

College of Fisheries and Ocean Sciences

ANNUAL REPORT 2024



UNIVERSITY OF ALASKA FAIRBANKS

Message from the Dean

The past year has brought growth and new opportunities to the College of Fisheries and Ocean Sciences. As we advance our research and education programs centered around high-latitude aquatic ecosystems, we are delighted to welcome new faculty and staff and an expanding student body.

Undergraduate program enrollment has more than doubled in just the past two years. Graduate enrollment has also risen, bolstered by the Master of Marine Policy degree and the online offering of the Master of Marine Studies program. Whether online or in person, students are clearly seeking out CFOS to advance their careers in fisheries, marine policy, marine biology and oceanography. The remarkable growth of our academic programs is a testament to the hard work and dedication of our talented faculty and staff.

The college is widely recognized for its breadth of research programs and facilities. In addition to numerous individual research projects and large multidisciplinary programs led by our researchers, a notable highlight was finalizing a new cooperative agreement with the National Science Foundation to continue operation of R/V *Sikuliaq* through 2028. We also made good progress toward modernizing the Seward Marine Center as the nation's Arctic gateway. And once again we achieved record total revenues in support of academic programs, research activities and major facilities.



Aboard R/V *Nanuq* with R/V *Sikuliaq* in the background, Resurrection Bay.

We are excited to have made four new faculty appointments this past year. Shannon Doherty and Emily Seelen were appointed tenure-track assistant professors in the Department of Oceanography, and Rowenna Gryba and Hannah Myers were appointed tenure-track assistant professors in the Department of Fisheries. In administration, Katrin Iken assumed responsibility as interim director of the Institute of Marine Science, and we hired additional staff to support our education programs, research activities and ship operations.

I welcome your engagement and support and invite you to learn more about the fascinating work being conducted by our diverse and dedicated community of students, staff and faculty.

S. Bradley Moran,
Dean, College of Fisheries and Ocean Sciences

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Polished rocks decorate a Resurrection Bay beach. Photo by Steve Dykstra.

New Faculty Appointments

Shannon Doherty



Shannon Doherty, a research assistant professor in the Department of Oceanography, was appointed this summer to assistant professor. Her research focuses on processes that influence the composition and magnitude of material as it moves from the surface to the deep ocean. Doherty's interests include organic geochemistry, paleoceanography and stable isotope ecology.

"I'm excited to expand my research program in Alaska and incorporate graduate students and teaching into my work. I look forward to deepening my connections to Alaska communities and advancing Arctic oceanography."

Rowenna Gryba



Rowenna Gryba will join the Department of Fisheries in August 2025 as an assistant professor. She has worked as a quantitative ecologist for over 15 years in the private sector and academia. Her research focuses on analyzing animal movement and environmental data to better understand species habitat use. Gryba also works with communities to document Indigenous knowledge and to include it in statistical methods.

"I'm happy to be joining CFOS to continue my work with communities in Alaska and across the Arctic to expand our understanding of species habitat use for conservation and management."

Hannah Myers



Hannah Myers will join the Department of Fisheries as an assistant professor of marine policy in January 2025. She focuses on applied research to inform conservation and management policy, especially of marine mammals. She works on fundamental marine ecological questions as well as problems such as fishing gear entanglements, and will lead a killer whale monitoring project.

"I look forward to working with students to address marine policy challenges. It will be a privilege to join the CFOS faculty and unique research community, where we can lead projects unlike those anywhere else in the world."

Emily Seelen



Emily Seelen joined the Department of Oceanography in October 2024 as an assistant professor. She is an aquatic biogeochemist interested in how anthropogenic perturbations of elemental cycles impact human and environmental health. Her element of focus is mercury, whose concentrations in Arctic waters are expected to be particularly sensitive to climate change.

"I'm excited to contribute to scientific research alongside the CFOS community that aims to understand and further protect our environment for future generations."

Academics

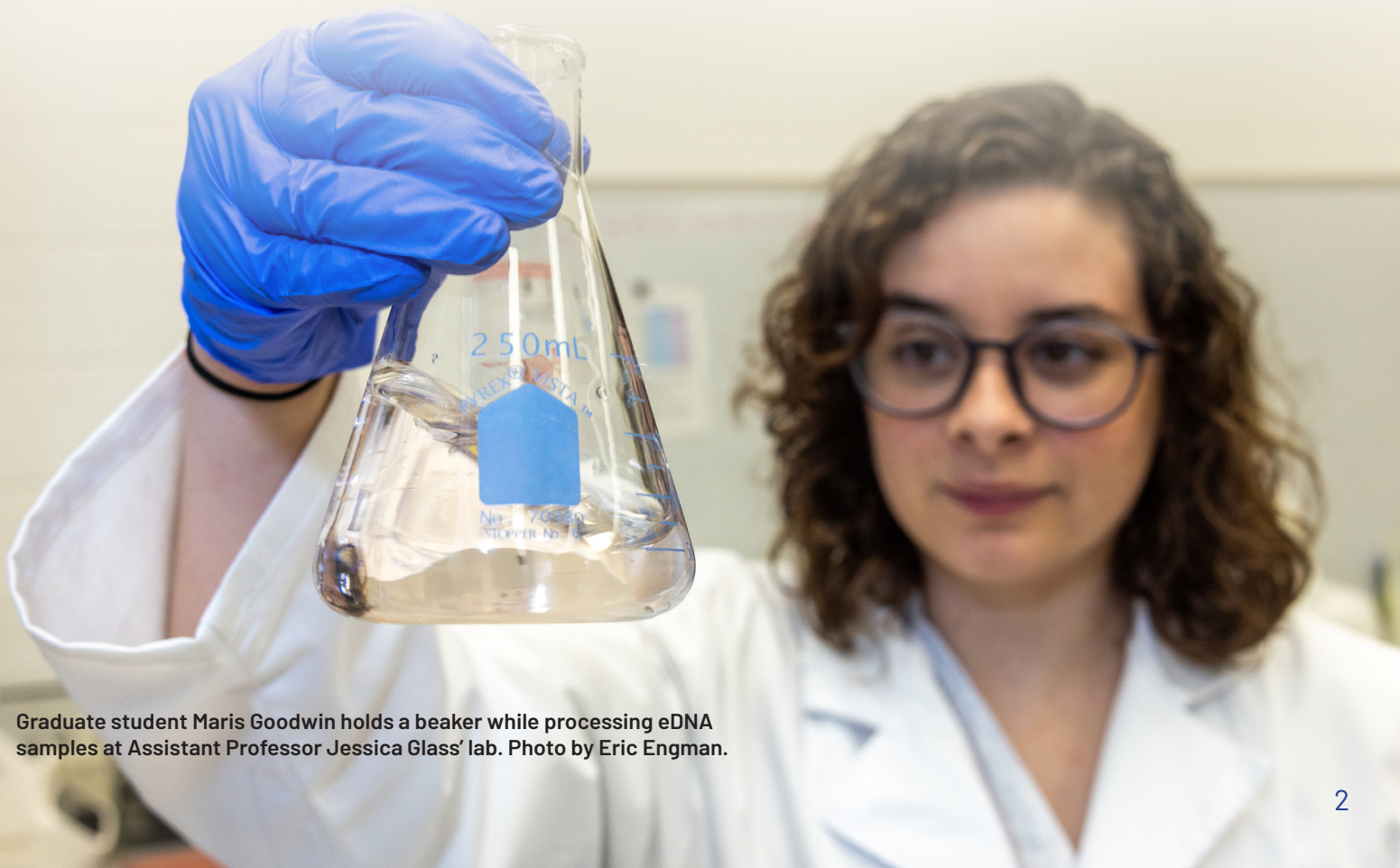
Program growth and accomplishments

This was a strong year for CFOS undergraduate and graduate programs. Our efforts to include both online and in-person course delivery have helped attract students from both Alaska and outside the state. These students have contributed to the growth of our Bachelor of Science in fisheries and marine science. The successful delivery of our undergraduate programs has been rooted in faculty contributions to the curriculum, as well as effective student support and advising by faculty and the academics program office.

Enrollment in our graduate programs remained strong during the past year. Updates to the Master of Marine Studies degree were approved by the Faculty Senate, and the program accepted the

first student cohort in fall 2024. Another strength of our graduate programs is the ability of students to successfully compete for fellowships, including Troth Yeddha' fellowships and the NSF Graduate Research Fellowship Program. Of the 14 NSF GRFP fellows at UAF, eight are housed within CFOS.

Field courses in beautiful Alaska aquatic environments continue to attract and inspire our undergraduate and graduate students. This past year, the scientific diving program marked its 25th anniversary (see page 7 for more information). We also saw a successful rollout of the new Subarctic Oceanography field course, which pairs graduate and undergraduate students on projects at Aialik Bay and Resurrection Bay.



Graduate student Maris Goodwin holds a beaker while processing eDNA samples at Assistant Professor Jessica Glass' lab. Photo by Eric Engman.

Experiential learning and awards

As part of academic degree requirements, the following undergraduate students completed experiential learning at various agencies and organizations: Dawson Baffrey, Tyra Best, Ethan Christiansen, Ezekial Estrada, Samantha Hoskins, Lauren Hynes, Darion Jones, Katarina Leavitt, Sierra Lloyd, Hannah Miller, Elle Nelson, Logan Nieman, Trish Pence, Mandy Raad, Elias Reynolds, Cara Roberts, McKenna Shook, Aksiin Storer, Iva Thomason, Shelby Thompson, Queenie Turner and Sara Wroten. Their work included partnerships with the Alaska Department of Fish and Game, California Cooperative Fisheries Investigations, U.S. Fish and Wildlife Service, UAF Biomedical Learning and Student Training, Anchorage Zoo, Alaska SeaLife Center, University of New Orleans, Atlantic White Shark Conservancy, Prince William Sound Science Center, Monterey Bay Whale Watch, and the Aleut Community of St. Paul. Undergraduate and graduate students also received several awards for their academic, research, leadership and service achievements. Congratulations to these individuals, and all our students, for their hard work during the past year.

Undergraduate student Mckenna Shook pulls a measuring tape across a beach near Seward to identify how the species richness changes across the beach profile. Photo by Steve Dykstra.



Graduate Awards

DEAN'S CHOICE AWARD

Kyle Dilliplaine

DEAN'S GRADUATE RESEARCH ASSISTANT AWARD

Austin Flanigan

NORTHERN GULF OF ALASKA AWARDS

Josianne Haag, Jessie Hoffman

RASMUSON FISHERIES RESEARCH CENTER FELLOWSHIP AWARDS

Maris Goodwin, Josianne Haag, Noelle Picard

ROBERT AND KATHLEEN BYRD AWARDS

Dana Bloch, Kyle Dilliplaine, Josianne Haag, Mack Hughes, Cameron Jardelle, Sydney Wilkinson

UAF UNDERGRADUATE RESEARCH AND SCHOLARLY ACTIVITY MENTOR AWARDS

Erica Ebert, Anna Medina

UA FOUNDATION SCHOLARSHIPS AND AWARDS

Clarence J. Rhode Scholarships

Tyra Best, Queenie Turner

Crowley Scholarships

Hailey Parmenter, Margo Oliver, Bryce Bateman

Sport Fish Conservation Award

Rachel Lekanoff

Ken Turner Memorial Fellowship

Chloe Kotik

Deiter Family Marine Sciences Research Scholarship

Sonia Kumar, Emily Mailman

Donald Hood Memorial Scholarship

Chelsea Kovalcsik

Frances "Bud" Fay Memorial Scholarship

Sonia Kumar

Oscar Dyson Memorial Scholarship

Sydney Almgren

Goering Family Fellowship

Jessie Hoffman

Undergraduate Awards

DEAN'S CHOICE AWARD

Samantha Allen

OUTSTANDING CFOS ACADEMIC AWARDS

Freshman: Hailey Paramenter

Sophomore: Lucy White

Junior: Kevin Dominguez

Senior: Tony Blade

URSA PROJECT AWARDS

Tony Blade, Emilie Entrikin, Isabelle Nicolier, Linnaea Doerner, Queenie Turner

URSA INTERNSHIP AWARDS

Miles Cowles, Hannah Miller, Iva Thomason, Shelby Thompson

URSA TRAVEL AWARD

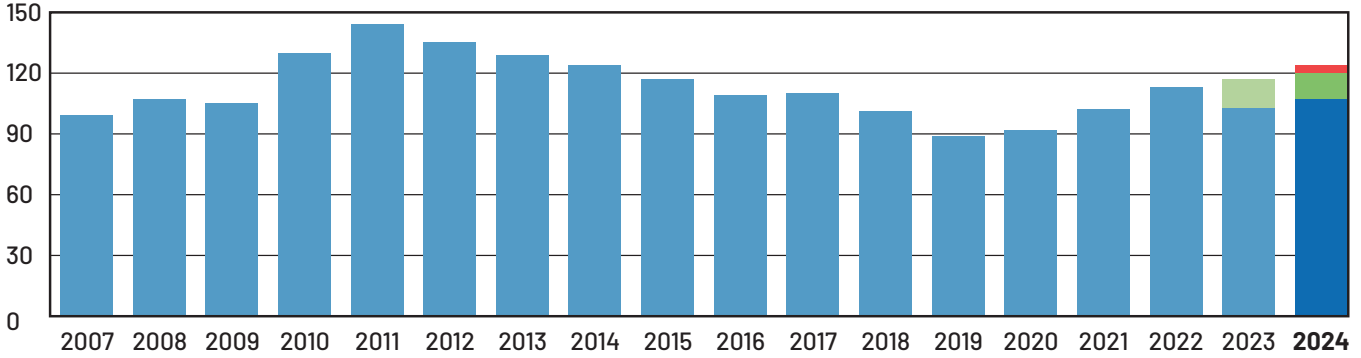
Isabelle Nicolier

URSA DEAN'S CHOICE AWARDS

Tony Blade, Isabelle Nicolier (Honorable Mention)

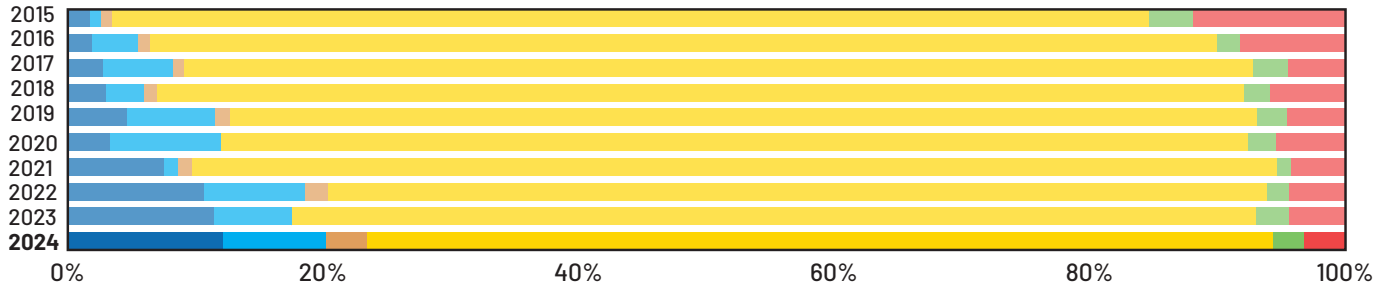
GRADUATE STUDENT ENROLLMENT BY YEAR

● PhD/MS ● Master of Marine Policy ● Master of Marine Studies



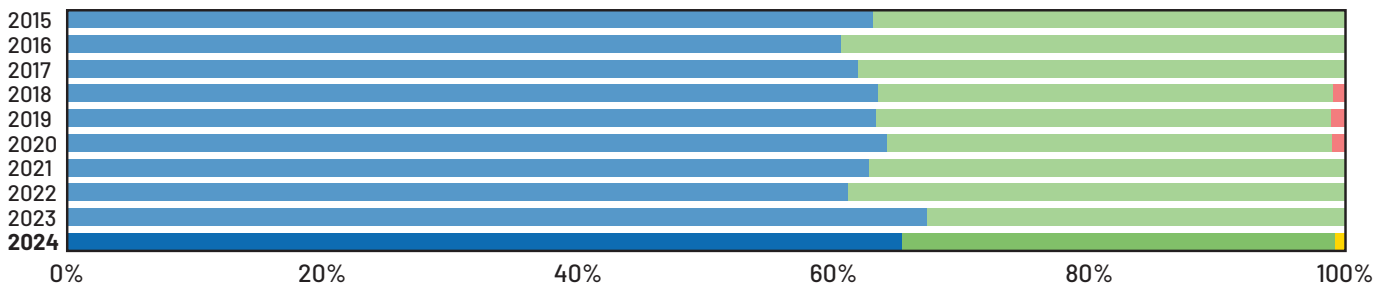
GRADUATE ETHNICITY BY YEAR

● Alaska Native/American Indian/International Indigenous ● Asian
 ● Black or African American ● White ● Hispanic ● Undisclosed



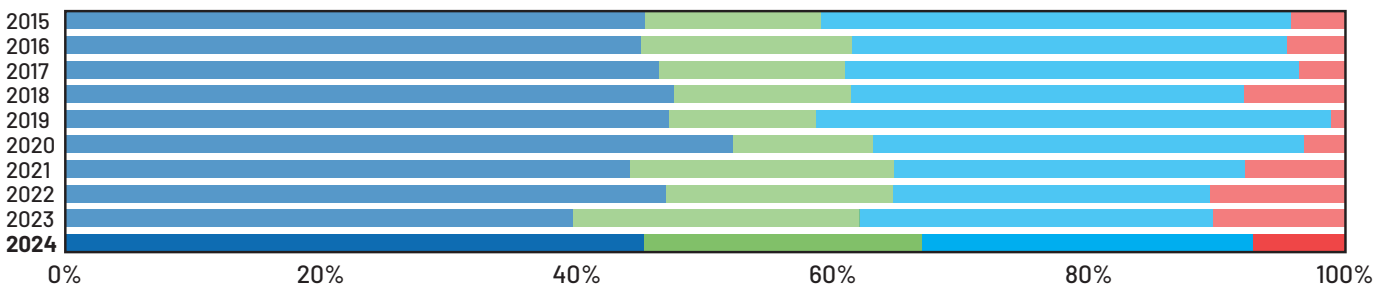
GRADUATE GENDER BY YEAR

● Female ● Male ● Nonbinary ● Undisclosed



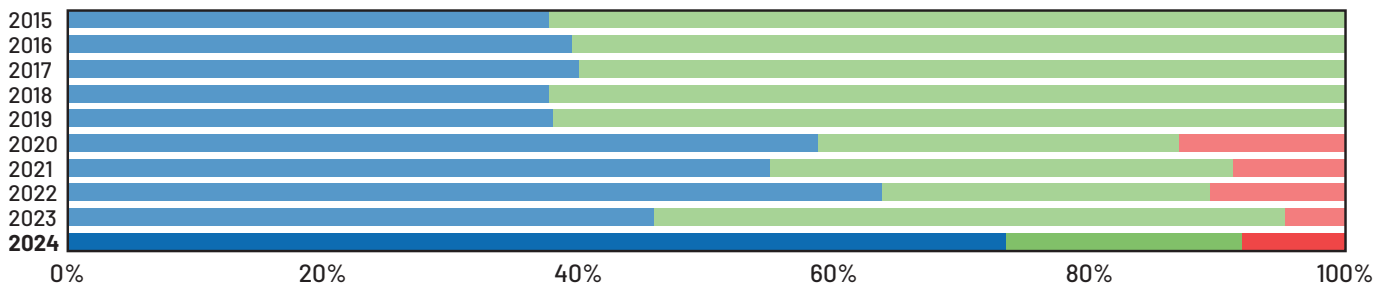
GRADUATE LOCATION BY YEAR

● Fairbanks ● Anchorage/Southcentral ● Southeast Alaska ● Other

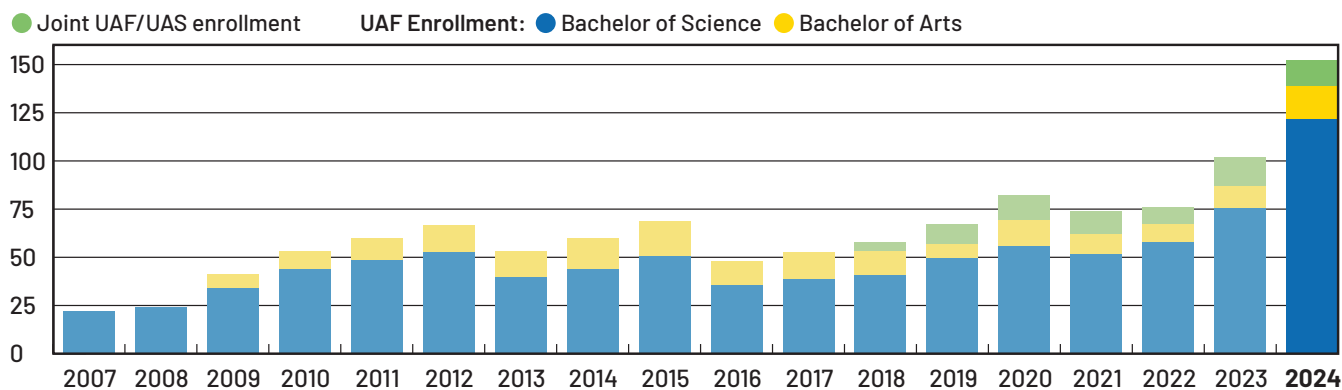


GRADUATE RESIDENTIAL STATUS BY YEAR

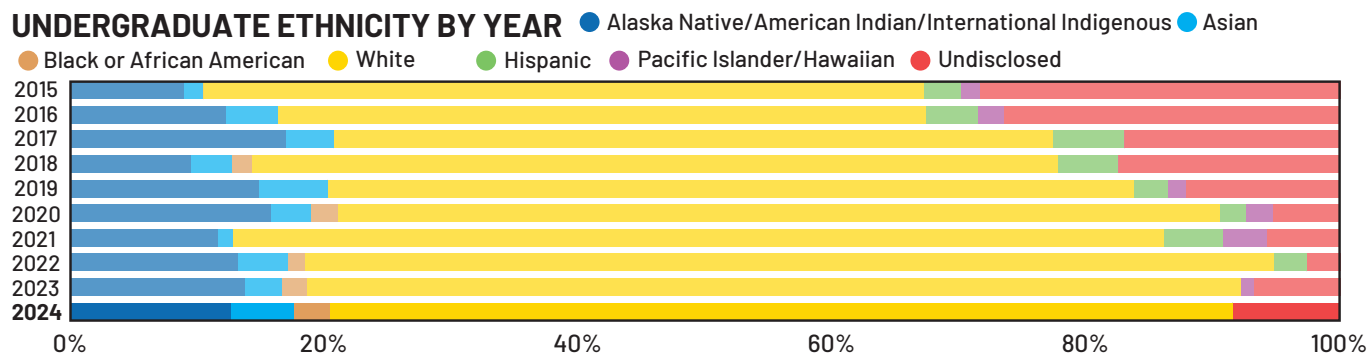
● Resident ● Nonresident ● Other



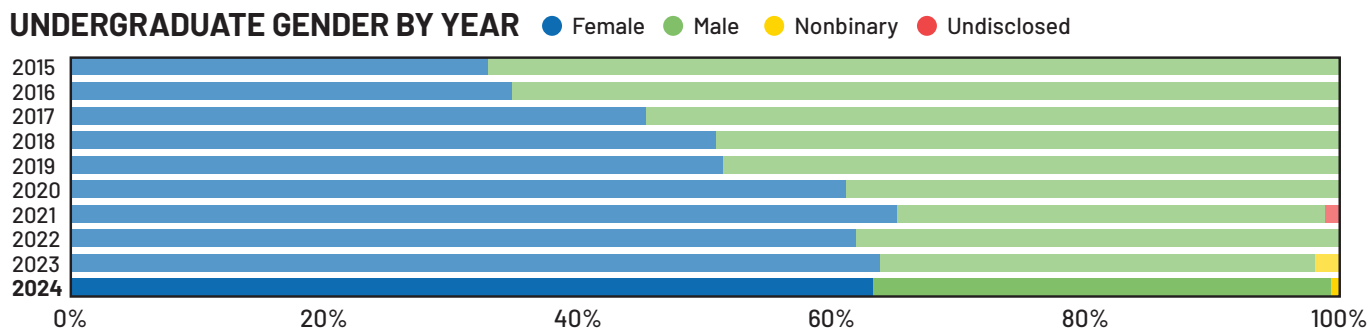
UNDERGRADUATE STUDENT ENROLLMENT BY YEAR



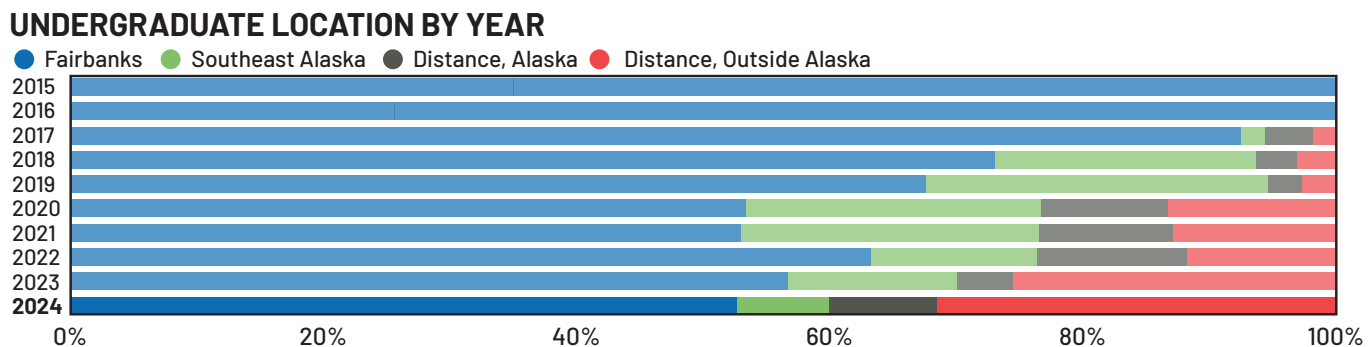
UNDERGRADUATE ETHNICITY BY YEAR



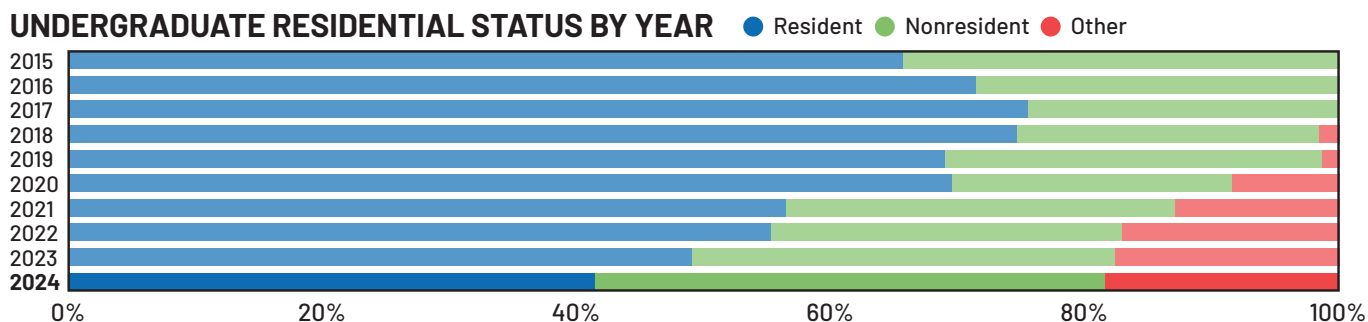
UNDERGRADUATE GENDER BY YEAR



UNDERGRADUATE LOCATION BY YEAR



UNDERGRADUATE RESIDENTIAL STATUS BY YEAR



Scientific diving program marks 25 years

When Brenda Konar launched the first scientific diving course at CFOS in 2000, there was some speculation that it could be a short-lived experiment.

After all, how much demand could there really be for a class that combines cold-water diving and research skills?

That gamble has paid off nicely: The scientific diving program hit a milestone in 2024 with its 25th year of instruction. Including this year's graduates, more than 500 students have been trained as scientific divers through the program.

"When you say, 'Build it and people will come,' I don't always believe that," said Konar, a professor of marine biology. "But in this case, it worked."

Her initial motivation for teaching the class was simple. Konar's research at the time focused on sea otter ecology in the Aleutian Islands, and there

was a shortage of trained scientific divers who could conduct that field research.

Since then, the class has become a spring semester tradition at UAF. Students spend a few months in Fairbanks classrooms and the campus swimming pool. The final is held during spring break at the Kasitsna Bay Laboratory.

Reid Brewer was in the first class of students in 2000. Now the director of the Kasitsna Bay Laboratory, he credits the course he took 25 years ago for contributing to his long career in marine education.

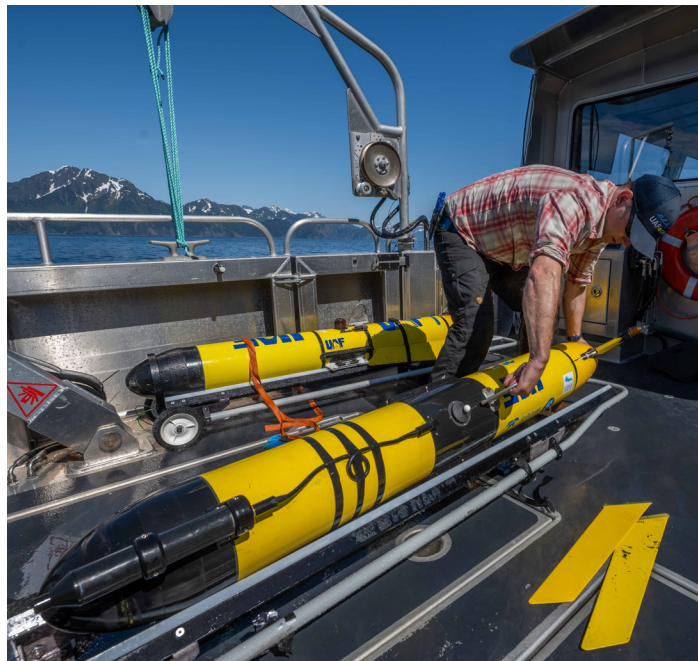
"A lot of these students go on to do things in Alaska in leadership roles that I'm certain are a direct result of this class," Brewer said. "It's pretty amazing how far-reaching it is. I can't say enough about Brenda's dedication to divers and that program."

The 2024 scientific diving class poses in Kasitsna Bay. Photo courtesy of Brenda Konar.



Research

It was another busy year of research for our students, staff and faculty, who engaged in a wide variety of individual and collaborative projects. The new EPSCoR Interface of Change project will fund collaborative research with harvesters and farmers of coastal resources across the Gulf of Alaska. Other large-scale projects include the Northern Gulf of Alaska Long-Term Ecological Research program, the CFOS glider program, the Arctic Marine Biodiversity Observing Network, the Mariculture ReCon program, the Chukchi Ecosystem Observatory program, Auke Creek long-term salmon monitoring, and the renewal of Rural Alaska Students in One Health Research. R/V *Sikuliaq* is central to many CFOS research activities, such as the annual Arctic Collaborative Ecosystem Cruise. Our coastal research facilities, such as the Kasitsna Bay Laboratory, Seward Marine Center and Lena Point facility, also play a major role in supporting research projects. Many of these activities feature important graduate-student projects. They include collaborations with mariculture harvesters, subsistence hunters, community partners and citizen scientists. Some students work with state and federal agencies, directly addressing management needs through targeted field work and modeling activities. Our research success could not happen without the dedication of our research staff, including support of many long-term programs. CFOS research efforts are responsive to Alaska's changing marine ecosystems, including the health of salmon and



Hank Statscewich prepares to deploy an autonomous glider in Resurrection Bay from R/V *Nanuq*. Photo by Seth Adams.

other important fish stocks, the fate of crabs in a shifting climate, microplastics in marine mammals, and the health of seaweeds and mollusk species of harvest interest.

We continue to receive strong support from many state and federal agencies and partner organizations, including the Alaska Ocean Observing System, North Pacific Research Board, Alaska Department of Fish and Game, National Park Service, Pollock Conservation Cooperative Research Center, National Oceanic and Atmospheric Administration, Bureau of Ocean and Energy Management, National Science Foundation, National Institutes of Health, National Aeronautics and Space Administration, and Office of Naval Research.

CFOS Active Grants as of June 30, 2024

Total current research funding (awarded): **\$139.7 million**

Total active grants: **153**

Research boosts knowledge of salmon behavior, ecology

Fisheries research projects by our scientists have expanded our understanding of salmon behavior and ecology.

Curry Cunningham and former postdoctoral fellow Joe Langan gathered data from numerous international North Pacific salmon studies dating back to the 1950s.

Although methods and data varied, the studies consistently noted water temperature and location where salmon were caught. That allowed researchers to create maps with unprecedented detail showing the areas various salmon species occupy at sea. The study also produced more evidence that cold-water tolerance varies significantly among salmon species.


“This is a portion of the salmon life cycle that arguably gets overlooked, at least in terms of the grand investment in salmon research,” Cunningham said.

Cunningham and Langan were involved in a separate study that connected warming ocean temperatures to higher Pacific salmon abundance in the Canadian Arctic. Climate change is creating new corridors for the fish to expand their range.

Additional research by Peter Westley and former postdoc Samuel May looked at the effect of hatchery salmon on the diversity of wild populations.

Using data collected from pink salmon streams in Prince William Sound, they determined that many hatchery-raised fish are straying onto natural spawning grounds and interbreeding with wild populations.

Simulations showed that wild fish population sizes increased because more fish reproduced than would have without hatchery strays. Those increases came at a cost: As hatchery-origin gene variants spread into wild populations, diversity among those populations was reduced.



Pink salmon spawn in Gilmour Creek, Prince William Sound. Photo by Kate Ruck.

Ocean glider provides new tool kit in crab tracking efforts

A remotely piloted underwater glider is showing promise for tracking crabs in the Bering Sea, where their numbers have plummeted.

The Alaska Department of Fish and Game and CFOS have tested the glider *Shackleton* for the past three years to locate tagged crabs.

“Crab are notoriously hard to follow, but some new tagging technologies have allowed us to expand our animal-tracking tool kits,” said CFOS alumnus Jared Weems, who works as a Kodiak-based crab biologist for ADFG.

Tracking red king crabs and snow crabs is a priority for fishery managers as numbers have dropped in recent years. The decline may be driven by warming oceans that allow predatory fish to expand their ranges.

Shackleton's first tracking job came in 2022, after ADFG biologists seeded a Kodiak fjord system with tagged Tanner crabs. It worked, leading to another test in the southeastern Bering Sea in 2023.

In May 2024, ADFG biologists outfitted about 30 juvenile king crabs with a new, specially coated tag about the size of a multivitamin. The tag

coating dissolves in the acidic conditions found in a fish's stomach. That changes its acoustic signal to let biologists know where and when the crab was presumably eaten.

During a week of sampling three months later, *Shackleton* located four tagged juvenile red king crabs, including one that gave a “predation signal.” It was the first time the tags had been proven effective in Alaska marine waters.

The ADFG-funded project shared vessel time with a separate juvenile red king crab study funded by North Pacific Research Board project 2038.

Gliderers are typically used to gather oceanographic data on temperature, water salinity and chlorophyll content. Capturing those details can also help biologists better understand environmental conditions that may correspond to crab movement and survival.

“The gliders provide a platform for doing persistent monitoring over a wide spatial area,” said Hank Statscewich, the UAF glider program operations director. “In addition to tracking the animal movements, they give the study environmental context.”



Juvenile red king crabs equipped with tags await deployment in Bristol Bay in May 2024. Photo by Jared Weems.

Researchers study seaweed's ability to absorb rare-earth elements

A CFOS-led research team is exploring whether seaweeds are absorbing rare-earth elements near a rich deposit in Southeast Alaska.

The project focuses on the waters near Bokan Mountain, a remote landmark on Prince of Wales Island known to contain rare-earth elements. Starting in March, researchers began collecting and analyzing seaweed samples to determine whether significant amounts of metals that have washed into the ocean are being absorbed.

"We want to see if seaweeds accumulate rare-earth elements at a concentration that makes sense financially to recover them," said lead researcher Schery Umanzor, an assistant professor of marine biology. "Seaweeds must act as sponges, with the

elements showing up in higher concentrations than that in the water."

The \$1.9 million project, funded by the U.S. Department of Energy, is part of a larger effort to expand the domestic supply of rare-earth elements. REEs, which are critical components of many renewable energy technologies, are currently sourced mostly from sites in China.

Preliminary assessments have indicated that seaweeds can absorb REEs, Umanzor said, but it is unknown in what concentrations the metals exist and how difficult it would be to extract them.

The first year of the study will look at wild stocks of seaweed and the amounts of rare-earth elements that collect in their tissues. If those results show

promise, a second phase will focus on the potential for seaweed farms to gather rare-earth elements, including variations among different types of seaweeds and growing conditions.

Extracting REEs from seaweed would need to be part of a large commercial food operation to be successful – even high accumulations would only yield a few dollars' worth of metals per ton of seaweed. But Umanzor described the potential of seaweed to be a low-impact alternative to mining as a "moonshot," with significant rewards if it's found to be viable.

"It has tremendous potential, but it has to be to scale," she said. "A mom-and-pop farm is not going to work."



Sugar kelp grows at a farm near Kodiak. Photo courtesy of Alaska Ocean Farms.

Razor clam development affected by ocean acidity

Razor clams accelerate shell development when exposed to more acidic ocean conditions, but those young shells are built with a more fragile substance, according to new CFOS research.

The study, led by Ph.D. student Marina Alcantar, tracked newly hatched razor clam larvae through their first 28 days of shell development in various levels of acidic water.

One group of razor clams was raised in water that mirrors the current average pH levels in Alaska's Cook Inlet, while another was raised in a more acidic environment that simulates conditions that are projected in the region in 2100. A third experiment simulated variable conditions under the 2100 projections, which were meant to mimic the constantly shifting pH levels in lower Cook Inlet.

The results were surprising. The larvae boosted their rate of shell development in water with variable acidity and higher acidity. But their young shells were constructed of vaterite, a rare form of calcium carbonate that is more vulnerable to dissolving as pH levels drop. At 21 days old, the clams had shifted to a shell made of a more durable substance.

That intriguing response could help young razor clams get to a fully formed stage more quickly, but with unknown effects on their long-term survival.

"If they're having to devote more energy than they normally would to shell development, it could take energy away from things like growth and the overall health of that organism," Alcantar said. "Even though they are compensating, it's still a vulnerability."

Researchers to participate in new federal climate initiative

CFOS researchers will participate in a new \$15 million federal initiative to better understand the resilience of Arctic ecosystems amid rapid climate change.

The Evolving Meta-Ecosystems Institute will focus on improving scientific and public understanding of how Arctic ecosystems respond as their environment shifts. The Arctic is warming at least three times faster than the global average.

Much of the fieldwork for the EvoME project will be based at UAF's Toolik Field Station in Arctic Alaska. CFOS researchers will look at how Arctic grayling on both slopes of the Brooks Range are adapted to different temperature conditions and how they

might respond to a warming climate, including egg development and juvenile growth.

"It has long been known that ecology can influence evolution, but only in the past few decades has it become clear that evolution can influence ecology, which in turn has consequences for whole ecosystems," said associate professor Peter Westley. "EvoME seeks to understand how the interplay between ecology and evolution shapes connections between adjacent ecosystems, in this case terrestrial and aquatic systems."

Arctic grayling research will be part of a new climate initiative. Photo courtesy of U.S. Fish and Wildlife Service.



R/V *Sikuliaq*

In its eighth year of operation, the research vessel *Sikuliaq* supported 10 science cruises led by researchers from UAF and other institutions, traveling about 27,000 nautical miles through the Pacific and Arctic oceans. UAF faculty, staff and students were involved in 53% of *Sikuliaq*'s science days at sea.

Sikuliaq started 2024 by supporting a project to study how sea ice affects the food web in the

Chukchi Sea, and concluded the year surveying areas of the Aleutian seafloor thought to be responsible for large tsunamis. In between, the ship traveled from the Pacific Northwest to the far reaches of the Beaufort Sea, providing a safe and effective platform for a variety of research projects in the North Pacific and the Arctic Ocean.

R/V *Sikuliaq* pauses in the Arctic Ocean. Photo by Ethan Roth.



2024 *Sikuliaq* Statistics

27,000 nautical miles traveled • 250 paid ship days • 227 days at sea • 215 days of science (not including mob/demob days) • 142 days in the Arctic (as defined by the Arctic Research and Policy Act of 1984) • 40 days in the ice conductivity/temperature/depth casts • 17 trace metal CTD casts • 13 expendable bathythermograph casts • 254 net tows • 36 moorings deployed • 38 moorings recovered • 7 gliders deployed • 6 gliders recovered • 260 corings collected • 34 buoys/floats deployed • 1 buoy/float recovered • 9 towed cameras • 190 bottom samples collected • 33 sediment traps deployed • 32 sediment traps recovered • 28 geodetic benchmarks deployed

Sikuliaq hosts STEMSEAS students during summer transit cruise

Transit cruises aboard R/V *Sikuliaq* provide time for training exercises, calibrating instruments, and maintaining equipment aboard the ship. The travel period between ports can also offer an opportunity for budding scientists to experience life aboard a research vessel.

STEMSEAS, a program offered through the National Science Foundation, brought a small group of students aboard *Sikuliaq* in July. The program offers exploratory experiences for undergraduates from diverse backgrounds on NSF-funded research vessels.

While transiting from Seward to Nome, the students engaged in a variety of geoscience and oceanography activities and learned about research practices and techniques.

“The science, the views, and the ship experience have been great, but the people I have met so far have been even better,” a student wrote on the STEMSEAS blog about her *Sikuliaq* experience.



Mentors and students in the STEMSEAS program pose for a group photo on the deck of R/V *Sikuliaq* in summer 2024. Photo by Callan Bentley.

In memoriam

Longtime R/V *Sikuliaq* captain Anthony “Diego” Mello passed away on Sept. 7, 2024. He spent nearly eight years as master aboard *Sikuliaq*, following long careers with the U.S. Coast Guard and Woods Hole Oceanographic Institution.

Much of his career in the Coast Guard was spent aboard ice-breaking cutters, and Diego loved working in the ice. When the new ice-capable research vessel *Sikuliaq* launched in 2014, he planned to come out of retirement to work aboard the ship for just a few years. Diego was hired as temporary chief mate in July 2016, and three months later he was promoted to temporary master. He was hired as permanent master in July 2017. He stayed aboard *Sikuliaq* until April 2024.

Diego is remembered for his professionalism and congenial, even-keeled nature – leadership qualities that helped build a strong, positive reputation with *Sikuliaq*’s crew, researchers and stakeholders. He will be missed.



Capt. Diego Mello looks out from the R/V *Sikuliaq* bridge while docked in Seward. UAF photo by Eric Engman.

Research Centers, Institutes and Facilities

Coastal Marine Institute

The Coastal Marine Institute is a cooperative program between the federal Bureau of Ocean Energy Management and the University of Alaska, with participation by the Alaska Department of Fish and Game. CMI operates as a competitive scientific research program emphasizing topics associated with natural resource development in Alaska's outer continental shelf. Katrin Iken has stepped in as interim director of CMI.

A new research project this year will investigate how ice affects tidal circulation and transport of suspended materials, such as potential contaminants, in coastal estuaries. Ongoing projects include an effort to define communication networks along Alaska's north coast amid increased ship traffic, and the use of satellites to track water masses in Cook Inlet. Others will study environmental DNA to assess nearshore Arctic marine communities, stock boundaries of Arctic-Bering cisco, and techniques for characterizing subsurface currents.

Pollock Conservation Cooperative Research Center

The Pollock Conservation Cooperative Research Center supports research projects and graduate student fellowships focusing on pollock biology and resource utilization, fisheries management and incidental catch, habitat and ecosystems, and protected species. In 2023–2024, PCCRC supported nine research projects, eight of which are ongoing. The PCCRC Advisory Board also contributed to supporting research cofunded under a memorandum of agreement between PCCRC and the North Pacific Research Board. The PCCRC anticipates supporting \$350,000 in new research projects in 2025, which will mark its 25th anniversary.

Rasmuson Fisheries Research Center

The mission of the Rasmuson Fisheries Research Center is to promote excellence in research and to develop fisheries scientists. The center supported three CFOS graduate students this year, who are studying the food habits of Pacific oyster and Pacific blue mussel, bioaccumulation of microplastics in eastern Chukchi Sea beluga whales, and use of eDNA to study glacial estuarine fish, invertebrate, seabird and mammal communities. RFRC advisory board members include Jessica Black, Lisa Busch, Adam Gibbons, Lara Horstmann and Stephanie Madsen. Trent Sutton serves as RFRC director.



Seward Marine Center

The Seward Marine Center proudly serves as the home port for two state-of-the-art research vessels, *Sikuliaq* and *Nanuq*. In the past year, research activities aboard R/V *Nanuq* included comprehensive plankton studies, bird surveys, fisheries assessments, tidal dynamics studies and the deployment and recovery of underwater gliders. This winter, SMC provided critical support to R/V *Sikuliaq* during a challenging dry dock period in Seward that involved major overhaul work.

The seawater system in the D.W. Hood Laboratory supported vital programs such as the Northern Gulf of Alaska Long-Term Ecological Research initiative, glider projects, and modular power generation. A section of the lab was commissioned in May as a dedicated glider-servicing facility.


The SMC Mooring Loft continues to play a crucial role in building and repairing anchored systems for a growing network of ocean observatories. Additionally, the K.M. Rae Marine Education Building served as a classroom this year for CFOS's Subarctic Oceanography Field Course.

Ocean Acidification Research Center

The Ocean Acidification Research Center monitors the carbonate system in Alaska's large marine ecosystems. Observations are collected during oceanographic research surveys and from autonomous sensors.

In 2024, OARC began three new collaborative projects. An Indigenous-led community monitoring program includes work with more than 25 tribes and coastal communities. OARC is also providing analytical services to integrate ocean chemistry data from bottom waters in Bristol Bay with king crab survey information. A third project includes a joint survey to track the accumulation of anthropogenic carbon in the Bering Sea and Gulf of Alaska and evaluate its impacts on marine species and fisheries.

Combined with ongoing long-term monitoring efforts, these projects align with OARC's goals to assess the intensity, duration and extent of ocean acidification in Alaska. OARC aims to provide critical information for species sensitivity and vulnerability assessments, as well as predictive modeling and forecasting tools.



R/V *Sikuliaq* tied up at the industrial pier in its home port of Seward. Photo by Julian Race.

Lena Point Fisheries Facility

The Department of Fisheries in Juneau is housed at the Lena Point Fisheries Facility, which is colocated with the NOAA Ted Stevens Marine Research Institute. Lena Point is also the homeport for R/V *Ishkeen*, named after the Tlingit word for sablefish, which supports fisheries and diving research throughout Southeast Alaska. The 26-foot vessel's work in 2024 included surveys of the region's humpback whale populations.

During the past year, Lena Point celebrated the first three graduates of the Master of Marine Policy program and hosted the 27th annual American Fisheries Society student symposium. The Mariculture Lab continues to expand in size and scope, with its first three students graduating in 2024. Substantial renovations were made to wet labs to house red seaweed, kelp and abalone. Capacity for abalone was increased to house thousands of animals, which will be deployed to farm sites in Southeast Alaska.

Kasitsna Bay Laboratory

The Kasitsna Bay Laboratory is located in Kachemak Bay in the southcentral Gulf of Alaska, providing a unique coastal research, teaching and outreach facility. It is operated as a partnership between CFOS and NOAA's National Centers for Coastal Ocean Science.

The lab is the base for the Gulf Watch Alaska long-term monitoring program, which conducts annual surveys of intertidal communities and monitors the return of sea stars to Kachemak Bay following a devastating sea star wasting disease. Research also continued on the long-term Mariculture ReCon project, which investigates environmental and ecological connections with oyster farms. Several graduate and undergraduate students spent part of the summer at the lab conducting thesis research.

The lab also welcomed outreach groups, ranging from grade school to pre-college level, to learn about and experience Alaska's marine ecosystems. CFOS faculty taught several field courses, including scientific diving and general ecology field classes.

A rainbow arches beyond the
Kasitsna Bay Laboratory.
Photo by Jessica Glass.



Development

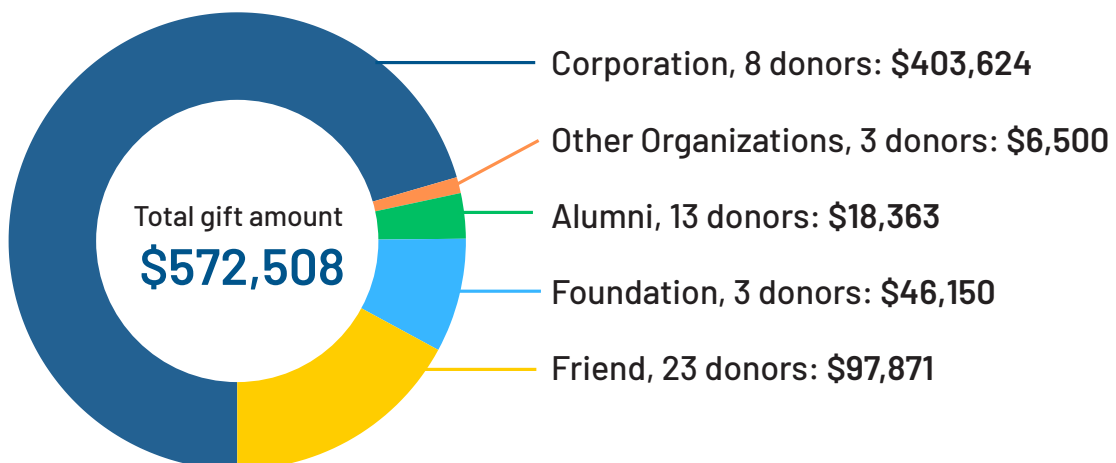
During 2024, we received \$572,508 in charitable gifts, including a \$30,000 gift from the Maxwell-Hanrahan Foundation to support the Tamamta Program and the work of 19 fisheries fellows. These funds have been instrumental to the Tamamta Program's success, supporting fisheries research focused on Indigenous values.

We thank our donors for helping us fulfill our mission of teaching, research and service. Donations provide scholarships, fellowships and support for student and faculty research.

Major Donors

- | | | |
|---|--|--|
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| | <i>Northrim Bank</i> | <i>*deceased</i> |

FY24 Fundraising Totals

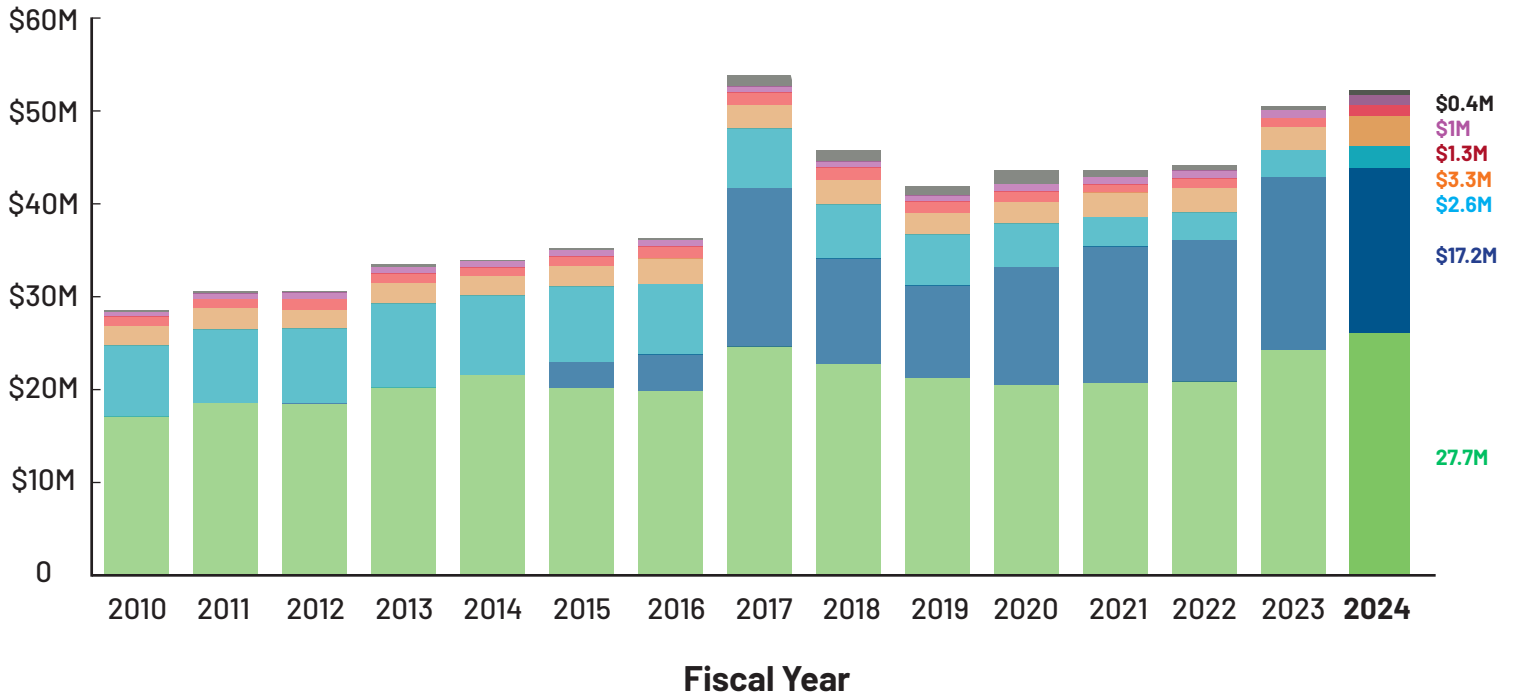


Budget and Finance

The Tanana River flows through central Alaska.
Photo by Steve Dykstra.

FY24 CFOS Revenue Trend

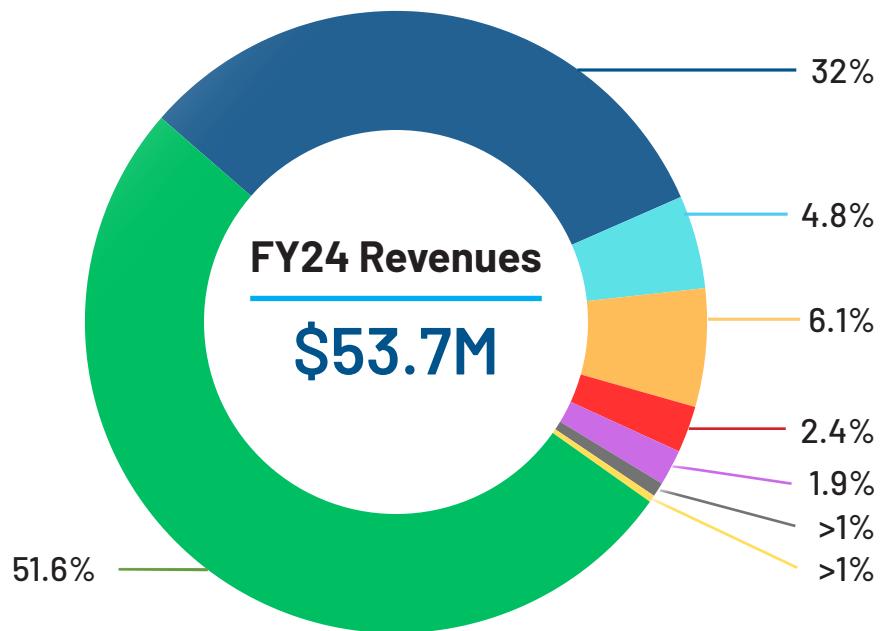
- Research Awards \$27.7M
- *Sikuliaq* \$17.2M
- State General Funds \$2.6M
- Indirect Cost Recovery \$3.3M
- Foundation \$1.3M
- Tuition and Fees \$1M
- Other Revenue \$0.4M
- Non-Ship Recharge \$0.2M



Non-Ship Recharge and American Reinvestment and Recovery Act funding (2011-2016) excluded



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COLLEGE OF FISHERIES
AND OCEAN SCIENCES

The sun sets over MacDonald Spit, as viewed from the dock of the Kasitsna Bay Laboratory.
Photo by Jessica Glass.

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