



UNIVERSITY
of **ALASKA**
SOUTHEAST

APPLIED FISHERIES
SITKA, ALASKA

**Applied Fisheries
Program
Assessment Report**

**Academic Year
2023 - 2024**

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

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University of Alaska Southeast (UAS) Applied Fisheries Program Assessment of Student Learning Outcomes (SLO) Report for Academic Year (AY) 2023-2024.

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 four Occupational Endorsements (Alaskan Aquaculture, Fisheries Management, Alaskan Mariculture, and Scientific Diving).

2. Program Level Learning Outcomes (PLOs)

(the PLOs listed in the UAS Course Catalog are correct but start with 'students will')

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 PLOs

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. Data Collected on PLOs for Academic Year 2023–2024

Student Enrollment Data - During the 2023–2024 academic year the Applied Fisheries Program enrolled 388 students (SHC) who collectively completed 910 student credit hours (SCH).

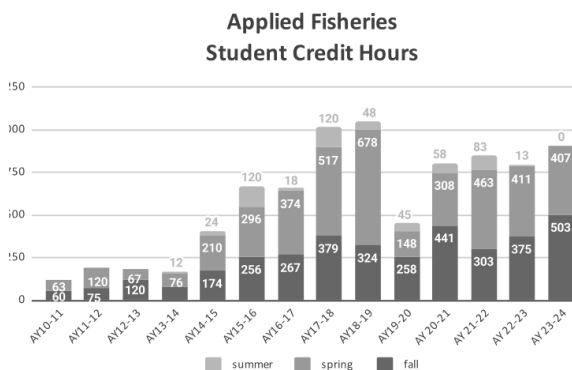


Figure 1. Student Credit Hours (SCH) by Academic Year AY 2011 - AY 2024

Student exam scores – Exam scores serve as a direct measure of students’ knowledge acquisition and comprehension in specific subject areas. Across courses, average exam

scores ranged around 85%, indicating strong overall student proficiency. Exam performance typically improves throughout the semester as students become more familiar with course content, instructional methods, and assessment formats.

Pre and Post exams scores – Pre- and post-exams effectively measure student learning within a course. These assessments are administered at both the beginning and conclusion of the term, allowing for a direct evaluation of knowledge gained. The difference between pre- and post-exam scores provides quantifiable evidence of student progress and the efficacy of instructional approaches.

Student Evaluations – While student evaluations do not directly measure knowledge acquisition, they offer valuable insights into student perceptions of course content and instructional effectiveness. Evaluations include questions regarding course value, likelihood of taking another course within the program, and willingness to recommend courses to peers. Additionally, students provide feedback on potential course improvements. This data informs revisions to course materials, assessment strategies, and instructional methods, ultimately enhancing the student learning experience.

Writing Assignments and Creative Projects

Writing assignments and creative projects serve as key assessment tools within the program, particularly in distance-learning courses. Weekly writing assignments provide a structured means of evaluating students' comprehension, critical thinking, and ability to articulate complex concepts. Larger creative projects allow students to apply course material in diverse formats, demonstrating both their understanding and their ability to synthesize and communicate information effectively.

Faculty assess these assignments based on clarity, depth of analysis, accuracy of content, and alignment with course objectives. Feedback from these assessments informs instructional improvements and ensures that students are developing strong communication and analytical skills that are critical for success in fisheries and marine sciences.

Certifications for semester intensives

Student learning in semester-intensive courses is assessed through skills practicals, which, upon successful completion, allow students to earn up to nine external certifications and licenses recognized at both national and international levels. These certifications serve as critical assessment tools, demonstrating students' ability to meet industry standards in real-world applications. Originally implemented in the *Occupational Endorsement (O.E.) in Scientific Diving*, this model has since expanded to include two additional Occupational Endorsements: Alaskan Aquaculture (launched Fall 2021) and Alaskan Mariculture (launched Fall 2023)

The attainment of industry-recognized certifications provides quantifiable evidence of student proficiency, ensuring they acquire both theoretical knowledge and practical competencies essential for workforce readiness. Additionally, tracking certification completion rates enables the program to assess curriculum effectiveness, refine instructional methodologies, and validate student preparedness

Exit Interviews of Semester Intensive Students

Exit interviews with semester-intensive students continue to provide valuable feedback on the curriculum's relevance, instructional effectiveness, and the adequacy of academic support services. These interviews highlight both program strengths and areas for improvement. Findings are used to refine teaching strategies, enhance student satisfaction and retention, and ensure that program content remains aligned with industry needs and workforce expectations.

5. Evaluation of Student Learning Data – AY 2023-2024

In AY 2023-2024, enrollment in the Applied Fisheries program remained strong, with a Student Headcount (SHC) of 388 and Student Credit Hours (SCH) totaling 910. Enrollment increased compared to the previous Fall and Spring semesters, while no courses were offered in the summer. These trends highlight the program's resilience, faculty commitment, and ongoing demand for its courses and degrees. While enrollment data is not a direct measure of student success, it serves as a useful indicator of program stability and student interest, which can indirectly reflect engagement and learning outcomes.

As enrollment continues to grow, faculty are increasingly stretched by rising teaching obligations, underscoring the need for program leadership. While faculty remain dedicated to maintaining instructional quality, the increasing demands highlight a gap in program direction. High-level program oversight is essential not only for sustaining academic excellence but also for advancing strategic program development. Without dedicated leadership, the ability to support students effectively and sustain the program's long-term success may be compromised.

While primarily a measure of student learning, exam scores also provide an indirect assessment of teaching effectiveness. Consistently high scores may suggest that instructional methods are effective, while persistently low scores may indicate a need for curriculum or pedagogical adjustments. In AY 2023-2024, exam scores averaged in the mid-B range (85%). Previous evaluations using the Kuder-Richardson formula suggest that approximately 85% of students would likely achieve similar performance on repeated assessments, reinforcing the reliability of these scores. This consistency and similar trends over previous years may indicate that current instructional strategies and assessment tools are effective in supporting student learning.

Pre- and post-exams provide valuable insights into both student learning gains and baseline knowledge upon entering a course. In AY 2023-2024, students demonstrated an average knowledge improvement of approximately 30%, with pre-test scores averaging 55% and post-test scores increasing to 85%. This significant gain highlights the effectiveness of course instruction in enhancing student understanding and mastery of the material.

End-of-course surveys indicate high student satisfaction, with approximately 95% of respondents reporting that they found the courses informative, would enroll in another course, and would recommend an Applied Fisheries course to a friend. Students also provided positive feedback on the asynchronous and flexible format of the program's online classes, highlighting its accessibility and adaptability to diverse learning needs.

Writing assignments and creative projects serve as essential tools for assessing student learning, allowing for deeper engagement with course material through diverse evaluation methods. Students consistently report that these approaches enhance their understanding and help them connect theoretical concepts to personal experiences.

The increasing persistence of AI-generated content presents challenges in maintaining academic integrity and fostering original thought. While AI tools can support learning in certain contexts, their misuse in writing assignments raises concerns. Moving forward, there is a growing need to develop strategies and tools that encourage students to focus on authentic writing, critical thinking, and independent analysis.

Exit interviews from students in the Alaskan Aquaculture Semester and Alaska Dive Semester programs in AY 2024 remain overwhelmingly positive, highlighting the exceptional effectiveness of our place-based, immersive educational model. Students emphasized the curriculum's relevance, the high quality of instruction, and the transformative impact of these programs on their academic and professional trajectories.

To further amplify these testimonials, student feedback—captured in both text and video—serves as a powerful promotional tool, showcasing the life-changing experiences offered by our semester intensives. This enthusiastic response reaffirms that these programs are not just educational milestones but pivotal experiences that equip students with the skills, knowledge, and confidence needed for successful careers in Fisheries and Aquaculture.

6. Conclusions and Plans for Program Improvement

The Applied Fisheries program demonstrated strong enrollment and student engagement in AY 2023-2024, reflecting the program's resilience, faculty dedication, and the sustained demand for its courses. Student learning assessments, including exam performance and pre/post-testing, indicate consistent academic achievement and effective instructional strategies. High satisfaction rates from end-of-course surveys and exit interviews further affirm the program's impact, particularly in the immersive Alaskan Aquaculture and Dive Semester experiences, which students describe as transformative.

However, increasing enrollment continues to stretch faculty capacity, underscoring an unmet need for stronger program leadership to sustain instructional quality and strategic growth. Additionally, the persistence of AI-generated content presents challenges in maintaining academic integrity, highlighting the need for tools that support original writing and critical thinking. Moving forward, addressing these challenges while leveraging strong student testimonials will be essential to maintaining excellence and ensuring the program continues to prepare students for successful careers in Fisheries and Aquaculture.

In the near future, the Fish Tech program will:

- Expand high-impact learning opportunities by continuing to offer semester-intensive programs, including the Alaskan Aquaculture Semester (Fall 2024) and Alaska Dive

Semester (Spring 2025), as well as field lab practicums (FT 125, 150, 188, 189, 194, 212, 223; MTR 119, MTR 120), to diversify student learning experiences.

- Enhance student assessment tools to address the increasing integration of Artificial Intelligence (AI) in education and student work, ensuring academic integrity and original learning.
- Broaden the adjunct faculty pool to expand offerings in Marine Transportation and maritime-focused courses for the Sitka community, aligning with student survey data and growing demand.
- Secure additional program support for student services, including transportation and field-based teaching equipment, which student surveys and exit interviews continue to identify as lacking or in poor condition.
- Leverage the UAS Dual Enrollment Coordinator to promote Dual Enrollment Applied Fisheries offerings, further assess student success, and enhance learning outcomes for dual enrollment students.
- Modernize online course delivery by developing new digital tools to replace the aging content delivery system currently used in the Applied Fisheries program.
- Strengthen faculty professional development by encouraging participation in pedagogy-focused training, particularly in areas related to AI in education and instructional innovation.
- Pursue hiring an additional faculty member to accommodate program growth, support semester-intensive offerings, and free up existing faculty to refine pedagogy, course content, and learning assessment strategies.
- Advocate for hiring a dedicated Program Director to provide high-level oversight, strategic planning, and administrative support, ensuring sustainable program growth while alleviating increasing faculty workload.