



UNIVERSITY
of **ALASKA**
SOUTHEAST

APPLIED FISHERIES
SITKA, ALASKA

**Applied Fisheries
Program
Assessment Report**

**Academic Year
2022 - 2023**

https://uas.alaska.edu/career_ed/fisheries/index.html

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Table of Contents

1. Program Overview	3
2. Program Student Learning Outcomes (SLOs)	3
3. How data are collected on the Program SLOs	4
4. The data collected on the Program SLOs during the previous academic year (AY 2022 - 2023)	4
Figure 1. Student Credit Hours (SCH) by Academic Year AY 2011 - AY 2023	4
5. Evaluation of Student Learning Data from the previous academic year	6
6. Future Plans to Improve Student Learning	7

1. Program Overview

The Applied Fisheries Program (formerly Fisheries Technology / FT) is an industry driven program that focuses on career training to put students to work. The Applied Fisheries program is the only one and two-year, entry-level academic program in fisheries in the UA system. The mission of the program is to provide students with a broad educational and practical foundation in the field of fisheries, aquaculture, mariculture, and scientific diving. Students will be prepared for entry level employment in federal or state agencies, private-non-profit aquaculture and mariculture facilities (PNPs), and various private sector fisheries employers. Students will also be prepared to progress from the two-year degree to related four-year degrees should they choose to continue on academic pathways. The goal is for program graduates to fill high demand fisheries jobs in Alaska or pursue a Bachelor's degree in fisheries or related fields.

This Program Level Student Learning Outcomes Assessment Report is for the Applied Fisheries AAS, the Certificate (Alaskan Aquaculture Emphasis and Fisheries Management Emphasis) and the three Occupational Endorsements (Alaskan Aquaculture, Fisheries Management, and Scientific Diving).

2. Program Student Learning Outcomes (SLOs)

Goal 1. Students will describe ecological attributes of fish and their habitats.

Outcome 1.1. Students will identify common commercial species of Alaska and understand their habitat needs.

Outcome 1.2. Students will describe water as an environment for life.

Outcome 1.3. Students will convey fishery information to faculty and classmates.

Goal 2. Students will demonstrate sound field sampling techniques.

Outcome 2.1. Students will collect, analyze, and present fisheries data utilizing standard methodologies.

Outcome 2.2. Students will describe the importance of following protocols and techniques; utilizing good field data collection techniques and data recording techniques.

Outcome 2.3. Students will describe methodologies and protocols; practice good data management skills; summarize and communicate findings.

Outcome 2.4. Students will discuss the importance of correct data collection and analysis.

Goal 3. Students will operate safely while participating in program activities and utilizing program equipment.

Outcome 3.1. Students will identify methods for reducing injury in the field and lab setting.

Outcome 3.2. Students will discuss safe operating procedures for equipment; assess field conditions to determine safety guidelines to follow.

Outcome 3.3. Students will discuss the importance of promoting safety for self and others and equipment.

Goal 4. Students will describe the basic principles of salmon enhancement techniques used in Alaskan hatcheries.

Outcome 4.1. Students will describe the basic process involved in fish rearing.

Outcome 4.2. Students will take part in “hands-on” procedures to ensure successful output of fish.

Outcome 4.3. Students will describe attributes of Salmon Culture facilities in Alaska.

Goal 5. Students will describe management and legal frameworks within which marine fisheries exist.

Outcome 5.1. Students will describe the legal and regulatory framework of marine fisheries in Alaska.

Outcome 5.2. Students will describe the current status of marine fisheries statewide.

Outcome 5.3. Students will describe the social and economic value of Alaska fisheries to the state and nation.

3. How data are collected on the Program SLOs

The Applied Fisheries program has detailed Student Learning Outcomes (SLOs) that are hierarchically nested from the individual lesson, to the course, to the program level. As part of this program level student learning assessment, we collect data on program enrollment, student learning via exam scores, comparison of pre and post course exams, student evaluations, a comparison of student creative projects, and through surveys and interviews of program graduates.

4. The data collected on the Program SLOs during the previous academic year (AY 2022 - 2023)

Student Enrollment Data - In Academic Year 2022 - 2023 the Applied Fisheries Program had a student headcount (SHC) of 330 students who took 799 student credit hours (SCH).

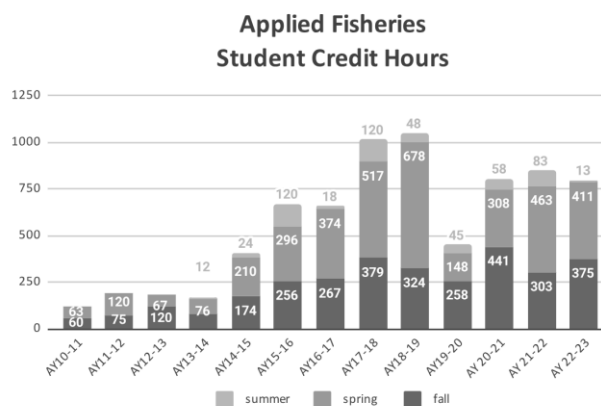


Figure 1. Student Credit Hours (SCH) by Academic Year AY 2011 - AY 2023

Student exam scores – Exam scores directly measure the extent of knowledge and understanding that students have gained in a particular subject area. Average exam scores

across courses ranged ~85% and indicate a strong overall comprehension of course content. Typically exam scores improve over the course of the semester as students become more familiar with the course content, delivery style, and assessment techniques.

Pre and Post exams scores – Pre and post exams are particularly effective in measuring the learning that occurs within a course. These exams are administered before any content is delivered and then again at the end of the course. The difference in scores reflects the knowledge gained as a direct result of the course.

Student Evaluations – Though student evaluations do not explicitly relate to knowledge gained by students, they allow us to evaluate student perception of the content and curriculum, and infer how students learn so that we may improve delivery and content for future courses. As part of these evaluations we ask students if they thought the courses were valuable, if they would take another course from us, and if they would recommend our classes to other students. In addition we ask students if there is anything they would change about the course. This information is then used to update course content, approaches to student assessment, and refine overall course delivery.

Writing Assignments and Creative Projects

Part of our assessment tools include weekly writing assignments and larger creative projects in the majority of distance courses. These artifacts of learning enable assessment of student understanding and application of course material in diverse formats. In addition to being another assessment tool, the introduction of writing assignments and creative projects also allows students to have a diverse set of learning opportunities available, reducing the pressure on students that do not score well on exams.

Certifications for semester intensives

Student learning is additionally assessed via demonstration of “skills practicals,” which when complete, allows for national and international certification. These assessments were initially utilized in our O.E. in Scientific Diving and the success of this model has allowed the creation of two additional Occupational Endorsements (Alaskan Aquaculture and Alaskan Mariculture) where students success and learning are assessed through traditional exams, pre and posttests, and hands on skills practicals resulting in professional certifications. The first of these additional OE’s was offered in the Fall of 2021 and the other was offered in Fall 2022.

Exit Interviews of Semester Intensive Students

In this Academic year we initiated exit interviews of all semester intensive students. These interviews offer valuable feedback on the curriculum's relevance, teaching effectiveness, and the adequacy of support services, highlighting both strengths and areas needing improvement. These interviews can inform teaching practices, suggest improvements that increase student satisfaction and retention and improve the educational experience, ensuring that the curriculum remains industry-relevant and that students are well-supported throughout their academic journey.

5. Evaluation of Student Learning Data from the previous academic year

In AY 2022-2023, the Applied Fisheries program enrollment remained strong when compared to the previous academic year, Student Headcount (n=330) and Student Credit Hours (n=799). Enrollment grew compared to the previous Fall and Spring, but was lower during the summer semester. These enrollment trends show continued resilience of the program and faculty, as well as demand for the courses and degrees offered. This is not a direct measure of student success, but could be considered a relative proxy.

While primarily a measure of student learning, exam scores can also serve as an indirect assessment of teaching effectiveness. If students consistently perform well on exams, it may indicate that instructional methods are effective. Conversely, consistently low scores may prompt a review of teaching strategies and course content. Exams scores for this academic year averaged in the mid B range (85%) and through previous evaluations of testing effectiveness, ~85% of students would likely repeat the same performance on their exams based on the Kuder-Richardson formula. This may indicate that the instructional methods being used are effective.

Pre and post exams allow us to not only determine improvement in learning, but also the level where students are coming into classes. Students showed an improvement of ~30% in knowledge by the end of their courses, as indicated by the increase from average pre-test scores (~55%) to post-test scores (~86%).

Almost all of the students that completed end of course surveys said that they found the courses informative, would take another course, and would recommend an Applied Fisheries course to a friend.

Writing assignments and creative projects provide faculty with versatile tools for evaluating student learning while offering students the opportunity to deepen their understanding through diverse assessment methods. These approaches are highly favored by students, who report a more profound grasp of the material and the ability to relate theoretical concepts to their personal experiences. Consequently, writing assignments and creative projects have been integrated into all full-length semester courses within the Applied Fisheries program, except for one course focused on technical skills. Efforts are needed to discourage the use of Artificial Intelligence (AI) in these writing assignments as it has been identified and is of moderate concern.

Exit interviews from students of the Alaskan Aquaculture Semester and the Alaska Dive Semester programs in AY 2023 were overwhelmingly positive, highlighting the exceptional effectiveness and impactful nature of our place-based, intensive educational formats. These testimonials not only affirm the curriculum's relevance and the high quality of instruction but also emphasize the transformative potential of our programs on students' academic and professional paths. Leveraging student feedback in both text and video formats as promotional tools, we vividly showcase the significant, life-changing experiences our semester intensives offer. This glowing feedback underscores the programs' role not just as educational achievements but as pivotal experiences that thoroughly prepare students for successful careers in Fisheries and Aquaculture.

In response to previously identified need, transitioning from one-credit pass/fail practicum courses to variable credit courses with letter grading significantly enhances the assessment of student learning by allowing for a more nuanced evaluation of students' understanding and application of course material. This shift has enabled instructors to distinguish between varying levels of achievement and mastery among students, offering a clearer picture of individual student progress and areas needing improvement.

6. Future Plans to Improve Student Learning

Applied Fisheries faculty will continue to evolve the engagement and evaluation of distance programs while continuing to develop semester intensive and lab based programming that prepares students for career opportunities over a short time period.

In the near future, the Fish Tech program will:

- Continue to offer high-impact and high demand learning opportunities that diversify student learning opportunities such as Semester Intensives (Alaskan Aquaculture Semester Fall 2024 and Alaska Dive Semester Spring 2025) and field lab practicums (FT 125, 150, 188, 189, 194, 212, 223, MTR 119, MTR 120)
- Develop student assessment tools that are more robust with respect to the integration of Artificial Intelligence (AI) in education and student work
- Broaden the Adjunct teaching pool to allow for the offering of additional Marine Transportation and maritime focused courses for the local community in Sitka based on a continuously growing demand and student surveys
- Seek out program support for student services such as student transportation and field based teaching equipment which were identified as lacking or in poor condition from student surveys and student exit interviews
- Utilize the newly created UAS Dual Enrollment Coordinator to promote Dual Enrollment Applied Fisheries offerings and further assess Dual Enrollment student success and student learning within the Applied Fisheries Program.
- Develop online tools to replace the aging content delivery system the Applied Fisheries program currently utilizes
- Promote professional development opportunities to Applied Fisheries faculty that enhance and focus on pedagogy and pedagogy development
- Pursue hiring an additional faculty member given continued program growth and success of semester intensive offerings in order to free up existing faculty time to further refine pedagogy, course content, and assessment of learning