

Fisheries - Master of Science

Current Compliance Year: 2023-2024

Mid-Cycle Review

Recent Recommendations

Feedback will include recommendations from the last Expedited Review or from your most recent review by your school or college. You may not see any feedback or recommendations until you have completed your first full or mid-cycle review.

Response to Previous Recommendations (if any):

N/A

Student Learning Outcomes

The previous Student Learning Outcomes Assessment has been submitted as its own report. Going forward you will use the following prompts to discuss the success of your most recent SLOA plan and address your assessment activities since your last SLOA report (typically the past two years or since your last program review).

Learning outcomes feedback from last review:

Feedback will be provided once you have completed a full or mid-cycle review.

Discuss your SLOA findings, changes you are making and what you hope to see as a result:

Of 15 students graduating during the review period, 13 passed their thesis proposal within 2 years (87%, meeting 80% goal), while 2 students passed after 2.8 and 4.3 years, respectively. One student withdrew from the program during the review period. All students had A or B grades in their classes within core areas. Committee evaluations of the thesis and defense suggest that students were generally strong (1) or competent (2) compared to typical MS level professionals, with 0-2 students needing improvement in most areas. However, 4 students were rated as needing improvement in 'Writing', missing our goal that 80% of graduating students write at the level of a competent fisheries professional. Nevertheless, Department Chair evaluations of the thesis in the 'Writing' category rated 13 of 15 final thesis drafts as competent or better, suggesting that editing by the committee and co-authors helped improve the final product. Interestingly, the 2 students whose writing was rated as needing improvement by the Chair were rated as competent by the Committee, suggesting some variability in the standards applied. Some theses were rated as needing improvement in quantitative skills (2) and logical thinking (3) by the Department Chair and 3 out of 15 were rated as needing improvement (2) or being deficient (1) overall. This suggests that a considerable portion of our students need more help with writing to clearly communicate their findings to an audience of peers. However, with 10 of 15 students submitting a manuscript within one year, we easily met our 50% goal.

Discuss the curricular changes made based on assessing your SLO. If you haven't made any curricular changes, please explain why not and address what you did notice in the review, including strengths of your curriculum through the assessment of your outcomes:

There have been a number of curricular changes due to faculty retirements, which has resulted in several courses no longer being offered or extended gaps in offerings (including, among others, FISH 605: Communicating Science to the Public, FISH 640: Management of Renewable Marine Resources, FISH 643: Fisheries Oceanography). We hope to offer these courses again in the future, pending new

faculty hires. Some courses, such as Ecosystem-Based Fisheries Management (FISH 641) and Fisheries Oceanography have been taken on by current faculty and have been added as course options under one of three core areas for MS students. As a result of these turnovers, and to address challenges associated with offering a sufficient number of 'Population Dynamics' courses to meet student needs, which were identified in previous assessments, we revised our course offerings in the three core areas. To better reflect current course offerings, we renamed the core areas 'Biology', 'Quantitative Approaches', and 'Management and Human Dimensions'. Offerings in the area of 'Quantitative Approaches' (formerly 'Population Dynamics') were broadened to include a number of quantitative ecology, population dynamics, and (bio-)economic modeling courses. Additional course offerings were also added to the other core areas to ensure that at least one, but typically two classes in each core area are taught each semester.

Are communication outcomes embedded in the SLOA Plan?

As of 2017 all Baccalaureate programs were required to embed the communication outcomes within their SLOA Plans, this is optional for non-Baccalaureate programs.

Embedded

Student Success

To access the Student Success Dashboard please sign into a UA computer with VPN connection (if not on campus). You will need your UA credentials and it is best accessed with the most updated version of Chrome, Edge, Firefox or Safari browsers; Internet Explorer is not supported. You will need to filter the data to see your programs. If you need assistance in finding the data for your programs, please contact your data liaison or Julia Manfredini in the PAIR office.

Data Liaisons

Each school or college has a team of Data Liaisons to help you analyze the data provided in the portal and may be able to help you see your data in multiple contexts. You can find a list of data liaisons on the resources page for Program Review.

The college or school level committee will also have access to this data with the goal that by providing these visualizations data availability will be increased.

Data supplied within the dashboard linked below is intended for Academic Program Review and not for any other purpose.

Student Success Data Dashboard

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

Student Success Data Trends: (please indicate the trends that apply to your program)

No change in majors, Decline in degrees awarded, No change in SCH, Increase in persistence, Decrease in pass rates, Equity gaps

If equity gaps were found in any of your disaggregated student success data, please explain how you plan to address those gaps. Please contact your data liaison or make an appointment with Julia Manfredini to learn more about analyzing your data.

The fisheries program has historically not been very diverse but has recently had a notable increase in the number of [REDACTED] students in the program from 1 or 0 in 2019/2020 to 8 in 2023, and a corresponding increase in the SCHs taken by these students. This trend was accompanied by a similar increase in the proportion of [REDACTED] students, about half of whom were [REDACTED]

██████████. The increase was a direct result of Tamamta, an NSF-funded program that has provided funding for 3 cohorts of ██████████ students in Fisheries.

These trends are not yet evident in the number of degrees conferred, with graduates being overwhelmingly ██████████ (42 of 44 reporting), ██████████ (49 of 50), ██████████ (49 of 50) and ██████████ (48 of 50). This is unlikely to reflect inequities because it is still early for Tamamta students to graduate, but the number of degrees by group should be closely monitored as the Tamamta program matures.

There may be some inequities between ██████████ and ██████████ students enrolled in and graduating from the program. The proportion of ██████████ majors over the period 2019-2023 ranged from 50% to 70% of those who reported their gender, averaging 60%. However, the proportion of MS degrees awarded to ██████████ students during the same period was 71.4% (35 of 49). This suggests a potential gender gap that should be monitored but requires a longer history to fully assess, given average time to graduation (approximately 3.9 years for recent graduates).

Optional Data Explanation

Feel free to share more of your thoughts on the data provided.

High Impact Practices

According to the AAC&U, High-Impact Educational Practices “have been widely tested and have been shown to be beneficial to college students from many backgrounds.” UAF is particularly interested in Undergraduate Research and/or Scholarly Activity because it is one of our mission fulfillment indicators, but all of these researched High-Impact Educational Practices should be reflected in your program’s student learning outcomes and curriculum.

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

High-Impact Practices Used in this Program

Please use the following fields to discuss how your program is using the high-impact practices, successes and known issues and solutions, or ways you are considering incorporating them in the future. If you are not using any of the high-impact practices listed, please use the “Other or None of These,” field to share what your program is doing to help students be successful.

High Impact Practices that currently apply to your program:

Diversity/Global Learning, Writing-Intensive Courses, Undergraduate Research

Collaborative Assignments & Projects

Undergraduate Research

Many Graduate students are supported by undergraduate students in the field and lab, providing excellent mentoring opportunities for graduate students. Mentoring is currently not assessed in our SLOA plan, but we have started discussions about how this can be done effectively.

Diversity/Global Learning

The Tamamta Program in Fisheries is an NSF-funded program designed to uplift indigenous voices in fisheries. The program has provided many opportunities for all of our students to hear from Indigenous scholars and to engage with Tamamta fellows and faculty in dialogues about racial equity and Indigenizing Fisheries in Alaska and elsewhere. Instructors have incorporated indigenous perspectives in some of our regular Fisheries courses (e.g. Ecosystem-based Fisheries Management) and continue to do so. New classes specifically addressing indigenous fisheries issues have also been added to the program (for example FISH 616: Indigenous Fisheries of Alaska).

ePortfolios

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First-Year Seminars & Experiences

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Writing-Intensive Courses

The program includes many writing-intensive courses such as Fisheries Management (FISH 687) or Human Dimensions of Environmental Systems (FISH 611) and even quantitative courses such as Modern Applied Statistics for Fisheries, which includes writing a project paper in manuscript format. Writing skills are tracked via instructor assessments in our SLOAs as summarized above.

Service-Learning and/or Community-based Learning

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Internships

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Capstone Courses & Projects

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Other or None of these (explain)

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Submission**Submitter & Collaborator Names**

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College or School Review Committee

The college or school committees set the tone for helping each program feel seen during this process. We have provided you with strength-based feedback tags to attach to this program review. Please select as many as applicable.

Overall Recommendations

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Explanation of Recommendations

Many of the comments for the Fisheries MS and Fisheries PhD are the same because, outside of the student success data, the program reviews were identical. SLOA plans are very similar or identical for the programs in Fisheries. It is essential that different programs have different outcomes - if students are intended to learn the same things, how are the programs differentiated? Something to resolve, per some of the guidance below, for the full-cycle review in two years.

The review panel acknowledges the time and effort that went into preparing the mid-cycle program review for the Fisheries M.S. program. The review panel appreciates that the program has made curricular changes to address student needs in support of the Tamamta program, which is an important initiative at UAF. The review panel also appreciates that the program provided a thorough overview of the data trends (student success data) and narrative for the HIPs (high-impact practices). The review panel would also like to emphasize the need for the full program review in two years and how it has addressed any declines in student success metrics.

Learning Outcomes Feedback

Requires Minor Revision

Student Learning Outcomes Assessment Feedback (tags)

Strong alignment with SLOA plan,"Clear, concise presentation of findings"

Student Learning Outcomes Assessment Feedback (narrative)

The program provided 4 SLOs for the Fisheries MS SLOA plan. The review panel offers the following recommendations to improve upon the program's SLOAs:

- SLO #s1-3 were appropriate as measures of student learning.
- SLO # 4 is program outcomes and not tied to student learning.
- The recommendation from the review panel is to reduce the number of SLOs from 4 to 3 by eliminating SLO #4. The program is encouraged to retain this measure of outcome assessment (#4) for their own internal tracking purposes (just not use it as part of program review). Post-graduation activities, such as graduate school (for a PhD)/job placement, are not considered an assessment of student learning and are instead program outcomes. Per guidance from the NWCCU for accreditation purposes, they recommend that degree programs have between 3-5 SLOs per program (so the 3 remaining SLOs would meet that requirement).
- A 4th or 5th SLO could be added that directly assesses student learning from the degree program. The program might consider revising the outcomes to include more "action" words. It is difficult to assess things like "understand" or "recognize." "Identify", "explain", or "analyze" are clearer outcomes to assess. <https://tips.uark.edu/blooms-taxonomy-verb-chart/>.

The program provided an assessment plan for collecting data as well as a process to evaluate the SLOs. The data/artifacts were provided but no rubrics were included (should do so for future program reviews).

The program noted curricular changes which included additional course offerings in support of the Tamamta program, thereby broadening the curriculum in the area of Human Dimensions. These

changes have received positive feedback from the students, particularly those in the Tamamta program, and allow them to focus more on classes they see as advantageous for their future careers. Following NWCCU guidance, SLOA plans must emphasize "closing the loop" and continuous improvement, ensuring each SLO within the plan is assessed individually to verify alignment with program objectives. If a SLO fails to produce the expected assessment outcome, adjustments to SLO language, substantial changes to the SLO, or revisions to data collection rubrics are necessary to ensure alignment and facilitate program improvement.

Student Success & Equity Feedback

The program noted no change in majors (increased from 44 to 49) and SCH (11.07 to 10.53), a decline in pass rates (97 to 93%) and degrees awarded (15 to 6), and an increase in persistence (89.7 to 100%); also noted equity gaps (increase in ■■■■, although too early to examine trends via Tamamta program; will be worth following up on for the full program review in 2 years). Graduates are predominantly ■■■■ and ■■■■; how are other demographic groups supported in terms of degree completion? The review panel feels that it would be beneficial to see how the program intends to address any declines in student success metrics.

High-Impact Practices Feedback

The program identified writing-intensive courses, diversity/global learning, and UG research as (recast as UG research mentoring) HIPs; provided a narrative for each HIP, but not clear where these HIPs fit into the program or if all students are required to complete them. The review panel recommends including examples to demonstrate/highlight each HIP. For example, what are examples of capstone course projects? What percentage of students participate in each HIP for those that are optional? The review panel recognizes that the HIPs employed by the Fisheries program are all positive and meaningful in preparing students to enter the workforce.

Student Learning Outcomes Assessment Plan
M.S. Fisheries Science
 College of Fisheries and Ocean Sciences
 2021

Expanded Statement of Institutional Purpose	Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
MISSION STATEMENT: We shall provide quality graduate education responsive to the needs of individual students and the diverse population of Alaska. GOAL STATEMENT: To ensure that our graduates are adequately prepared to succeed in the job market in their chosen fisheries field or a closely related field.	1. Communication 1a. Written: Students should be able to develop a written proposal and a thesis using clear logic, language, and convincing arguments. 1b. Oral: Students should be able to deliver a professional oral presentation and respond to questions with confidence.	<u>Instruments:</u> Written thesis proposal; written M.S. thesis <u>Min. Standard:</u> 80% of students will write a passing thesis proposal; 80% of graduating students will write at the level of a competent fisheries professional. <u>Instruments:</u> Oral proposal defense; oral thesis defense <u>Min. Standards:</u> Within 2 years, 80% of students successfully defend proposal. 80% will present thesis at the level of a competent fisheries professional.	Advisory Committee will rate students on scale of 1-4 in terms of writing ability at the thesis defense. Department Head or designee will review thesis using similar criteria. Advisory Committee will grade proposal defense, including written and oral components, as pass, conditional pass, or fail. Advisory Committee will rate students on scale of 1-4 in terms of clarity of verbal presentation at the thesis defense. Academics Office will track success rates and scores.
	2. Technical Knowledge Students should obtain mastery of core knowledge of fishery science in 3 areas: • Biology and Ecology of Fishes • Quantitative Population Dynamics • Human Dimensions of Fisheries	<u>Instruments:</u> Course work; thesis. <u>Min. Standard:</u> Students will receive credit for one course in each of the three core areas; 80% will demonstrate technical knowledge of thesis subject at the level of a competent fisheries professional; 80% will demonstrate familiarity with relevant literature at the level of a competent fisheries professional	Review of student transcripts by department chair or designee. Advisory Committee will rate technical knowledge on scale of 1-4 at thesis defense. Advisory Committee will rate familiarity with relevant literature on scale of 1-4 at thesis defense. Academics Office will track success rates and scores.
	3. Problem Solving 3a. Logical Thinking: Students should be able to recognize assumptions, evaluate arguments and draw conclusions. 3b. Analytical: Demonstrate competence in data collection,	<u>Instruments:</u> Proposal defense; thesis <u>Min. Standard:</u> 80% of students will pass their thesis proposal; 80% will demonstrate ability to think logically at the level of a competent fisheries professional. <u>Instruments:</u> Thesis defense	Advisory Committee will rate logical thinking on scale of 1-4 at thesis defense. Advisory Committee will grade proposal defense as pass, conditional pass, or fail, based in part on ability to logically think through arguments.

	analysis, interpretation and reporting.	<u>Min. Standards:</u> 80% will present their data and analyses at the level of a competent fisheries professional during public thesis defense.	Advisory Committee will rate quantitative ability on scale of 1-4 at thesis defense. Academics Office will track success rates and scores.
	4. Career preparedness: 4a. Academic: Be prepared to compete successfully for admission to Ph.D. programs in Fisheries or related aquatic science disciplines. 4b. Professional: Be prepared to compete successfully for mid-level professional career positions in research / management at resource management agencies in Alaska and elsewhere. 4c. Publishing: Demonstrate the ability to prepare and publish peer-reviewed manuscripts in professional journals	<u>Instruments:</u> Exit Interview; Follow-up surveys. <u>Min. Standards:</u> 80% of graduates will be "satisfied" with the educational and professional preparedness that they received in the Fisheries Program at UAF. 80% of graduates seeking employment in fisheries or aquatic sciences, or admission to another graduate program, will succeed within one year of graduation. 50% of graduates will submit a manuscript based on their MS research to a peer-reviewed scientific journal within 1 year of graduating. 25% of graduates will be first author on a peer-reviewed scientific article within 3 years of graduating	Upon graduation Department Staff staff will give each graduate an exit interview assessing their satisfaction with the program. Three years after graduation, Department staff and the faculty advisor will request that each graduate complete a short alumni questionnaire, addressing their experiences seeking employment or continuing graduate studies. Three years after graduation, the advisor will be asked whether the students submitted manuscripts to peer-reviewed journals, and whether any were published. Similar questions will be asked of the student in the exit interview.