

Kodiak Seafood and Marine Science Center

University of Alaska Fairbanks

College of Fisheries and Ocean Sciences

Annual Report
FY2020 (July 1, 2019 - June 30, 2020)



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January 2021

Kodiak Seafood and Marine Science Center University of Alaska Fairbanks

Annual Activities Report FY2020 (July 1, 2019 - June 30, 2020)

Executive Summary

Introduction

The Kodiak Seafood and Marine Science Center (KSMSC) is a regional marine research and education center that serves as Alaska's only workforce development and applied research center focused on the seafood processing and fishing industries, as designated by the Alaska State Legislature in 1983. KSMSC is a unique facility with classrooms, laboratories, a test kitchen and a pilot seafood processing plant from which the University of Alaska Fairbanks (UAF) conducts research and provides technical assistance, workforce training and education to improve Alaska's seafood industry.

The facility is located in the island community of Kodiak, Alaska, in proximity to one of the largest and most profitable fishing ports in the state. KSMSC serves statewide fishery and seafood industries and benefits Kodiak Island communities. Kodiak is the fourth largest seafood port in the nation and has a large resident seafood processing and fishing workforce, with plants operating 11 months a year. Kodiak Island also has smaller outlying villages with strong subsistence and commercial economies based on marine resources and whose residents use the services at KSMSC.

Personnel working at KSMSC in FY2020 included four faculty members (three Alaska Sea Grant Marine Advisory and one Fisheries) and three staff within the UAF College of Fisheries and Ocean Sciences (CFOS) and one within the UAF Cooperative Extension Service (4-H coordinator). Graduate students and visiting University of Alaska faculty also use the center, as do collaborating partners.

The Kodiak Seafood and Marine Science Center is a hub of applied research, training, and technical assistance. KSMSC works year-round to develop better methods to harvest, preserve, process, and package Alaska's rich ocean bounty.

KSMSC Activities in FY2020

FY2020 was a busy and active year for the Kodiak Seafood and Marine Science Center. KSMSC hosted a variety of activities, including meetings, trainings, classes or events with over 250 participants during the year.

During the fiscal year, 93 participants received workforce development training in six seafood processing and fishing industry classes offered by Alaska Sea Grant. Courses were taught by KSMSC faculty and hosted at KSMSC, partner facilities in Kodiak, the Alaska Sea Grant Anchorage office, and online. Training classes generated \$34,840 in fees in FY2020. Two UAF undergraduate fisheries classes were taught from KSMSC this year, serving 15 undergraduate students. Ten workshops and seminars were delivered to Kodiak and statewide audiences.

Nine research projects were conducted by faculty and staff in the areas of seafood science, product development, fisheries anthropology, climate change, harmful algal blooms and safe subsistence harvest of shellfish. Thirteen peer reviewed publications and reports were produced by scientists based at KSMSC.

Technical assistance and information was provided on an ongoing basis throughout the year by faculty members, who engaged with 29 different seafood businesses and individual food producers, as well as with state and federal agencies, tribal representatives and nonprofit groups. Outreach and marine education projects took place in the building, ranging from paralytic shellfish poisoning (PSP) community sampling and testing studies, education about microplastic ingestion by juvenile fish, and K–12 marine education events. Marine Advisory faculty and 4-H staff at KSMSC engaged with over 700 area youth in marine science classes, labs, research projects and field trips.

External funding for KSMSC activities came from 11 funders, including Alaska Sea Grant, NOAA, Pollock Conservation Cooperative Research Center (PCCRC), UA Technical Vocational Education Program (TVEP), North Pacific Research Board, Bureau of Indian Affairs, National Science Foundation, New Venture Fund, Matson Inc., USCG Spouses Association of Kodiak and UAA Business Enterprise Institute (Alaska Manufacturing Extension Program).



Photo Credit: Dawn Montano

Kodiak Seafood and Marine Science Center

University of Alaska Fairbanks

FY2020 Annual Report

Background

The University of Alaska Fairbanks Kodiak Seafood and Marine Science Center (KSMSC) is a 20,000-square-foot seafood processing and marine research and development facility. KSMSC faculty and staff work year-round to share research, provide technical assistance, and offer workforce development training and other educational opportunities to seafood workers and coastal communities across Alaska.

The Kodiak Seafood and Marine Science Center's (formerly the Fishery Industrial Technical Center) purpose is directed in AS.52.020. "The center shall create employment opportunities in the state's fishing industry and other benefits to the state by:

- (1) providing training opportunities to citizens of the state on the most efficient and appropriate technologies for the harvesting, processing, and conservation of the fishery resources of the state;
- (2) providing information and technical assistance on the adaptation of existing and new technologies to the users of the fishery resources of the state;
- (3) providing research and development activities to adapt existing technologies to enhance the economic viability of the industry;
- (4) providing research and development activities to create new technologies that will enhance the effectiveness of the industry, and provide economic benefits to state citizens; and
- (5) encouraging joint projects between industry and government in order to use industrial experience and government programs to enhance the productivity of the industry."

KSMSC is an important asset in the implementation of the Alaska Maritime Workforce Development Plan, endorsed by the Alaska State Legislature, the UA Board of Regents, the Alaska Department of Labor and Workforce Development, the Alaska Workforce Investment Board and the industry group Maritime Works. The Alaska Research Consortium (ARC), a community and industry 501(c)(3) non-profit formed in 2016 with the goal of supporting KSMSC's mission as defined in Alaska statute, worked closely with the University of Alaska Fairbanks in FY2020.

Teaching and Training

Seafood Processing/Fisheries Workforce and Business Development Training Classes

During FY2020, 132 people were trained in 12 seafood processing/fishing industry workforce classes offered by Alaska Sea Grant Marine Advisory faculty (Table 1). Classes were hosted at KSMSC, partner facilities in Kodiak, the Alaska Sea Grant Anchorage office, and online. These classes generated \$34,840 in program income from training fees. Due to the onset of COVID-19, one AMSEA Drill Conductor Training course was canceled. Classes are offered as non-credit intensives, meeting the training needs of a year-round industry. Descriptions of each class can be

found on the [Alaska Sea Grant Seafood Processing and Technology](#) website and the [Alaska Marine Safety Education Association](#) website.

September

- **AMSEA 10-hour Drill Conductor Course.** Course location: Kodiak. Course length: 10 hr. Participants: 20. Training with hands-on activities and skills including pool and onboard drills delivered for USCG fishing vessel examiners-in-training. September 16, 2019. [Matweyou, J.](#), [Wilwert, S.](#)

October

- **Smoked Seafood School.** Course location: Kodiak. Course length: 24 hr. Participants: 8. Class covers smoking seafood practices, safety, and operational issues for commercial producers and home processors. October 17–19, 2019. [Sannito, C.](#) Course fee: \$300

November

- **Alaska Seafood Processing Leadership Institute (ASPLI) Part 1.** Course location: Kodiak. Course length: 40 hours. Participants: 11. Training designed for mid-level seafood processing managers nominated by their company. November 11–15, 2019. [Fong, Q.](#), [Matweyou, J.](#) and [Sannito, C.](#) Course fee: \$2,000.

January

- **AMSEA 10-hour Drill Conductor Course.** Course location: Kodiak. Course length: 15 hr. Participants: 20. Training with hands on activities and skills including pool and onboard drills delivered for commercial fishermen. January 10–11, 2020. [Schultz, A.](#); leadership in arranging [Matweyou, J.](#)
- **Smoked Seafood School.** Course location: Kodiak. Course length: 24 hours. Participants: 18. Class introduces smoked seafood practices, safety, and operational issues to Kodiak High School students and teachers. January 21–22, 2020. [Sannito, C.](#) Course fee: waived.

February

- **HACCP (Hazard Analysis Critical Control Point).** Course location: Anchorage. Course length: 16 hour. Participants: 14. Certified by the Association of Food and Drug Officials (AFDO). February 3-4, 2020. [Sannito, C.](#) Course fee: \$230.
- **Seaweed Farm Start-up Training Program.** Course location: Kodiak. Course length: 16 hours. Participants: 16. Workshop provided tools and training for starting a seaweed farm in Alaska. February 13-14, 2020. Organized by AFDF with training modules developed and delivered by KSMSC faculty: [Matweyou, J.](#), [Sannito, C.](#) and [Fong, Q.](#)

Table 1. FY2020 Teaching and Training Courses

Course Title	Date(s)	Location	Course Hours	Participants	Fees	Instructor
AMSEA Drill Conductor Course	Sep 16, 2019	Kodiak USCG Base	10	20		Matweyou, J., Wilwert, S.
Smoked Seafood School	Oct 17-19, 2019	KSMSC Kodiak	24	8	\$310	Sannito, C.
Alaska Seafood Processing Leadership Institute (ASPLI) Part 1	Nov 11-15, 2019	KSMSC Kodiak	40	11	\$2,000	Fong, Q., Sannito, C.
AMSEA Drill Conductor Course	Jan 10-11, 2020	Kodiak USCG Base	15	20		Matweyou, J., Schultz, A.
Smoked Seafood School	Jan 21-22, 2020	KSMSC Kodiak	24	18	waived	Sannito, C.
HACCP	Feb 3-4, 2020	Anchorage	16	14	\$230	Sannito, C.
Seaweed Farm Start-up Training Program	Feb 13-14, 2020	KSMSC Kodiak	16	16		Fong, Q., Sannito, C. Matweyou, J.
Better Process Control School	Feb 5-7, 2020	Anchorage	24	11	\$510	Sannito, C.
AMSEA Drill Conductor Course	Feb 28-29, 2020	Kodiak USCG Base	15	10		Matweyou, J., Schultz, A.
Alaska Seafood Processing Leadership Institute (ASPLI) Part 2	Mar 2-6, 2020	Kodiak USCG Base	40	11	\$2,000	Fong, Q., Sannito, C.
Introduction to Starting and Operating a Seafood Business	Apr 20-29, 2020	KSMSC Kodiak	12.5	21	\$135	Dunham, G., Sannito, C. Fong, Q.
HACCP Segment 2	May 29, 2020	KSMSC Kodiak	8	13	\$100	Sannito, C.

- **Better Process Control School.** Course location: Anchorage. Course length: 24 hours. Participants: 11. Course covered principles of thermal processing, equipment requirements, container closure evaluation, and record keeping for glass jars and cans. February 5-7, 2020 Sannito, C. Course fee: \$510.
- **AMSEA 10-hour Drill Conductor Course.** Course location: Kodiak. Course length: 15 hr. Participants: 10. Training with hands on activities and skills including pool and onboard drills delivered for commercial fishermen. February 28–29, 2020. Schultz, A. and Matweyou, J.

March

- **Alaska Seafood Processing Leadership Institute (ASPLI) Part 2.** Course location: Anchorage. Course length: 40 hours. Participants: 11. Training designed for mid-level seafood processing managers nominated by their company. March 2–6, 2020. Fong, Q. and Sannito, C. Course fee: \$2000.

April

- **Introduction to Starting and Operating a Seafood Business.** Course location: Online. Course Length: 12.5 hours. Participants: 21. Training designed for harvesters who want to sell their catch directly to consumers. April 20–29, 2020. Dunham, G., Sannito, C. and Fong, Q. Course fee: \$135.

May

- **HACCP Segment 2 (Hazard Analysis Critical Control Point).** Course location: Online. Course length: 8 hour. Participants: 13. Certified by the Association of Food and Drug Officials (AFDO). May 29, 2020 . Sannito, C. Course fee: \$100.
- **AMSEA 10-hour Drill Conductor Course.** Course location: Kodiak. Training with hands on activities and skills including pool and onboard drills delivered for commercial fishermen. May 2020. Matweyou, J. Canceled due to COVID-19.

UAF Fisheries Undergraduate and Graduate Credit Classes

Two UAF classes were taught by KSMSC-based faculty members to students across the state. FISH 261, Introduction to Fish Utilization is a requirement for the College of Fisheries and Ocean Sciences undergraduate Fisheries program. FISH 340, Seafood Business is offered through the undergraduate Bachelor of Arts in Fisheries program.

- **FISH 261, Introduction to Fish Utilization,** 3 credits, Fall semester, 9 students, Instructor: Fong, Q. Guest Lecturer: Matweyou, J.

- **FISH 340, Seafood Business**, 3 credits, Fall semester, 2 students, Instructor: Fong, Q., Guest Lecturer: Sannito, C.

Faculty participation in other UAF classes

- **FISH/MSL F492/F692 Fisheries and Ocean Science Seminar:** Matweyou, J. presented on Paralytic Shellfish Toxins in the Kodiak Region. October 23, 2019.

UA Collaboration and Student Support

- **UA Kodiak College A104/A104L Introduction to Organic and Biochemistry.** PSP Abraxis Lecture & Lab. March/April 2020 – Canceled due to COVID-19. Matweyou, J. and Trussell, C.
- **Miami University of Ohio.** Supported MS level student with laboratory work at KSMSC and development of for-credit internship. Jul 2019 – February 2020. Internship interrupted due to student medical. Student will resume activity in AY21. Matweyou, J.

KSMSC Summer Internship Program

Julie Matweyou continues to partner with local organizations to provide internship opportunities. Matweyou worked with the Sun'aq Tribe of Kodiak Natural Resource interns during this reporting period. Matweyou involved two interns during the summer of 2019 for a total of 64 hours. Activity in 2020 was limited due to COVID-19 restrictions and included an 8 hour engagement. Typical intern activities include invasive tunicate monitoring, shellfish and phytoplankton monitoring for harmful algal blooms.

Partnerships with the Latin Association of Women in Alaska (ALMA) youth internship program continue, although there was no paired opportunity in 2019 and no involvement in 2020 due to COVID-19.

Youth education

- **Old Harbor Nuniaq Culture Camp (invited).** Harmful algal bloom lesson: clam anatomy and dissection led by Matweyou; phytoplankton lesson led by Wall. Approx. 15 students grade 4–8. July 11, 2019. Matweyou, J. and Wall, A.

Workshops, Events and Seminars (Regional and Statewide)

Dunham, G. and Matweyou, J. Alaska Sea Grant provided seafood and fishery industry outreach during Pacific Marine Expo. November 2019.

Dunham, G. and Matweyou, J. Co-presented *Alaska Sea Grant and the Alaska Young Fishermen's Summit*. Delivered at Young Fishermen Education Program Series. Pacific Marine Expo. November 22, 2019.

Holen, D. and Matweyou, J. 2019. Co-organized event: *Adapt Kodiak: a coastal resilience workshop*. Kodiak, AK. October 24-25, 2019. <https://alaskaseagrant.org/event/adapt-kodiak/>

Johnson, J. 2019. *Faring Changes in the Bering Sea: A look into the cool pool variability and zooplankton dynamics in the Eastern Bering Sea*. Matweyou, J. Co-organizer/co-sponsored public seminar (Audubon Alaska and Alaska Sea Grant) October 4, 2019.

Matweyou, J. 2019. *Effects of Paralytic Shellfish Toxins on Shellfish Resources*. Bering Strait Algal Toxin Workshop. Nome, AK. July 16, 2019.

Matweyou, J. *Paralytic Shellfish Poisoning (PSP) and its Impacts on Establishing Viable Shellfish Farms*. Introduction to Mariculture in the Kodiak Region; Conference organized by the Kodiak Archipelago Leadership Institute. Kodiak, AK. September 11, 2019.

Matweyou, J. *Addressing Paralytic Shellfish Toxins in the Kodiak Region*. Oral presentation at the Kodiak Area Native Association Marine Water Quality Workshop. December 11, 2019.

Rice, S., Matweyou, J. and Dunham, G. 2020. Event development and execution: Alaska Young Fishermen's Summit 2020. Juneau, AK. January 21-23, 2020.
<https://alaskaseagrant.org/event/2020-alaska-young-fishermens-summit/>

Rice, S., Dunham, G., Fong, Q., Sannito, C. and Matweyou, J. 2020. *Socially Distant and Locally Sourced: Selling Your Seafood Dockside*. Webinar. April 7, 2020.
<https://alaskaseagrant.org/event/selling-your-seafood-dockside/>

Wall, A., Matweyou, J., Krueger, K., and Lance, T. 2019. *Paralytic Shellfish Poisoning with hands-on activities*. Alutiiq Museum First Friday. October 4, 2019.

Four public engagements with Kodiak ComFish and the Kodiak Marine Science Symposium were cancelled due to COVID-19.

Applied Research and Technical Assistance to Industry

In FY2020, nine research and technical projects were conducted out of KSMSC, funded by NOAA, UA Foundation/Ocean Phoenix Fund, Alaska Manufacturing Extension Program, Bureau of Indian Affairs, North Pacific Research Board, Pollock Conservation Collaborative Research Center, Salmon Connect Partnership, National Science Foundation, New Venture Fund, and National Center for Ecological Analysis and Synthesis. Thirteen publications or reports were produced by UAF KSMSC-based faculty and staff.

Highlights

PSP Studies in the Kodiak Region

In June 2020, Julie Matweyou completed the North Pacific Research Board study *Implementation of Community Based PSP Testing for Subsistence and Recreational Shellfish Harvesting in Southwestern Alaska*. This study addressed bivalve shellfish harvest and consumption practices in Western Alaska. Project partners included Sun'aq Tribe, Alutiiq Tribe of Old Harbor, City of Ouzinkie locally, Bruce Wright with the Aleutian Pribilof Island Association representing the communities of King Cove and Sand Point, and national experts from the NOAA Beaufort NC lab.

The objectives of the study were: 1. To build on existing PSP toxin monitoring efforts in the communities of Kodiak, Old Harbor and Ouzinkie; 2. To investigate the toxicity of different anatomical tissue in butter clams; and 3. To use shellfish tissues collected in the Kodiak region to further develop the toxin testing methodologies with the goal of producing a PSP field test kit.

A final project report was submitted to the North Pacific Research Board in June 2020 and an outreach publication, poster and community report were developed to disseminate results to the participating Kodiak communities. Planned in-person outreach events were canceled due to COVID-19 and will be conducted in the future. Scientific journal publications are in preparation.

Summary results are highlighted below:

1. Regional shellfish monitoring: Community-based shellfish monitoring demonstrates the importance of site differences, seasonal variation and regional climate changes on shellfish toxicity and PSP risks. Continued monitoring is needed to inform subsistence harvesters about toxicity risks. Butter clam tissues & cleaning methods: Study results show toxicity of butter clams can often be reduced by removal of the siphon tip and the gut with contents, as well as other tissues. The effectiveness of this removal depends on harvest time and location, the intensity of *Alexandrium* blooms, and ultimately, the preferences of the individual harvester. Alaska Sea Grant publication [MAB-78](#) was produced to disseminate summary results of this study statewide.
2. Improved toxin detection: The SEATox, Inc. ELISA test coupled with the reduction method improved quantification of GTXs, PSP toxins that regularly reach high concentrations in shellfish during spring and summer *Alexandrium* blooms. These toxins are nearly undetectable with antibody-based tests that are commercially available.

Matweyou continues to work with the Kodiak Area Native Association (KANA) Environmental Program to support continued toxin monitoring in the Kodiak region and develop messaging regarding PSP. KANA conducts work out of the KSMSC, and Matweyou worked to provide a relatively seamless transition for lab use during the COVID-19 pandemic.

In September 2019, Matweyou was awarded funds by NOAA National Centers for Coastal Ocean Science for the study [Application of quantitative molecular methods to characterize abundance and distribution of *Alexandrium* Cysts for NOAA's HAB Forecasting](#). The project team includes

the University of Washington Tacoma, Alaska Sea Grant and NOAA Beaufort lab, with collaborations from UAF CFOS and the Woods Hole Institute. The project team met in Tacoma in December 2019 to standardize and cross train on methodology. This project will develop two lab-based quantitative molecular methods that will be evaluated against current microscopy protocol with the goal of producing more rapid, accurate cyst abundance data. Sediment samples from the Gulf of Maine, Puget Sound and Alaska are being collected for interlaboratory and method comparisons, and for cyst mapping. Sediment samples were collected in the Kodiak region in February 2019 with support from the Kodiak High School Fisheries class onboard the F/V K-Hi-C. Capacity is being established at KSMSC to conduct cyst processing and counts.

Manufacturing Extension Partnership renewed with Alaska Sea Grant

The Marine Advisory Program continues to be a collaborator in the Hollings Manufacturing Extension Partnership (MEP) 5-year federal grant renewed in the state of Alaska and administered by the Business Enterprise Institute, University of Alaska Anchorage. The MEP in each state provides manufacturing companies with services and resources to enhance growth, improve productivity, reduce costs, and expand capacity. Seafood harvesting and processing are the focus of the Alaska MEP, the Marine Advisory Program faculty based at KSMSC are providing seafood processing training and technical assistance. The Principal Investigators are Quentin Fong and Chris Sannito.

Research at KSMSC FY2020

- **Development of Value-added Market Opportunities for Pollock Co-products**, Fong, Pollock Conservation Cooperative Research Center (co-PI with C. Dewitt, M. Kohan), 2017-2020.
- **Development of Value-added Market Opportunities for Pollock Co-products: Screening of Pollock roe and milt for bioactive peptides that have an anti-inflammatory effect to improve human health**, Fong, Pollock Conservation Cooperative Research Center (co-PI with C. Dewitt, J. Kwon), 2019 to 2022.
- **Understanding post-settlement survival in juvenile Pacific cod**, Litzow, NOAA Cooperative Research Program (Co-PI with B. Laurel, A. Abookire), 2018-2020.
- **Implementation of Community Based PSP Testing for Subsistence and Recreational Shellfish Harvesting in Southwestern Alaska**, Matweyou, (co-PI with P. Tester, W. Litaker and S. Kibler), North Pacific Research Board, 2016-2020.
- **Cooperative Monitoring of Harmful Algal Blooms and Shellfish Toxicity on Kodiak Archipelago: Advancing Tribal Resilience and Subsistence Food Security**. Matweyou, Bureau of Indian Affairs funds, subaward from KANA, 2019-2020.
- **Assessing the potential for pollock growth and productivity in the northern Bering Sea**. Litzow, (co-PI with F. Mueter), Pollock Conservation Cooperative Research Center,

2019-2020.

- **Indigenizing Salmon Science and Management.** Ringer. (co-PIs: C. Carothers, J. Black and R. Donkersloot). Salmon Connect Partnership and National Science Foundation, 2017-Current.
- **State of Alaska's Salmon and People: Social and Cultural Dimensions of Well-Being in Alaska's Salmon Systems.** Ringer. (co-PIs: C. Carothers, J. Black and R. Donkersloot). University of California, Santa Barbara, National Center for Ecological Analysis and Synthesis, 2016-2019.
- **Application of quantitative molecular methods to characterize abundance and distribution of Alexandrium Cysts for NOAA's HAB Forecasting.** Matweyou (co-PIs C. Greengrove, J. Masura and S. Kibler). NOAA National Centers for Coastal Ocean Science funds, subaward through UW, 2019-2022.

Seafood Business Assistance

Technical assistance was provided in the areas listed below:

- Thermal process values for hot fill processed tea concentrates
- Commercial process schedule, testing and HACCP for pickled garlic process
- "Milky salmon" issue in pink salmon cans from Alaska
- Testing and process evaluation of three acidified commercial food products
- Process analysis and testing of four seaweed based products
- Heat distribution study for smokehouse
- HACCP plan for seal oil production
- Product testing and process evaluation of acidified seaweed
- Product testing and process evaluation of pesto product
- Heat distribution test of tortilla ovens, audit assistance, process letter
- HACCP Plan review, LACF process filing assistance
- Juice processing protocol review
- Antler Tea Process Review, Acidulant selection, pH testing, process letter
- Selecting and sourcing a pasteurization machine to be used in seal oil processing
- Charcuterie process
- Guidance on dairy processing requirements and safety
- PSP testing and shellfish farm siting

Sample of companies, agencies and groups seeking assistance from KSMSC included:

- Blue Evolution
- Copper River Seafoods
- Norton Sound Seafoods
- Ocean Beauty Seafoods
- Taco Loco
- Alaska Seafood Company
- Alaska Coastal Seaweed

- Community of Levelock
- Cooperative Extension Service
- Kemin Industries
- Alaska Berry Company
- Sitka Wild Seafoods
- Oceanside Farms
- Barnacle Foods
- Homer Brewing Company
- Moosetard
- Heather's Choice
- Kodiak Fishmeal Company
- Sunrise Salmon
- 60 North Seafoods
- Kodiak Regional Aquaculture Association
- Wild Legacy Seafoods
- Trident Seafoods
- Schoolhouse Fish Co.
- Alaska Shellfish Growers Association
- Alaska Fisheries Development Foundation
- OceansAlaska
- Alaska Department of Environmental Conservation
- Manilaq Association

Public Service and Marine Education

Adapt Kodiak: A Coastal Resilience Workshop

- Adapt Kodiak was a community workshop held in October 2019 to discuss the challenges and opportunities faced by Kodiak residents in building greater community resilience. The steering committee of Kodiak residents (including two KSMSC personnel Matweyou and Ringer) narrowed this focus to the following four areas. Fisheries futures
 - Food security and subsistence
 - Infrastructure and energy
 - Culture and wellness

Report available here: <https://adapталaska.org/wp-content/uploads/Adapt-Kodiak-report-Final.pdf>

Alaska Young Fishermen's Summit

The Alaska Sea Grant Marine Advisory Program presented the 8th [Alaska Young Fishermen's Summit](#) (AYFS) in Juneau, Alaska. Julie Matweyou was involved with planning the Summit. AYFS 2020 provided three days of training, information and networking opportunities to 50 early career commercial fishermen.

This year, the summit was timed to coincide with the start of the Alaska State Legislature session in Juneau and received tremendous support from Representative Louise Stutes and staff. The

Office of Representative Stutes assisted in organizing opportunities for participants to engage with an informal panel of representatives, a House Fisheries Committee meeting and in individual legislative visits. Matweyou organized sessions on the Science and Management of Alaska Fisheries and Safety. AYFS participants were able to file in and out of the legislative meetings to observe the legislative process.

Kodiak Favorites

Local events, including ComFish Alaska and the Kodiak Area Marine Science Symposium (KAMSS), were in the advanced planning phase when COVID-19 closed our community. ComFish was re-scheduled for September 2020, and KAMSS was re-scheduled for April 2021. We will celebrate our commercial fishing industry and marine science highlights virtually and look forward to in-person events when it is safe to do so.

Cooperative Extension Service: Kodiak 4-H Youth Development Program

Alaska 4-H is one of many programs in the Cooperative Extension Service and serves as the state's premier youth development program, using research-based information and strategies. 4-H is open to all youth K-18. In FY2020, Kodiak 4-H had 114 enrolled youth members, and reached countless more through community events. Kodiak 4-H operated with one paid staff member (housed at KSMSC), 27 trained volunteer leaders, and countless members of the community who provided supplies and local knowledge.

Programming by staff and leaders included the following topic areas: Archery, Rifle, Horse, Dog, Veterinary Science projects, Small Animals, Gardening & Healthy Living, Bread Making, Photography, Arts & Crafts, Sewing and Fiber Arts, Teen Youth Leadership, & Cloverbuds (ages 5-8). Because of COVID-19, this was the first year in over twenty years that the Kodiak 4-H program was unable to coordinate the Therapeutic Riding program that operates in partnership with Providence Kodiak Island Medical Center to benefit youth with disabilities and special needs.

Kodiak 4-H also partnered with Kodiak Island Borough School District this year to offer "4-H Tuesdays" in the Agriculture and the Science, Technology, Engineering, the Arts and Mathematics classrooms taught by Amanda Johnson. Each class had about 30 students and topics included food security, soil testing and amendments, bee keeping, and vermiculture.

4-H Youth Education held at KSMSC

Youth Leadership - meetings held monthly December 2019-March 2020, 8 youth, 1 hour each.
Sewing Classes - held weekly in November & December 2019, 6 youth, 2 hours each.

4-H Board Meetings held at KSMSC

Kodiak 4-H Leaders Council meetings were held monthly from July 2019 to March 2020, with remaining meetings held on Zoom due to COVID-19. Average 1.5 hours each, 15 attendees.

4-H Conferences at KSMSC

Schaberg, K. Women in Agriculture Conference (photo at right). Schaberg coordinated & facilitated the conference in cooperation with Washington State University Cooperative Extension Service. 8 hours, 22 attendees.. January 25, 2020.



4-H Connections Beyond Kodiak in the time of COVID-19

Schaberg was part of a team of 4-H staff leading the development of several 4-H At-Home kits available to all youth in Alaska. An estimated 500 windowsill garden kits & 220 Chalk Coding kits were distributed as a result of this effort. Alaska 4-H families also made masks for Alaska residents. A total of 21 youth and two adults made approximately 1,400 masks for free distribution.

Schaberg also worked with 4-H staff in Colorado and Wyoming to lead a tri-state 4-H group in the months of April & May. Schaberg created a blog to showcase daily at-home activities from April through June 2020. The blog, which can be found at [Alaska 4-H - Learn By Doing At Home](#) was highlighted on the National 4-H website.

KSMSC in the News and Public Service

Press Coverage

- **KDM, July 5, 2019:** 4H group lets the dogs out — testing agility and obedience
- **KDM, September 5, 2019:** Youths participate in the 4-H Club Horse Showmanship event Saturday at the 51st Kodiak Rodeo and State Fair.
- **KDM, October 21, 2019:** Kodiak 4-H Harvest Festival
- **KDM, November 2019:** 4-H attends Kodiak College Job Fair for Volunteers

Boards and Councils served by KSMSC Personnel

- Adapt Kodiak Steering Committee - Matweyou and Ringer
- ADEC Alaska Food Safety Advisory Committee - Sannito
- Alaska Fishermen's Network - Ringer
- Alaska Marine Safety Education Association - Matweyou
- ASMI Seafood Technical Committee - Sannito
- Association of Latin Women in Alaska - Matweyou
- Kodiak College Vessel Repair & Maintenance Local Advisory Committee - Matweyou
- Kodiak Filipino-American Association Education Committee - Fong and Matweyou
- Kodiak Salmon Life - Ringer
- National Seafood HACCP Alliance Advisory Committee - Sannito
- OceansAlaska -Fong
- Western Regional Aquaculture Consortium Extension Technical Committee - Fong

Publications and Reports

- Carothers, C., P. Westley, J. Black, and **D. Ringer**. Forthcoming. Guest editors for special feature: Alaska's Salmon and People: Synthesizing Knowledge Systems and Dimensions. *Ecology and Society*.
- Donkersloot, R., J. C. Black, C. Carothers, **D. Ringer**, W. Justin, P. M. Clay, M. R. Poe, E. R. Gavenus, W. Voinot-Baron, C. Stevens, M. Williams, J. Raymond-Yakoubian, F. Christiansen, S. Jo Breslow, S. J. Langdon, J. M. Coleman and S. Clark. 2020. Assessing the sustainability and equity of Alaska salmon fisheries through a well-being framework. *Ecology and Society* 25 (2):18.
- Donkersloot, R., J. Coleman, C. Carothers, **D. Ringer**, P. Cullenberg. 2020. Kin, community and diverse rural economies: Rethinking resource governance for Alaska rural fisheries. *Marine Policy*, 117, 103966.
- Fong, Q.S.W.**, J. Kwon, C. Dewitt. 2020. Development of value-added market opportunities for pollock co-products: screening of pollock roe and milt for bioactive peptides that have an anti-inflammatory effect to improve human health. Project Report submitted to PCCRC.
- Fong, Q.S.W.**, C. Dewitt and M. Kohan. 2020. Development of value-added market opportunities for pollock co-products (Phase 2). Project Report submitted to PCCRC.
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- Litaker. W., **Matweyou, J.**, Tester, P. and Kibler, S. 2019. Implementation of community based PSP testing for subsistence and recreational shellfish harvesting in Southwestern Alaska. NPRB 1616 Semi-Annual Progress Report. July 2019.
- Litaker. W., **J. Matweyou**, P. Tester, and S. Kibler, S. 2018. Implementation of community based PSP testing for subsistence and recreational shellfish harvesting in Southwestern Alaska. NPRB 1616 Final Report. June 2020.
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Matweyou, J. A., Litaker, W. R., Kibler, S. R., Wright, B. A., Hardison, D. R. and Tester, P. A. 2020. Community-based PSP testing for shellfish - Kodiak Region Summary. Poster. June 2020.

Matweyou, J. A., Litaker, W. R., Kibler, S. R., Wright, B. A., and Tester, P. A. 2020. Paralytic shellfish toxins in butter clam tissues. Outreach Publication. ASG MAB-78. June 2020

Smith, B., **Q.S.W. Fong**, and C. Sannito. 2020. Developing alternative product forms for Pollock roe. Final Project Report submitted to PCCRC.

Grants associated with KSMSC

- Alaska Sea Grant Omnibus
- Implementation of Community-based PSP Testing for Subsistence and Recreational Shellfish Harvesting in Southcentral and Southwestern Alaska
- Cooperative Monitoring of Harmful Algal Blooms and Paralytic Shellfish Poisoning on Kodiak Archipelago: Advancing Tribal Resilience and Subsistence Food Security
- Application of a quantitative molecular method to characterize abundance and distribution of *Alexandrium* Cysts for NOAA's HAB Forecasting
- Development of Value-added Market Opportunities for Pollock Co-products
- NIST/MEP
- AFDF Kelp Product Development
- Indigenizing Salmon Science and Management in Alaska
- NNA Track 2: Atautchikkun Iiitchisukluta: Coming together to learn: Co-producing knowledge across the Northwest Passage
- Tamamta Iqallupet Anirtungnaqluki: Conceptualizing Indigenous Approaches to Salmon Science and Management in Alaska
- Ecological controls of Alaskan pollock weight-at-length and size-at-age under rapid environmental change
- Cooperative Training and Research for Alaska Fisheries Science
- Alaska Smith-Lever 3 b/c
- 4-H Military Partnership Grant - AK
- Seafood Workshops

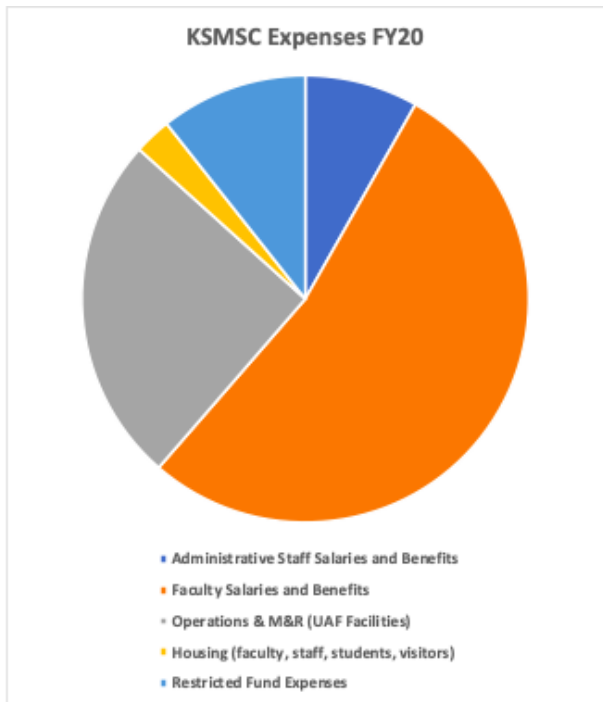
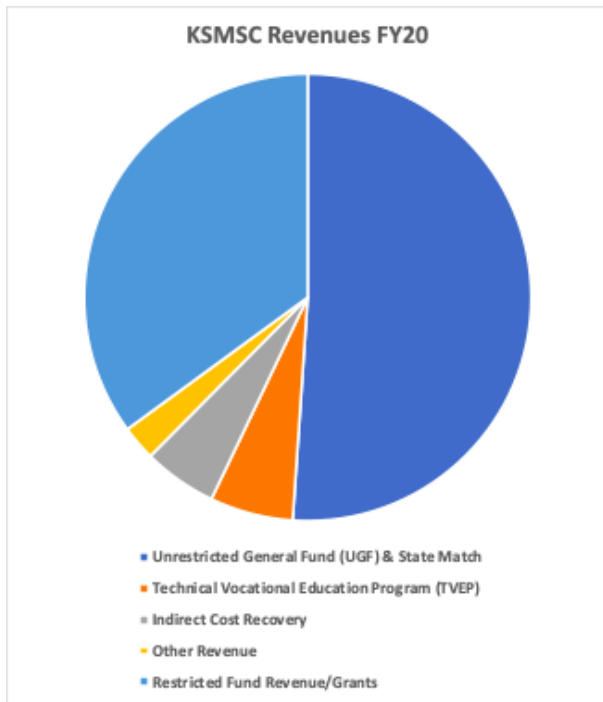
KSMSC Operations

Kodiak Seafood and Marine Science Center Budget, FY2020, \$1,425,957

Kodiak Seafood & Marine Science Center Annual Overview

<u>Revenues</u>	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
Unrestricted General Fund (UGF) & State Match	\$ 950,131	\$ 650,898	\$ 689,886	\$ 950,406	\$ 923,400	\$ 728,301
Technical Vocational Education Program (TVEP)	\$ 35,000	\$ 68,800	\$ 41,800	\$ 81,500	\$ 37,700	\$ 85,888
Indirect Cost Recovery	\$ 90,000	\$ 48,497	\$ 47,129	\$ 42,333	\$ 68,486	\$ 76,128
Other Revenue	\$ 3,429	\$ 105	\$ -	\$ 4,518	\$ 9,908	\$ 35,921
Restricted Fund Revenue/Grants	\$ 474,993	\$ 883,266	\$ 234,990	\$ 308,741	\$ 634,670	\$ 499,718
Total Revenue	\$ 1,553,553	\$ 1,651,566	\$ 1,013,805	\$ 1,387,498	\$ 1,674,164	\$ 1,425,957

<u>Expenses</u>	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
Administrative Staff Salaries and Benefits	\$ 119,668	\$ -	\$ 74,880	\$ 176,035	\$ 207,188	\$ 111,961
Faculty Salaries and Benefits	\$ 478,982	\$ 444,500	\$ 401,169	\$ 441,027	\$ 470,403	\$ 725,731
Operations & M&R (UAF Facilities)	\$ 428,914	\$ 299,000	\$ 302,682	\$ 311,254	\$ 311,903	\$ 344,851
Housing (faculty, staff, students, visitors)	\$ 16,330	\$ -	\$ -	\$ -	\$ 50,000	\$ 36,563
Restricted Fund Expenses	\$ 509,659	\$ 883,266	\$ 234,990	\$ 449,398	\$ 634,669	\$ 145,424
Total Expenses	\$ 1,553,553	\$ 1,626,766	\$ 1,013,721	\$ 1,377,714	\$ 1,674,163	\$ 1,364,530



Administration

- S. Bradley Moran, Dean, College of Fisheries and Ocean Sciences
- Quentin Fong, Marine Advisory professor, seafood marketing, KSMSC onsite coordinator

UAF CFOS Faculty Based at KSMSC

- Quentin Fong, seafood marketing specialist, Professor, Marine Advisory Program, KSMSC coordinator
- Mike Litzow, Research Assistant Professor, Fisheries
- Julie Matweyou, Marine Advisory Program agent, Associate Professor
- Chris Sannito, seafood processing specialist, Research Assistant Professor, Marine Advisory Program

Staff

- Alisa Abookire, Research Technician, College of Fisheries and Ocean Sciences
- Laurinda (“Kay”) Bodi, KSMSC Facilities Manager
- Danielle Ringer, Fisheries Anthropologist, Research Associate, College of Fisheries and Ocean Sciences
- Kate Schaberg, 4-H Program Assistant, Cooperative Extension Service

Alaska Research Consortium

The Alaska Research Consortium (ARC) is a community and industry 501(c)(3) non-profit, formed in 2016 to support sustainable seafood and the blue economy in the North Pacific. ARC Board President is Jay Stinson (fisherman) and Paula Cullenberg serves as executive director. Board members include Alan Austerman (former legislator), Shannon Carroll (Trident Seafoods), Duncan Fields (fisherman, ASMI board), Pat Jacobsen (former UA regent), Michael Kohan (ASMI), Tom Lance (Sun’aq Tribe), Matt Moir (North Pacific Seafoods), Susan Saupe (Cook Inlet Regional Citizens Advisory Council), and Jeff Stephan (fisheries advisor). Alaska Sea Grant holds an ex-officio seat on the ARC board. Quentin Fong, KSMSC coordinator, filled that seat during FY2020 and worked closely with ARC members over the year.

One of ARC’s priorities is to “support programs and ongoing sustainability of the Kodiak Seafood and Marine Science Center.” As such, ARC acts as a champion and advisor to KSMSC programs, faculty and staff. Currently, ARC is focused on workforce development and applied research for the seafood industry with the goal of more fully utilizing KSMSC.

In FY2020, ARC launched a project entitled “Alaska’s Seafood Future: Community Resilience through Workforce Development and Research Innovation” examining how to 1. support a stronger seafood applied research program in Alaska, 2. develop coordinated seafood workforce training program, and 3. enhance youth engagement with seafood career opportunities. Alaska Sea Grant serves as a partner in this project. The project surveyed 46 plant managers and 3 offshore company HR leaders, representing 17,000 workers from 25 companies in 24 communities across Alaska. An Action Agenda from the project outlines a number of recommendations to support the goals of the project and can be found on the ARC website, <https://alaskaresearchconsortium.org>.

In addition, ARC advocated for an increased use of the state’s Technical Vocational Education Program funds targeting the seafood industry. Despite annual contributions by the industry to the fund at about \$600,000, workforce training for this industry has been minimal. One outcome of the effort was approval by the University of Alaska workforce program for funding to hire a Seafood Workforce Training Coordinator with Alaska Sea Grant based at the Kodiak Seafood and Marine Science Center.



Members of the Alaska Research Consortium testify at the House Special Committee on Fisheries, with Representative Stutes presiding as Committee Chair.

Alaska’s Seafood Future - Community Resilience through Workforce Development and Research Innovation

The ARC created this statewide project to focus on workforce training, high school career awareness and applied research to support the resilience of communities and employees engaged in Alaska’s seafood industry. Project outcomes include a needs assessment, resource guide and action plan that will be relevant to seafood companies, community campuses and training centers, local high schools, and coastal communities across the state. The needs assessment survey was completed in April 2020 and illuminated key areas seafood processors are looking to develop training opportunities and identified positions that are difficult to fill due to lack of adequately trained personnel.

This project proposes to make the KSMSC a training hub for the statewide seafood processing workforce. Alaska Sea Grant will hire a seafood workforce development coordinator, a staff position based out of the KSMSC that will assist the ARC in developing courses to fill these needs. The coordinator will work with school district statewide programs to develop high school internship and training opportunities that will encourage young Alaskans to join the seafood processing workforce.