9) were strong students academically (GPA = 3.06), consistent with higher than average GPAs in previous years in these programs. Students who opted for a BS in Biology tended to be academically the strongest among the three degree programs (3.14; n=7) followed by students in the BA Biology (2.79) and BS Marine Biology programs (2.18), although the latter includes all students in the Marine Biology program, not just graduates.

3) Exit Interviews with our Graduates

Over the last several years, we have tried to meet personally with each of the graduates to ask them specific questions about our programs, and to have them fill out a survey form about their experience. For 2014/2015 AY we received feedback from 5 of 9 graduates. Most of these graduating students in 2015 felt that the Biology/Marine Biology program was strong and that they were more than adequately prepared for a career in the biological sciences. They unanimously felt that our program provided them strength in analytical, oral communication, critical thinking, and computer skills.

Some student comments on the program are below:

"I love the BIO program!"

"Biology professors are great. I wish I could say the same about some other professors."

"Doing lab research was the best part of college. All students should get the chance to do research."

"I love the small class sizes."

The only negative comment on the surveys this year was about the laptop computers that are available to them for labs and analysis for their independent project, and the student expressed a wish that they were updated or replaced due to frequent crashing and slow processing time. This has been an ongoing problem for many years now.

4) Biology Advisory Meeting

In 2012, the biology faculty met with our new Biology Advisory Committee (BAC) for the first time to discuss our programs. The BAC is composed of external professionals from diverse agencies who have hired UAS students and are excited about our program. We formed the BAC in order to acquire external recommendations with respect to future faculty hires, curriculum changes, and any changes in program delivery. Our goal is to meet on an annual basis to provide

updates of our programs (although we did not meet in AY2015). The following people have served on the BAC.

- 1) Ginny Eckert: University of Alaska Fairbanks
- 2) Ron Heintz: National Oceanic and Atmospheric Administration
- 3) Forest Bowers: Alaska Department of Fish and Game
- 4) Bill Hanson: US Fish and Wildlife Service

Plans are currently underway to hold a BAC meeting in summer of 2016.

5) Potential Future Changes

The biology faculty have been tracking our graduates for over 10 years and we are satisfied that we provide a curriculum that prepares our graduates for diverse career choices. Feedback from students who have entered graduate school confirms that our courses are rigorous and relevant. It would be helpful if the Alumni Association had a mechanism in place to track UAS graduates better.

All of our required courses are offered on an annual basis and all of our Biology electives are offered annually or every other year. Our enrollments in our required courses are strong with some courses maintaining a wait list. There is variation in the enrollments in our elective courses. We have initiated a course in Communicating Science (Tamone) that promises to enhance our students' exposure to written and oral communication used in the biological sciences. We have also initiated a course in Experimental Design and Data Analysis (Bergstrom) that has helped to fill a pre-existing gap in applied analysis of scientific data, and a new course in Marine Ornithology and Herpetology (Pearson) that provides marine biology students with an additional upper division elective with no lab. Most of our upper division courses have a laboratory component and we are evaluating the value of all of these laboratory experiences. We have removed the laboratory component from Biology 415 Physiology of Marine Animals (now BIOL 410). All of the Biology faculty offer undergraduates at UAS research experiences or volunteer positions in their labs. There are always more students requesting research or volunteer experience than we have faculty to mentor.

The 2015 and 2016 academic years are at the precipice of significant change in our Biology and Marine Biology Programs. We have developed and plan to offer a new Marine Fisheries Emphasis that will be available to students from all three degree programs beginning in Fall 2016. To support the Emphasis as well as our primary programs we have hired a term faculty position (funded by TVEP) who will begin in the summer of 2016. In addition, as of the submission date of this assessment, we are narrowing down our search for a tenure-track faculty member in Marine Fisheries to serve the same need. We have increased our recruitment efforts (with the help of Admissions Representative Margo Connolly-Masson and our new TVEP term hire), and are doing an in depth curriculum evaluation of our programs (by AY 2017) as a result of several faculty attending the Partnership for Undergraduate Life Science Education (PULSE) meeting in October of 2015. We are optimistic of the changes forthcoming and will report on these in more detail in next year's annual assessment.