

SITKA SOUND SCIENCE CENTER
834 LINCOLN STREET
SITKA, ALASKA 99835



One Cent for Salmon

Silver Bay Seafoods proudly donates one cent to science research and education at SSSC for every can of salmon they sell.



Thank You

Sitka Sound Science Center would like to issue a heartfelt thank you to all our donors, members, and supporters. Our education and research programs would not be possible without your contributions.

SSSC BOARD

Rob Allen - Chair
Jacquie Foss - Vice Chair
Alana Peterson - Treasurer
Michael Mausbach - Secretary
Trish White - Member
Justin Penny - Member
Linda Waller - Member
Kitty LaBounty - Member
Elizabeth Bagley - Member

SSSC STAFF

Alex McCarrel - Research Coordinator
Amy Rowe - Retail Manager
Aubrey Miller - Finance Assistant
Bill Coltharp - Aquaculture Director
Blake Conaway - Facilities Manager
Chance Gray - Operations Manager
Haley Jenkins - Fish Culturist
Harry Wojtas - Jesuit Volunteer
Jacyn Schmidt - Geoscience Coordinator
Janet Clarke - Education Director

Jay Stilwell - Business & Marketing Director
Kristina Tirman - Education & Marine Debris Coordinator
Lisa Busch - Executive Director
Melissa Hamilton - Finance Director
Paul Cook - Hatchery Technician II
Ron Heintz - Research Director
Sandy McClung - Aquarium Manager
Sarah Tobey - Community Coordinator

LIFETIME MEMBERS (DONORS WHO HAVE GIVEN OVER \$5000)

Marilyn Blanck
Murray Bodine
Iris Busch
Jordan Busch & Nancy Corliss
Larry Calvin
Barbara Hames

Roger & Mary Hames
Bruce and Marth Karsh
Rose Manning
Hunter McIntosh
Rachel Myron & Steve Lewis
Bob & Mary Purvis

Sam Skaggs & Amy Volz
David and Margaret Steward
John & Jane Tisdale
Dirk & Trish White
Russ & Drew Wilson
Nancy Yaw Davis

SITKA SOUND SCIENCE CENTER

Rising Tide

NEWSLETTER 2021



Surviving & Thriving

Contents

Research	4
Education	9
Hatchery	13
Aquarium	14
Notable News	15
Planning Giving	16
WhaleFest	18



LAND ACKNOWLEDGEMENT

We are on Tlingit Aaní- Tlingit Land. The Tlingit people have been indigenous to this land for over 10,000 years, living their culture and tribal values. Gunalchéesh to the Tlingit people for their stewardship of Tlingit Aaní since time immemorial and today.

MISSION

The Sitka Sound Science Center is dedicated to increasing understanding and awareness of terrestrial and aquatic ecosystems of coastal Alaska through education and research.

VALUES

Integrity We model scientific integrity through evidence-based research and accessible educational programming.

Curiosity We believe that a playful curiosity of the world inspires innovation and growth.

Respect We honor and respect the history of this place and look towards its future to inform our present decisions.

Community We build relationships across our community in support of a shared appreciation for discovery and overall community wellbeing.

SSSC VISION STATEMENT

To be the leading scientific and educational institution in coastal Alaska through innovative, inspiring, and community-centered programming.



A THRIVING INVESTMENT

With salmon we often talk about survival. What does it take for a salmon to survive the formidable gauntlet of obstacles (eagles, orcas, rushing streams, changing ocean temperatures, sea lions and fishermen) and return to its stream where it first hatched out? The fact that any salmon make it back is a miracle that we here in Alaska get to witness each year. While we admire the way salmon survive, the Sitka Sound Science Center (SSSC) aims to thrive. With your support, more people are engaged in science education and research. This year SSSC has developed new programs with community partners, our facilities are upgraded, the salmon in our hatchery are returning and there is hope for the future.

Our lives have been so altered by a microscopic virus, it's easy to feel robbed of what we hold precious. But science research and science education – with its emphasis on creativity, curiosity and imagination – can restore some of what we've lost. Even with social distancing and masking, we all can find ways to put scientific thinking to work that helps us understand the world and each other a little bit better.

“My mission in life is not merely to survive, but to thrive; and to do so with some passion, some compassion, some humor, and some style”

—Maya Angelou

Through Sitka Sound Science Center's programs, we hope to help our community thrive even with a global pandemic.

Please consider Sitka Sound Science Center to be a thriving investment when you renew a membership, make a contribution, or put SSSC in your estate plan.



LET RESEARCH RING

From the top of Harbor Mountain to the beaches of Prince William Sound, along salmon streams near Juneau and in tribal communities around Southeast Alaska, Sitka Sound Science Center research collaborations were busy.

ing a landslide warning system for Sitkans. This team is focused on collecting and interpreting geoscience data, learning the most effective way to communicate landslide risk to the community, and understanding how the community absorbs that information and spreads it through personal networks. In addition, its learning how local tribes have perceived and adapted to landslides in the past. The team is now ready to start sharing those lessons with the community by providing a phone accessible dashboard that displays current and future landslide risk.

LANDSLIDE WARNING SYSTEM GETS DIGITAL

Predicting landslides is a tricky business. It involves climbing the steep mountains around Sitka to assess how wet the soil is, figure out how wet it will be in the near future, and use past experience to guess if that is wet enough to cause a slide. Or you could keep your clothes clean and dry and rely on a landslide digital dashboard being developed by SSSC and its research partners.

Since 2018 a small army of risk managers, geoscientists, climatologists, social scientists, and engineers have been develop-



Researchers check a tipping bucket on Harbor Mountain

It's an exciting time for the landslide research team because the different parts of the project are coming together. The sensing equipment installed on the hillslopes above Sitka provides continuous and reliable measurements of soil moisture and rainfall giving the geoscientists a good idea how much rain is necessary to saturate the soil with water. This is important because landslides occur when heavy rains saturate the soil with water. The social scientists conducted surveys with Sitkans to learn how they communicate information about landslides with friends and family. Learning about these social networks informs how to design a communication system that conveys information efficiently throughout the community. A software and data analytics company has now been contracted to help construct a dashboard that displays up-to-date information on landslide risk. The design of the dashboard is aimed at cell phones, but it will also be accessible from computers. The community has helped develop the format for the warning system through workshops that also update citizens regularly on the results of the social networking, oral history, and geoscience research. Insurance concerns were also addressed with a focused group of researchers and stakeholders who discussed challenges and solutions around insurance and landslide risk in Sitka.

Extreme precipitation events that cause landslides are expected to become more common creating greater risk for communities throughout Southeast Alaska. Many of those communities have approached SSSC with questions about how to develop their own systems and we are eager to share Sitka's experience. SSSC is grateful for the support provided by the National Science Foundation (NSF) Smart and Connected Communities (S&CC) program and our partners at RAND Corporation, University of Oregon, Oregon State, the University of Southern California, the Sitka Tribe of Alaska, and the Alaska Division of Geological and Geophysical Survey. Special thanks to our Federal partners: US Forest Service, US Geological Survey, and especially the National Weather Service.

COVID COPS AN ATTITUDE

You might not need survey results to tell you that COVID-19 changed our lives. But a new survey found that Southeast Alaska residents responded to the changes in unique ways. With funding from the National Science Foundation, SSSC in partnership with the Central Council Tlingit Haida Indian Tribes of Alaska (CCTHITA), and the RAND Corporation, conducted two surveys to communities throughout Southeast Alaska. One survey before the virus hit and one after. The objective was to record how perceptions of COVID-19 and local adaptations have changed during the pandemic. These data are helpful for local healthcare providers and Public Health officials. The questions in our surveys examined the potential effects of the pandemic on people's social, emotional, and economic well-being. In addition, questions were asked about masking and people's willingness to be vaccinated. To ensure that all sectors of Southeast Alaska communities were represented we also conducted oral interviews with tribal citizens in selected communities. While most Southeast Alaska residents believe their mental health has worsened during the pandemic, some Alaska Natives have noted improvements to their mental well-being.

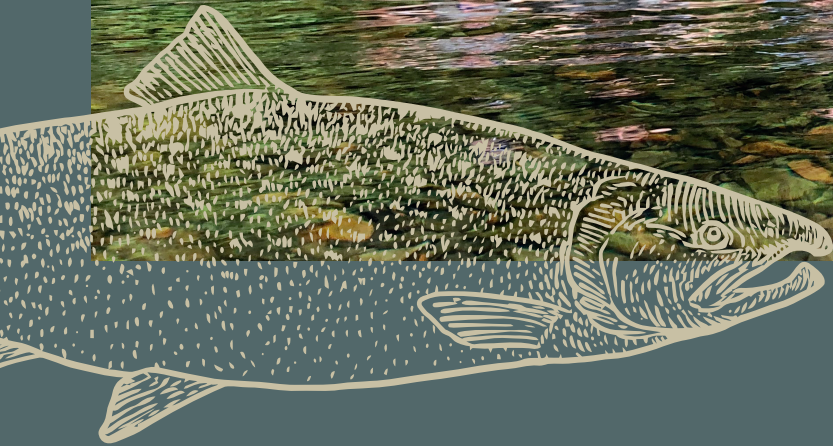
More Southeast Alaskans reported engaging in outdoor activities such as gardening, hunting, gathering, and fishing. American Indian and Alaska Native respondents particularly reported an increase in these outdoor activities. SSSC plans to host a post-doctoral researcher who will examine the extent to which the pandemic has caused people to defer healthcare and other indirect effects of the pandemic.



Eleanor Island, where Exxon-Valdez oil still remains

THE EXXON VALDEZ LINGERS ON

When the Exxon Valdez ran aground in 1989 scientists believed that winter storms would wash the oil off the contaminated beaches. In the years after the spill, it became clear that some of the oil remained on particular beaches. This summer, 32 years after the spill, SSSC researchers traveled to Prince William Sound to further document the persistence of the oil on these beaches. Researchers dug over 190 holes in the very rocky beaches. Work during the weeklong expedition included randomly selecting sites to sample for oil, digging holes to see if oil was present, and collecting samples of the oil we saw. Five beaches in Prince William Sound were surveyed, and sadly, yet unsurprisingly, all five beaches had various amounts of oil present. Sometimes it was just a light sheen while other times oil coated the rocks. The oil on these beaches is buried under a layer of rocks and boulders that protected it from exposure to air and waves. Consequently, the oil's composition is relatively unchanged since the time it made landfall. SSSC is partnered with the National Oceanic and Atmospheric Administration and the Exxon Valdez Trustee Council to monitor these established sites as part of a long-term monitoring effort. The data collected during this project and the ongoing observation of the sequestered oil is among the longest known records of spilled oil, providing scientists with invaluable information of how long oil affects rocky intertidals.



ALASKA HATCHERY RESEARCH PROGRAM

It's another amazing field season in the books for the Alaska Hatchery Research Program. Over six weeks, 12 dedicated field technicians intensively surveyed three streams near Juneau as part of a long-term study of interactions between wild and hatchery chum salmon. This year the streams experienced slightly below average chum salmon ('Téel') returns and pretty typical weather. Since 2013, SSSC scientists have worked with the Alaska Department of Fish and Game (ADF&G) to conduct field work to study hatchery reared chum salmon that stray into Southeast Alaskan streams. The goals of the program are to quantify the extent to which hatchery reared chum salmon stray into wild streams and spawn and evaluate the impacts of that straying on wild salmon. The project requires that we understand the ancestry of the salmon that return to spawn in the streams. Our ability to know who a fish's parents and grandparents were and if they came from hatcheries is a breathtaking advance in understanding salmon biology. It relies on technologies that were "science fiction" just a few decades ago.

This year, crew members walked over 300 miles to collect DNA samples, scales, and otoliths (fish ear bones) from over 980 chum carcasses and 259 live chum. Another first for this year was the development of a remote field camp 30 miles outside of Juneau, allowing crew to easily access one of the study streams. Crews experienced a major weather event during projected peak chum returns, with over 5 inches of rain falling over a 48-hour period around Juneau! The number of fish we observed this year was below average compared to previous years, though greater than the number observed in 2020. Region-wide the chum run was poor for the 2021 season, so the low numbers of samples may be typical of most streams. Samples are shipped to laboratories in Anchorage and Juneau for processing, with



results so far suggesting a large proportion of fish sampled in the three wild streams come from hatcheries. Despite the poor returns and weather obstacles, crucial data were collected to determine the origins of spawning salmon, which is critical information used to help ensure that we can enjoy salmon for many years to come.



Chum project crew at Prospect Creek

HITTING THE "SIRF"

The Scientist in Residency Fellowship (SIRF) at Sitka Sound Science Center brings scientists to Sitka for a one-month mini sabbatical. Scientists from a breadth of disciplines learn how to engage with rural Alaskans and communicate their research in a variety of outlets, while they listen and learn from local residents.



BRIAN BUMA

Getting on public radio station KCAW early on in his residency catapulted Brian Buma's popularity during his Scientist in Residency Fellowship in July. For the rest of his month-long fellowship he met with residents, fielded phone calls and hosted small outdoor events to talk with people about yellow cedar, landslides and forest ecology in the Tongass.

Brian Buma, an associate professor in the Department of Integrative Biology at University of Colorado, Denver, conducts research on disturbances like fire, wind, and landslides, and the subsequent change in species composition and ecosystem functioning. In Sitka he studies the relationship between landslides and forests. Funded by the National Science Foundation Buma, along with his collaborators, found that landslides in Sitka had shorter runout lengths as compared to landslides of similar volumes globally, likely due to large quantities of standing trees and large woody debris within the flows.



MAX IZENBERG

Social Networking is not just about Facebook, Instagram or Tik-Tok. As a SIRF, Max Izenberg introduced the community to the techniques social scientists use to figure out community connections. Izenberg is a doctoral student at the Pardee RAND School of Public Policy and works on the landslide warning project. His research is focused on disaster response and recovery, emergency preparedness, psychosocial resilience, disaster risk financing, and insurance markets. As part of his fellowship, he kept his fingers on the pulse of Sitka by monitoring Sitka Chatters, a community Facebook page, hiking with community members, and participating in Earth Day celebrations as well as local trivia night. He also met with two high school classes to discuss insurance issues associated with landslides.

SIRF 2021/2022

The Sitka Sound Science Center, through funding from Alaska NSF EPSCoR (National Science Foundation Established Program to Stimulate Competitive Research), has selected four Scientist in Residency Fellowship (SIRF) participants for 2021/2022. The SIRF program brings scientists to Sitka for one-month sabbaticals to allow scientists time to work undisturbed by their usual daily routine and provide them with community engagement opportunities to share their research and to learn from our community. This year's SIRF fellows are an impressive group of scientists from some of the nation's premier scientific establishments.



COURTNEY HART | FEBRUARY 2022

Courtney Hart is a PhD candidate at the College of Fisheries and Ocean Sciences at University of Alaska Fairbanks. Currently, her research draws on collaborative partnerships with commercial shellfish divers and growers, Alaska Native tribal entities, state, and not-for-profit organizations to investigate the interaction between harmful algal blooms and economically or culturally important shellfish species. Ms. Hart hopes to incorporate her biological and ecological skillset to develop modern and equitable management solutions for coastal fisheries stakeholders.



JULIE SCHRAM | APRIL 2022

Julie Schram recently joined the University of Alaska Southeast (UAS) Natural Science department as an Assistant Professor of Animal Physiology after finishing a Postdoctoral Fellowship with the Coastal Trophic Ecology Lab at the University of Oregon. She is working on projects that utilize fatty acids (the building blocks of lipids) to better understand invertebrate feeding ecology. Julie has taken an integrated approach to understanding how our changing climate may influence the ecologically and economically important species humans rely on.



JOANNA YOUNG | SEPTEMBER 2022

Joanna Young is a Postdoctoral Fellow in University of Alaska Fairbanks' International Arctic Research Center where she studies Alaska glacier mass loss in a changing climate. Originally from Ontario, Canada, Joanna obtained both her Masters and PhD in Geophysics from the University of Alaska Fairbanks. She also serves as Director of the Alaska branch of Inspiring Girls Expeditions, free science, art and outdoor experiences for high school girls and gender-expansive youth. Joanna is especially interested in understanding the impacts of glacier loss on downstream ecosystems and communities, such as Sitka.



SCOTT GABARA | MID-OCTOBER 2022

Scott Gabara is a postdoctoral researcher in the marine biology department within the College of Fisheries and Ocean Sciences at University of Alaska Fairbanks based in Juneau. Currently, Scott works on the impacts of glacial melt on nearshore marine communities, where he hopes to better predict how melting glaciers will affect marine flora and fauna. This information could be used by harvesters, aquaculture farmers, and the scientific community to better understand where and when glacier melt will affect the ocean and the people that rely on it.

BEND & STRETCH

Flexibility, serendipity, ingenuity, and transformation were hallmarks of our collaborations in science education this year.



Little to Big summer camp

SCIENCE FUN CAN'T BE MASKED UP

Summer campers in masks didn't put a damper on the fun. During the 2021 summer, SSSC hosted 8 camps, provided a venue for the Sealaska Heritage Institute STEAM camp and the 4H fish camp, and started an adult snorkeling club. The theme of the summer – cycles – offered a diversity of topics: life cycles (Little to Big) and the rock cycle (Camp Rock) for younger campers; water cycle (Waterworks) for upper elementary; and a nod to the salmon cycle (Revolution Engineering Camp), where middle-schoolers, with help from Sitka Tribe of Alaska cultural liaison Chuck Miller, designed and built a traditional smokehouse. Adult campers in Artistry of Algae collected seaweed and pressed their specimens while making their own sushi rolls, tasting a delicious variety of rolls from Little Tokyo Restaurant, and simply enjoying being sociable. Funding from the Alaska Community Foundation "Open for Summer" grant program supported our summer camps and specifically made the ambitious Build a Smokehouse camp possible.



Campers build a smokehouse

A SCIENTIST FOR EVERY CLASSROOM

Despite the constraints of COVID mitigations in our community, 11 different *Scientists in the Schools* (SIS) took place in Kindergarten through High School classes. SIS is an SSSC program that puts a visiting working scientist into each Sitka classroom K-12 every year. SSSC educators coordinate each classroom visit, provide pre-lessons, prepare the scientists, and work closely with the school district teachers to assure the lessons match up with the curriculum.

This year some activities, like the new 5th grade SIS, *Stream to Sea* were virtual for SSSC educators but facilitated by in-person classroom teachers. Others like the 6th grade, *Sediment Stories*, included a virtual visit by geophysicist, Dr. Rachel Lauer, but was in-person for both classroom teachers and SSSC educators who led related activities about interpreting sediment cores. A much-expanded 7th grade unit, *Shrimp in Hot Water*, included the entire 7th grade academic team along with form-line artist, Mark Sixbey and STEAM teacher, Caitlin Woolsey. Students experienced a wide-ranging exploration of shrimp's anatomy, life cycle, and metabolism through scientific illustration and form-line expression. With additional discussions of social science, subsistence harvesting, policy and government regulations. For this unit, SSSC educators and marine biologist Jamie Musbach, were all virtual but we delivered trays of shrimp and other sup-

plies to the school for use by every 7th grade student. By the end of the school year, we were able to enthusiastically welcome our littlest learners – Kindergartners and 1st graders – into the building for *Seabird Studies* and *Top of the Rock/Bottom of the Rock* on the beach. Finishing the school year with in-person Scientists in the Schools gave us optimism about the next year. And sure enough, in the second week of this new school year, SSSC geoscience researcher, Jacyn Schmidt and SSSC educators were in the 9th grade classes for another new SIS - *Slope, Soil, and Rain*.

This program received funding during 2020-2021 from Mt. Edgecumbe High School and a generous donation from Iris Busch, staunch supporter of Sitka Sound Science Center. In the coming year we are thrilled to accept funding from EPSCoR (Established Program to Stimulate Competitive Research) and Royal Caribbean/Alaska Travel Industry Association for Scientists in the Schools.

NO BREAK FOR OCEAN PLASTICS DURING THE PANDEMIC

SSSC’s marine debris program spent time on the beaches and in the classroom. All 5th grade students at Keet Gooshi Heen Elementary School became marine debris experts during a Scientists in the Schools lesson exploring waste pathways in Southeast Alaska and sources of marine debris. As the calm and sunny spring weather arrived, SSSC Marine Debris Coordinator, Kristina Tirman, organized volunteers from a variety of organizations to hit the shores of Kruzof Island each month from April through September to pick up garbage and raise awareness of the issue with funds from Alaskan Brewing Company’s Coastal CODE Program. Volunteers included community members from Sitka AmeriCorps, Spruce Root, Sitka Conservation Society, Northern Southeast Regional Aquaculture Association, Southeast Alaska Regional Health Consortium, and staffers from U.S. Senator Dan Sullivan’s office. The University of San Francisco undergraduates in Sitka for a field course, also volunteered their time to clean up beaches.

Memorial Clean Up Pays Homage to Surfer

Sitkan Jamie Gorman loved the surf on South Kruzof, an area that gets a particularly large amount of marine debris. After Jamie passed away, his family created a marine debris fund at the Science Center where donations could be made in Jamie’s honor. Facilitated by SSSC, friends and family gathered on a glorious spring day to pick up over 4,000 pounds of garbage on the big black sand beach south of Shoals Point on Kruzof Island. The U.S. Coast Guard and Esther G Sea Taxi helped transport the trash to town with funding from the Jamie Gorman Memorial Fund.

Trash Talking

The “Talking Trash” summer camp – a Family Camp that welcomed participants of all ages – dedicated a long day on the beach for a clean-up on Kruzof Island and then, with guidance and leadership from local artist Pat Kehoe created a remarkable marine debris sculpture titled, “Sentinel of the Sea”, now displayed in the Aquarium.

Wracked plastic

SSSC piloted a study on the effects of marine debris within the microhabitat temperatures of wrack lines on the beach. A wrack line is the area where seaweed and small organisms collect at the top of the tide line. While we know that marine debris can cause entanglement, end up in the food chain, and is unsightly, we also are interested in what impact marine debris has on our inshore habitat.



Kids participate in our Science on the Go for Youth program



Sitkan Artist, Pat Kehoe puts the finishing touch on Sentinel of the Sea in the family camp, Talking Trash.

EDUCATION PROGRAMS

Science on the Move

The much-loved preschool program, Sprouts became the *Sprouts-to-go Club* and dedicated families picked up their weekly activity bags from our rain-proof containers outside the doors. *Our Science on the Go for Youth (SOGY)* van made weekly trips to different neighborhoods for outdoor science and cultural activities geared to elementary students hungry for science. Each of the 8 neighborhoods from one end of Sitka to another were visited 16 times over the fall and winter months.

DIFFERENT VIEWS, ONE WORLD



Chuck Miller, cultural liaison for the Sitka Tribe of Alaska, shares his culture with SSSC

The Sitka Sound Science Center wants to elevate Indigenous knowledge systems and advance research respectful of Indigenous ways of knowing.



Tommy Joseph carving a totem pole - Photo by Rich McClear

SPOTLIGHT: TEACHERS TEACH TEACHERS

Families in fishing towns have strong opinions about the best way to prepare smoked salmon. But most haven't had the experience to know Tlingit traditional practices of preserving salmon. The newly constructed smokehouse behind the Science Center inspired SSSC educators to become students of Pauline Duncan, a Tlingit elder and retired teacher, who generously, and patiently, devoted her time to teaching the traditional skills for smoking local fish. Gunalchéesh to Pauline for generously sharing her expertise.

Full STEAM Ahead

SSSC is excited about a number of programs that will infuse culturally responsive values and content into current and future programming. During the 2021 year, the education department added a new position dedicated to establishing and enhancing productive partnerships with tribal entities throughout our community and region. With funding from Sealaska Corporation, SSSC will offer an after-school "Fab Friday - Techno" club for middle-schoolers who will combine understandings they already have about our place with cool new learning using robots, sensors, drones, and other technology platforms. Such skills will find a new home at the high school in the already available science and vocational courses available to students. SSSC is working on plans to institute after-school intensives that offer experiences in field camp skills and deploying and troubleshooting of field research instruments. Sealaska and SSSC are committed to equipping Southeast Alaska students, who have life experience, and cultural values that dovetail with employable skills that will position them for recruitment by many industries and agencies.

ASK AWAY!

A new aquaculture education program, *Alaska Aquaculture Science Knowledge (ASK)*, aims to get more rural students into the workforce. Supported by the National Science Foundation and in partnership with the Sitka School District, Mt. Edgecumbe High School and University of Alaska Southeast Fisheries Technology program, SSSC has developed an approach to expose high school students to careers and further academic pursuits in aquaculture that integrates rural and Alaska Native culture. ASK brings students from all 3 local high schools to the SSSC hatchery each week as part of an established course at their school. Teachers provide supporting instruction and related activities throughout the semester in classes. Through ASK, UAS Fish Technology professor Angie Bowers and SSSC staff will bring together representatives from the aquaculture industry to meet and discuss job needs specifically for our high school kids. The program provides for mentored research projects related to marine science, aquaculture and mariculture and paid summer internships at the SJ Hatchery.

Field Courses: Something Old and Something New

University of San Francisco (USF) brought students to Sitka this year for a field course as they have done for well over a decade. A field course is a class for credit that allows students to have hands on learning experiences. Led by anthropologists George and Sharon Gmelch, who have dual appointments at University of San Francisco and Union College, the “Culture and Environment” class at USF brought undergraduate students studying a breadth of disciplines to experience Sitka’s outdoor laboratories from the forest to the ocean. For field courses, SSSC coordinates local experts who teach the students on subjects such as Tlingit culture, fisheries, forestry, and tourism. Along with our oldest field course we hosted a brand new one with Johns Hopkins University titled, “Natural Resources Sustainability” which brought graduate students in environmental policy from all over the nation to explore aspects of fisheries, forestry, and hydroelectric power. Dr. Jerry Burgess’ interest in history inspired the new field course experience – learning about Sitka’s mining history by hiking up to the Lucky Chance mine with our former mayor and Mt. Edgecumbe High School physics teacher, Matt Hunter. Both field courses stayed on the dormitories of the Sitka Fine Arts Camp on the Sheldon Jackson Campus across the street from SSSC.



Volunteer Spotlight

Wendy Alderson, a local resident, fisherman, and Sitka Planning Commission member is part of the “menu” of experts SSSC provides when students and other science visitors come to our community. Wendy takes the students on a dock walk and with affable, competent style teaches about different fishing boats, practices, regulations, and politics. She sometimes invites students on board her family boat so they can get a feel for a real commercial fishing boat.

SWiMers Grow

Science with Math (SWiM) – a math intervention partnership with Blatchley Middle School – added an 8th grade curriculum during this last school year. In SWiM, 7th and 8th graders join SSSC educators and middle school teachers for hands-on science and related applied math practice. This year, 8th graders participated in modules built around the concept of slope and linear equations. We explored slope in construction and made suggestions to our facility and operations managers for the slope of the beach ramp that needs to be constructed. We investigated using direct measurement and learned how to analyze trends in living things. For example, we derived a formula for sport fishermen to use for predicting weight based on length of salmon. SWiM is supported by a grant from the Aim High program of New York Life Foundation and for the coming year, funding from the Sitka School District.

Ocean Bowl Surges Ahead

“Ocean Bowl” – an ocean science quiz competition for high school students – is one of the most anticipated events of Sitka WhaleFest, as students from Southeast Alaska gather for an exciting competition. However, in a response to COVID-19, the 2020 and 2021 WhaleFest Ocean Bowl competition went virtual and students from the region missed the collegial experience of meeting each other and scientists in person. Still, SSSC looked for adventurous ways to enhance the Ocean Bowl experience. With funding from the Crossett Fund, teams in Sitka, Ketchikan, Juneau, Cordova, and Gustavus were able to strengthen team culture and ties to their own outdoor marine environment with activities that included whale watching, kayaking, paddle-boarding, and other team-building activities in their home community. The Crossett Fund made it possible for students to connect regionally and to grow their own Ocean Bowl team in a year that challenged the survival of many academic electives. The National Ocean Sciences Bowl addresses gaps in environmental and earth sciences in public education by engaging students in ocean science, preparing them for ocean-related and other STEM careers and helping them become knowledgeable citizens.

Communication Required

Choosing only the juiciest details is part of good storytelling. And one of the points made in the science communication training SSSC requires of all researchers utilizing our field station. The hour-long training exposes scientists to the ideas of knowing your audience, telling a good story (such as building a story arc, selecting only a couple of memorable details, explaining why we should care, adding humor, failures, excitement, tension) avoiding scientific vocabulary, learning to listen, and avoiding the pitfall of PowerPoints. The instruction, also includes a conversation about why community engagement is important, and suggestions for researchers can give back to the community after their research is complete.



SJ Aquaculture students taking eggs in the newly constructed spawn shed in the early 1980's

HATCHERY

GETTING SPIFY

The Spawning and Incubation Facility (SPIFY) is finally under way. With major funding from the Murdock Trust and the Rasmuson Foundation, and hopes of other foundation support, the facility construction began this fall. Douglas Island Pink and Chum (DIPAC) and Northern Southeast Regional Aquaculture Association (NSRAA) kicked off the project with design funds for a building that will replace a 1970s era “spawn shack” that was built by the students at Sheldon Jackson College. The new building, designed by Tetratex of Juneau, will co-locate the incubation and spawning operations in one area, making our processes more efficient and cost effective and easier for visitors and students to view. It will upgrade the aging fish ladders and raceways and regrade the area to make it safer for our staff and visitors. We envision the new structure will improve our ability to teach about salmon culture and the rising mariculture industry as it will provide modern equipment in which to train the future aquaculture workforce. Cargill Inc, which is a major fish food provider, is also supporting the project.



Hatchery crew shocking eggs as part of the picking process.

COST RECOVERY: WE'RE IN THE PINK

2021 was a banner year for salmon returns to SSSC. Over 280,000 pink and chum salmon returning to the waters of Sitka Sound made for a record cost recovery catch this year. Cost recovery fishing is when a hatchery recoups the cost of operations by hiring a commercial fisherman to catch some of the returning salmon, which are then sold to a processing plant. The fisherman takes a percentage, and the hatchery gets the rest.

This year, the number of fish returning, coupled with high market prices, meant SSSC earned more than double what was expected. Over 620,000 pounds of pink salmon and 80,000 pounds of chum salmon were landed. Special thanks to the captain and crew of the Lucy-O for a successful season.

This year's pink return was especially sweet for our Fish Culturist, Haley Jenkins. Haley joined the team in 2019 as the hatchery technician, right after she graduated from Virginia Tech. At the end of her one-year term, her enthusiasm and leadership abilities earned her a job offer as SSSC Fish Culturist. These pink salmon were the first salmon Haley ever spawned with us, bringing the salmon cycle full circle.



Salmon eggs have “eyed up”

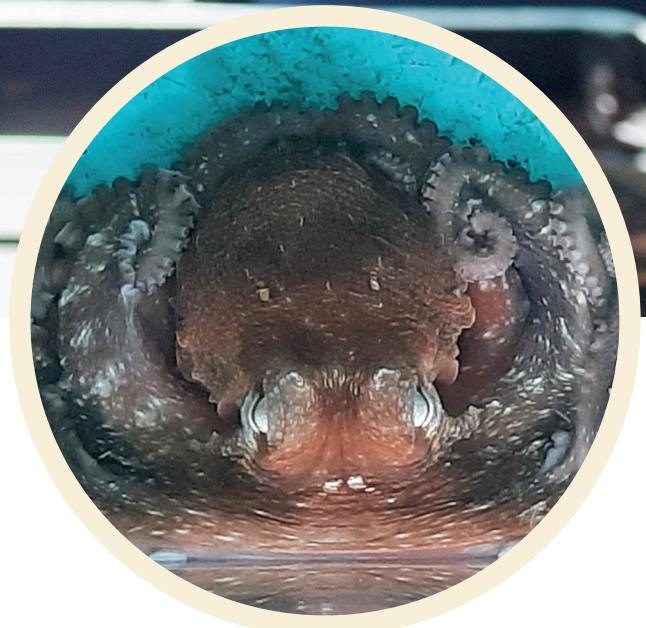
THE STORY OF KINGS

On top of pinks, chums, and coho, the hatchery crew has also taken on chinook salmon. For the last couple of years, the Northern Southeast Regional Aquaculture Association (NSRAA) has been using our facility as a release site for chinook. We receive **400,000** Chinook in mid-April for about 2 weeks while they imprint on the saltwater and are released along with hatchery coho. This year was the first year that chinook started returning as part of this program. While not many returned this year, the team expects to see more as the years go on.

The hatchery received an additional 40,000 juvenile Chinook salmon from NOAA's Little Port Walter research station which is located on the east side of Baranof Island. The agency discontinued its chinook culturing program this year and dispersed their brood stock to both SSSC and NSRAA. Our hatchery staff and aquaculture students are rearing these in addition to our coho salmon. In the spring, the fish will be transported to Deep Inlet to be released.



AQUARIUM



X'AAN the Octopus

THINKING BIG FOR THE AQUARIUM

With a special donation from Liz Bodine and her family, SSSC is redesigning the Molly O. Ahlgren Aquarium.

The goal is to create a larger, more accessible space that brings Sitka's intertidal and subtidal ecosystems to our visitors. SSSC is working with MIG, a design firm that specializes in zoos and aquariums, to create the conceptual design. Last spring, MIG helped lead a community workshop in which we solicited suggestion and ideas about the redesign from over 80 community members. The plan is to include tidepool touch tanks, a large floor-to-ceiling kelp tank, larger habitats for octopus and more. This design, and the first steps of construction for the new aquarium, have been possible through generous donations from Liz Bodine, of California, and her family. Liz, who passed away in 2021 believed strongly in the importance of creating opportunities for children and students of all ages to connect with our natural world. While not all of us can SCUBA dive, Liz's donations will help bring Sitka's underwater world to everyone that visits SSSC. We are so thankful to Liz and her family for their continued support of SSSC.

For more information about this project or to find out how you can contribute contact Lisa Busch at lbusch@sitkascience.org

X'AAN JOINS THE TEAM

In June, the aquarium was excited to receive a young Giant Pacific Octopus. This little male was brought in by local fisherman Jeff Turner, who caught him in his gear and knew the Aquarium was looking for an octopus. When he arrived, the young octo-

pus weighed about a half a pound. After SSSC members voted on a name, he was officially named X'aan, which is Tlingit for red or fire. After a few weeks of settling in, X'aan was placed in a display exhibit, giving visitors the opportunity to see an octopus up-close and to learn about their amazing life history and intelligence.

NEW EXPERIENCES OFFERED FOR VISITORS

This summer, SSSC launched new tour experiences for visitors. In addition to our regular general admission and hatchery tour, we offer a Behind-the-Scenes tour. During this 90-minute tour visitors get a more in-depth look at the research side of SSSC and guests gain access to areas not typically open to the public. We also created two hands-on experiences, Aquarium 101 and Hatchery 101, that allow guests the opportunity to learn what it takes to run a public aquarium or work in a salmon hatchery. Activities include collecting animals and prepping food for the aquarium and sampling fry and collecting otoliths in the hatchery. These hands-on activities are offered year-round.

NOTABLE NEWS



BACK IN THE SAWMILL AGAIN

The summer season at the Mill Building saw steady business with independent travelers visiting and cruise ship passengers beginning to arrive at the end of July. The combination of Ludvig's Chowder Cart within our retail store and our merchandise focusing on sustainable and local products provided visitors with lots of options. We are excited our partner, Ludvig's remained open this fall, with daily specials and their amazing chowder for Sitkans to enjoy as the weather gets stormy and the days a bit shorter. If you have a chance, try the coconut milk, Chai hot chocolate which is a SSSC staff favorite.

BOX IT UP

SSSC is grateful for the City of Sitka's contribution to the Sheldon Jackson Hatchery through the Fish Box tax, which are funds collected from guided sport clients. Each box of fish that leaves Sitka is taxed \$10. According to an ordinance that was approved by Sitka voters, half of those funds go to the Sitka Harbor Fund and the other half is distributed to organizations that are doing fishery enhancement work and apply through grant funds approved by the City and Borough Assembly. This year the grant to SSSC was \$14,000.



WORKERS WANTED: PACIFIC HIGH APPLY

SSSC patrons Bob and Mary Purvis generously set up two positions this year at the Sitka Sound Science Center meant for Pacific High School students. The students from the alternative high school work a regular after-school schedule and learn on the job about hatcheries, maintenance, or education. During the school year our students were Gabe McClelland and Angeline Bigelow. Angeline also worked at SSSC this summer and quickly became a valuable team asset. Set on a vocational training education track after high school, Angeline's job includes painting, woodworking, pipe maintenance, and a variety of other trade skills.



PHS student Angeline Bigley with Bob and Mary Purvis

PARDEE STUDENTS

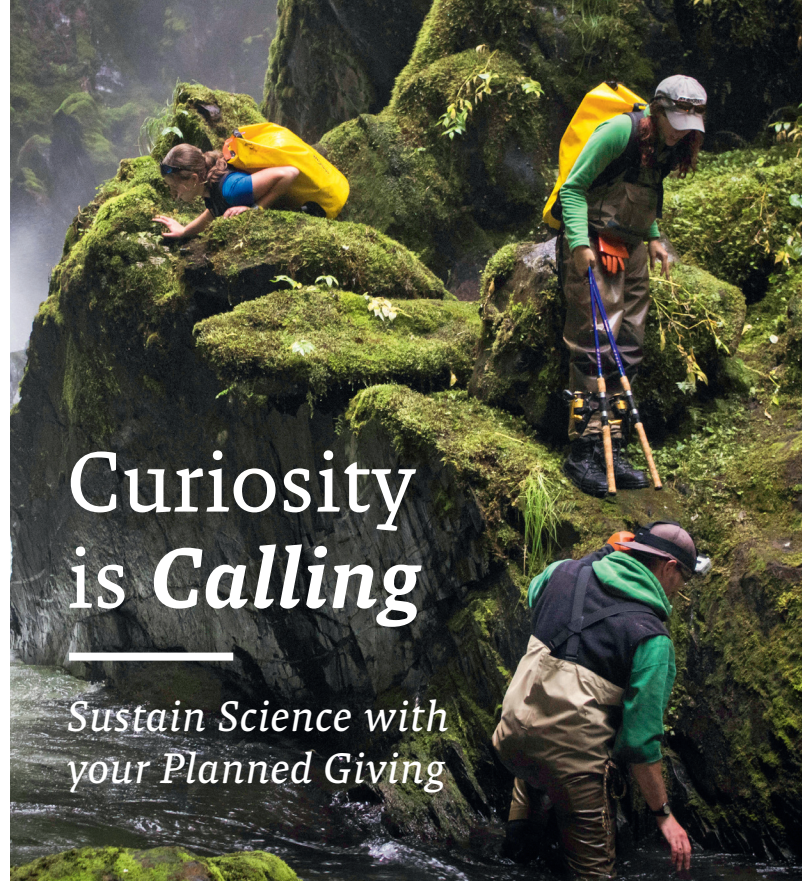
Municipal composting has long been an interest for many in the Sitka community. Without a local landfill, or incinerator, all of Sitka’s trash is transported to eastern Washington. The costs to barge our solid waste that far are high. A Pardee RAND School of Public Policy extern worked on this topic this year. Zhan Okuda-Lim, one of the Pardee PhD students, worked with community organizer Doug Osbourne to create a paper of what is possible and what the costs will be for operating a composter. This year, six public policy students worked with different community-based organizations to research a variety of topics from equity issues with the Climate Change Task Force, to hydroponic farming for the Sitka Conservation Society. The Pardee School, based in Santa Monica, California has made a 10-year commitment to partner with Sitka creating a two-way street in which PhD policy students get on the ground experience with real life rural issues while they work with different nonprofits. They worked with Sitka Food Co-op, Sitka Conservation Society, Sitka Tribe of Alaska, and Alaska Longline Fishermen’s Association. SSSC coordinates training for the students with local experts who help familiarize the students with local culture and issues, so they learn how to navigate and work in Sitka and rural communities.



Pardee students Zhan Okuda-Lim, Priya Ghandi, and Lisa Birdie

YES, WE CAN CAN

Silver Bay Seafoods is a staunch supporter of science through its One Cent for Science program which provides one penny for every small can of salmon it produces. This program helps to fund various Science Center programs and in 2020 Silver Bay donated over \$100,000.



Curiosity is Calling

Sustain Science with your Planned Giving

Knowing how to ask questions is important now and will be critical to our future. Science is about the search for answers. It requires people who are courageous in their thinking and curious in their approach. Sitka Sound Science Center celebrates and supports human curiosity through scientific research and science education. With your help we can assure that these things remain. By setting aside assets through your estate planning, you will nurture and celebrate scientific understandings for future generations. Consider these ways to leave funds to the Sitka Sound Science Center (SSSC) Sustainable Development Endowment Fund set up at the Juneau Community Foundation:

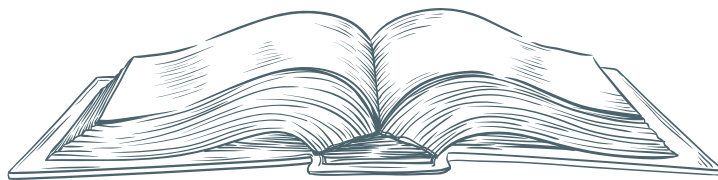
- Simple language in your will that leaves 1-5% of your estate to the SSSC Sustainable Development Endowment Fund
- Putting SSSC as your beneficiary on your 401K or your IRA
- After age 72 if you give funds directly from your IRA to the Sustainable Development Endowment Fund you can avoid paying taxes on the withdrawal.
- To begin a conversation about planned giving contact [Lisa Busch lbusch@sitka-science.org](mailto:Lisa.Busch@sitka-science.org)



Lauren Bell with her new SSSC fry, Lione Rae Bell.

FAMILY UPDATES

SSSC celebrates a new generation of science curious with babies being born from current and past SSSC employees. Congratulations and Best Fishes go to Lauren Bell (Lione Rae) Lauren Wild (Grady Paul), Alex Thorne (Lily Ann), Melissa Bunney (Olive Scott), Rachel Klein (James). Also cheers to Jay Stilwell on his marriage.



A LIBRARY FOR THE AGES

With grants from the Skaggs Foundation and the Rasmuson Foundation, we upgraded the Steward library and made a special place for resources, networking and contemplation. Mike's Floors brought the wood finish back to the library floor so the raw beauty of the Doug Fir boards shines. Asbestos tiles were removed appropriately, a new rug was purchased, new library shelves and new chairs sit elegantly around a new conference table (built from old floor boards from the Sitka Sawmill building) by volunteer extraordinaire John Liddle. The library is named for Marge and David Steward who have been strong and consistent donors since our inception.

NEW FACES



JACYN SCHMIDT

Geoscience Coordinator



ALEX MCCARREL

Research Coordinator



JAY STILWELL

Business and
Marketing Director



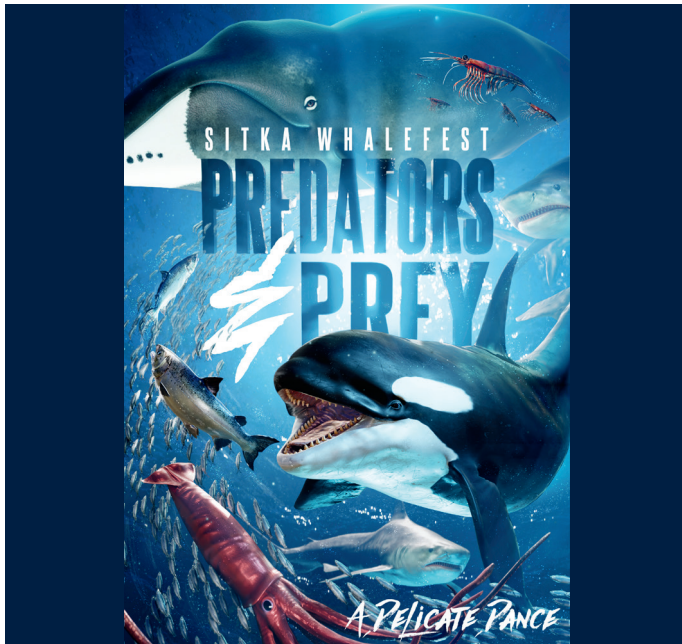
**MICHAEL
MAUSBACH**

New Board Member



HARRY WOJTAS

Jesuit Volunteer Corp
Northwest



SITKA WHALEFEST

The 25th annual Sitka WhaleFest was one for the books. The hybrid event eased us back into group activities with some in-person and some virtual events. A virtual science symposium allowed us to bring science presenters from across the globe and have more attendees than ever before. More than 430 people gathered online to listen to the presentations. Meanwhile, the ever-popular Wildlife Cruise, FilmFest, and 5K Fun Run were in person. This year’s theme, Predators & Prey – A Delicate Dance, brought in speakers from as far away as Tasmania, and as close as Petersburg Alaska, and covered topics from krill to sperm whales and everything in between including sharks, herring, black cod and whale poop.

Photographer and videographer Paul North screened his new movie about Antarctica called *Winter in Antarctica* that blends dances from cirque performers in Las Vegas with his videos of microscopic marine life in Antarctica to tell a story about change on the White Continent.

New WhaleFest events for this year included Symposium Viewing Parties and Adult Workshops. People gathered at one of four spots around town to watch the virtual lectures in small group settings. Special thanks go to the Alaska Raptor Center, the Mean Queen restaurant, and University of Alaska Southeast for hosting these gatherings.

The new workshops offered adults the opportunity to participate in some hands-on activities, much like college and high school students receive during WhaleFest. The three workshops included snorkeling (and a post ocean swim sauna!); observing a marine mammal necropsy and learning about the wild food sources available here in Sitka.

As always, Sitka WhaleFest would not be possible without volunteers and generous sponsors. Many thanks go out to Alaska Sea Planes, Allen Marine Tours, Alaska.org, First National Bank of Alaska, North Pacific Research Board, Saltchuk – a Family of Companies, the Science Festival Alliance, Sitka Salmon Shares, and the Southeast Alaska Regional Health Consortium (SEARHC).

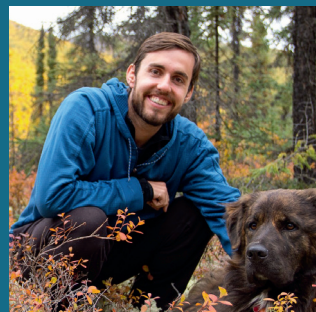
MEET THE SCIENTISTS BEHIND THE SCIENCE

Ever wonder what it takes to put together a science symposium? For Sitka WhaleFest, there is a dedicated team of working marine mammal scientists who volunteer to guide the symposium from theme development through the last lecture.



MICHAEL CASTELLINI

Dr. Michael Castellini is a retired marine mammal biologist, professor and former dean at the University of Alaska Fairbanks.



CASEY CLARK

Casey Clark, the Lead Marine Mammal Researcher with the Washington Department of Fish and Wildlife, has studied the biology and ecology of marine mammals for more than 15 years.



LAUREN WILD

Lauren Wild teaches biology and fisheries technology courses as an Assistant Professor at the University of Alaska Southeast in Sitka.



MADISON KOSMA

Madison Kosma works on Cook Inlet beluga whale issues as an Alaska Sea Grant Fellow with the National Marine Fisheries Service.

MEMBERSHIPS

SEEDLING

\$30

Unlimited admission for 1 person for 1 year

SEASTAR

\$50

Unlimited admission for 2 people for 1 year

GRIZZLY

\$75

Unlimited admission for 3 people for 1 year

Love to visit the Science Center or have your kids participate in our Summer Camps? We've got a membership level that's right for you!

SALMON

\$100

Unlimited admission for 5 people for 1 year & 25% discount on Summer Camp registration

HUMPBACK

\$200

Unlimited admission for 8 people for 1 year, SSSC water bottle & 25% discount on Summer Camp registration



**DONOR
CIRCLE**

Want to take your Sitka Sound Science Center membership to the next level? Become a member of our Donor Circle. This program is for those who go above and beyond for the Sitka Sound Science Center. Your support helps maintain our facilities and programs, such as the aquarium, hatchery, Sprouts, WhaleFest and many more.

TECHNICIAN

\$300

CRITICAL THINKER

\$1,000

MENTOR

\$2,000

INNOVATOR

\$5,000

Visit www.sitkascience.org/donate for more information on membership and donor circle benefits