



**SITKA SOUND
SCIENCE CENTER**

**SITKA SOUND SCIENCE CENTER
SCIENTIST IN RESIDENCY
FELLOWSHIP**

and

**SCIENTISTS IN THE
SCHOOLS PROGRAMS**
An Evaluation



ALASKA
NSF EPSCoR
ADVANCING GEOGRAPHIC DIVERSITY IN STEM



Report by Erica Ebert, Alaska Sea Grant State Fellow

Table of Contents

Executive Summary	3
Key Findings	4
Strategic Recommendations	4
Background and Objectives	5
Strategic Framework and Vision	7
Program Objectives.	7
Target Population and Resources.	8
Evaluation Questions	9
Gathering of Data	10
Key Themes and Findings	12
Researchers Building Community Connections	12
Community Outreach	14
Education Outreach	17
Balancing Personal Projects	25
Implementation of the Program	26
SIRF Preparedness	26
SIRF Communication and Community Training	28
SIRF Housing Accommodations	30
SIRF Office Accommodations	30
Program Outreach Materials	31
Suggestions by Past SIRF Participants	32
Summary of Key Findings	33
Literature.	36

Executive Summary

This evaluation report details the comprehensive impact of the Scientist in Residency Fellowship (SIRF) and Scientists in the Schools (SIS) programs, which have been operated by the Sitka Sound Science Center (SSSC) since 2012 to foster scientific literacy in rural Alaska. These initiatives are built on the theory of change, that by connecting professional researchers with K–12 students and the broader community, they can strengthen science identity and strengthen relationships between researchers and the community. Sitka students consistently outperform the state average in science proficiency, a trend also seen in Cordova and other “science hubs,” suggesting that the presence of such centers significantly supports academic achievement. Beyond standardized metrics, the programs have broken down traditional stereotypes of scientists through place-based, experiential learning that integrates local geography. Furthermore, SIRF serves as a valuable professional development tool for researchers, who gain skills in science communication and build relationships with local community members. To strengthen these programs, this evaluation recognized a need for more proactive communication regarding fellow logistics, and to better support local educators by ensuring that classroom activities align with state testing standards.



KEY FINDINGS

- » **Community Impact:** Sitka has developed a “culture of community curiosity,” with residents showing a high level of engagement and scientific awareness. Events like the Natural History Seminar Series draw significant crowds (75–85 attendees) and have a dedicated local following.
- » **Educational Excellence:** Sitka School District students consistently perform above the Alaska state average in science proficiency. Similarly, Cordova—which has a science center that focuses on education outreach—also sees higher-than-average test scores, suggesting these outreach programs effectively support student literacy.
- » **Researcher Growth:** Visiting scientists value the professional networking opportunities, which may lead to long-term collaborations with local industry, government agencies, and SSSC. Many report that the fellowship fundamentally changed how they plan to integrate community engagement into their future research. Additionally, researchers greatly appreciate the break of routine and report having ample time to complete their professional goals, such as manuscript and grant proposal writing.
- » **Place-Based Learning:** The programs successfully link scientific concepts to local geography, locally important species, and Indigenous knowledge (e.g., using Lingít names for volcanoes and species), which helps dismantle stereotypes and strengthens student science identity.

STRATEGIC RECOMMENDATIONS

- » **Communication and Preparation:** Proactively identify a fellow’s target “user group” (e.g., commercial fishermen or regulatory agencies) during the planning phase to maximize professional benefit. Furthermore, preparation should begin well in advance of the start of the fellowship to ensure the fellow can manage personal logistics and strategically plan their personal goals with scheduled outreach events and community activities during the month stay.
- » **Standardization:** Ensure lesson plans explicitly cover concepts required for state standardized testing to better support teachers’ curriculum requirements. Record details on what worked after conducting lessons, to aid in smooth delivery of the lesson in future years.
- » **Outreach Expansion:** Increase engagement with Mount Edgecumbe High School to better serve underrepresented students.
- » **Data Collection:** Implement consistent pre- and post-surveys for both students and teachers to better quantify shifts in attitudes and concepts of science. Additionally, create feedback surveys for community outreach events such as the Natural History Seminar.

Background and Objectives

The Sitka Sound Science Center (SSSC) is a 501(c)(3) nonprofit corporation based in Sitka, Alaska. Previously a part of Sheldon Jackson College, SSSC is now a community science center that hosts an aquarium, hatchery, researchers, and education outreach staff.

Engaging, hands-on science education programs, built in collaboration with professional scientists, offer rural Alaskan students exposure to a broad spectrum of sciences and can develop and strengthen their ability to see themselves as potential scientists. Since 2012, SSSC has operated the Scientist in Residency Fellowship (SIRF) program that functions as a mini-sabbatical to support research, collaboration, and community-centered science communication across rural communities in Southeast Alaska. This program's main goals are:

1. Pilot an educational scientific outreach program that will benefit scientists and K–12 public school children.
2. Encourage Alaska Natives to engage in scientific thought and pursue scientific careers.
3. Allow scientists time to work on completing projects or to reflect on how their work can be better integrated into other scientific studies.
4. Provide small communities and students exposure to scientific research by making science accessible and relevant in the subarctic.

5. Help students meet the Alaska State curriculum science standards through innovative educational methods.

To support these goals, SSSC provides fellows with lab space, administrative support, science communication training, and coordination of community engagement opportunities. This structure allows researchers to focus on their work while simultaneously fostering scientific literacy within the community of Sitka.

In addition, SSSC has a Scientists in the Schools (SIS) program that has been ongoing for two decades. While sharing the education outreach goals of SIRF, SIS operates on a more concentrated timeline, with visiting scientists performing classroom lessons for only one week. Both programs collaborate with visiting scientists to bring interactive, experiential learning units specifically aligned with the Alaska State curriculum. Rather than providing standalone educational lessons, SIS plans lessons to occur in tandem with classes' current coursework units, allowing students to immediately apply new knowledge in a practical setting. Since its inception, the program has achieved a remarkable scale throughout the Sitka community, delivering tailored curricula to over 73 classrooms across nine schools, reaching every grade level from Pre-K through 12th grade.

Partnerships between students, teachers, and scientists are utilized in various forms across the globe (Howitt et al., 2009; Taylor et al., 2021).

These collaborative programs offer benefits to all parties. While teachers provide expertise and insight into students' abilities to facilitate learning, scientists contribute specialized research knowledge and create an authentic scientific process (Taylor et al., 2021). Teachers benefit from these programs by an increased knowledge and understanding of real-world science, expanded access to resources, broader awareness of the type of careers available in the sciences, and an increased motivation in their job (Howitt et al., 2009). For the scientists, these programs lead to improved communication with students, increased motivation and enthusiasm in their job, and a better understanding of a community's awareness and perceptions of science and their work (Howitt et al., 2009). Through these types of programs, students can form relationships with scientists and learn about their professional lives. This fosters an increased awareness of the type and variety of careers available in the sciences.

By working collaboratively with scientist mentors on authentic scientific investigations, students gain direct experience with the culture and practice of science (Richmond and Kurth, 1999). This exposure to and interaction with professional scientists can dismantle classic stereotypes of scientists (often as older white males in lab coats working alone with beakers in windowless laboratories; Taylor et al., 2021; Sheffield et al., 2021). Additionally, learning more about scientists may improve students' ability to see themselves as scientists, their "science identity" (Jane et al., 2007). Science instruction significantly influences students' attitudes about science and scientists, and may impact students' formation of a science identity, especially for those that are underrepresented in science or from rural communities. By building relationships with scientists, students' conceptions of who scientists are, where they

work, and what they do, can be expanded and break down historically limiting stereotypes (Farland-Smith, 2009).

Evaluations serve to facilitate learning, and to improve programs that ultimately strengthen the organization. Evaluation generates knowledge, and knowledge is power. Therefore, it is important to consider the role of culture throughout the evaluation process and how personal biases and institutional practices may devalue the perspectives of historically excluded groups from decisions that affect their lives (W. K. Kellogg Foundation, 2017). To avoid these biases, the evaluator collaborated with SSSC staff throughout the process and attempted to engage opportunities for feedback from all willing members of the community. For the evaluation, a logic model framework was utilized. A logic model is a systematic and visual way to present the resources a program has to operate its planned activities, to achieve the anticipated outcomes and impacts of the program (W.K. Kellogg Foundation, 2004). A logic model connects the planned work of the program to its intended results and provides a road map for the evaluation process.

Through this evaluation, we can help tell the story of SIRF and SIS and their successes. The knowledge gained from this evaluation can generate the power and support for other communities to implement similar programs to support youth in pursuing STEM careers and overall scientific literacy within Alaska communities. The primary goals of conducting this evaluation are to ensure that those in the SSSC and greater Sitka community are engaged and active participants in the process, and that the evaluation process and findings will be meaningful and useful for those tasked with assessing and improving the program (W. K. Kellogg Foundation, 2017).

STRATEGIC FRAMEWORK AND VISION

In collaboration with the SSSC Educational Director, a logic model was developed to map the programs' intended outcomes with their available resources. Central to this process is the theory of change, a narrative that explains the specific links between program activities and their desired results (W. K. Kellogg Foundation, 2017).

The vision for SSSC is *“for a region where community members, scientific innovations, and Indigenous knowledge work together to enable coastal ecosystems, people and economy to thrive for generations to come.”* The theory of change for SIRF and SIS are at the forefront of the vision for SSSC—by working with researchers and enhancing their educational and community

outreach skills, more members of the Sitka community will have the tools to enable the community to continue to thrive. The specific vision for the SSSC education program is to be grounded in active research; leverage SSSC facility and staff expertise; affirm community and cultural life experiences, understandings, and perspectives; and to be experiential in a way that inspires curiosity and is adventurous. Within the education program vision, the educational outreach goals for the SIRF and SIS programs are to connect researchers and other knowledge holders to community learners in authentic scientific experiences related to meaningful cultural and ecological understandings.

PROGRAM OBJECTIVES

The impact of these programs is measured through two distinct sets of objectives.

K–12 classroom objectives

- » Increase student proficiency in scientific thought
- » Expand student ideas about career pathways in STEM by showcasing many different experts
- » Building agency in doing science so students see themselves pursuing college and career pathways in the sciences
- » Grow understanding of why science matters in this community and place

Researcher professional development (SIRF)

- » Help scientists understand and apply community and reciprocal exchange principles with research-area communities, including how to ethically conduct research in a small community
- » Give scientists strategies for community relationship building and opportunities to practice those in Sitka
- » Foster scientists' skills in diverse community-based presentations

TARGET POPULATION AND RESOURCES

While Sitka is a relatively small community of about 8500, there is a local public school system, an alternative high school—Pacific High School—and a state-run boarding school—Mount Edgecumbe High School, which provides rural, predominately Alaska Native students with academic and extra-curricular opportunities unavailable in many rural communities.

To meet the needs of the students, including exposure to diverse perspectives and pathways, development of science concepts, and the integration of science into everyday lives, SSSC leverages several key assets:

- » working relationships with local schools;
- » a strong research and education team that guides and supports visiting scientists and facilitates scientists' education programs;
- » access to scientific equipment and supplies for both classroom and field activities.

Additional resources SSSC provides to support youth outside of the SIS and SIRF programs include curriculum development initiatives with Sitka School District Cultural Department and career-related education programs. By utilizing the logic model to outline these components, we were able to formulate the specific evaluation questions required to measure the program's success.

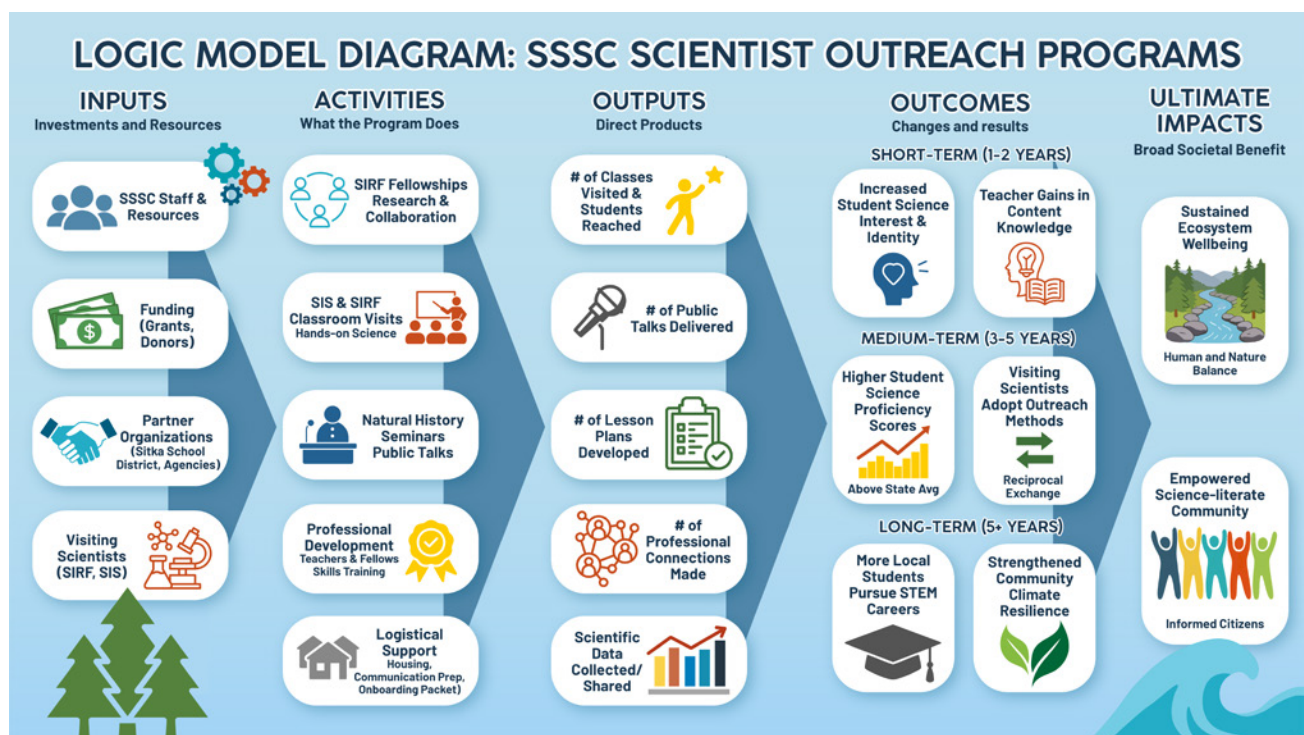


Figure 1. Visual of the logic model established for the program. This visual was made by Jessica Whitney/UAF.

EVALUATION QUESTIONS

Based on the logic model and the programs' goals, the following evaluation questions were used to assess both the process (implementation) and the outcomes (results) of the SIRF and SIS programs.

Process questions

- » How effectively is SSSC administering support and communication training to prepare the visiting scientists for the programs?
- » Are the logistical resources provided (accommodations, workspace, navigating Sitka) sufficient for visiting scientists to be comfortable and productive?
- » Are current feedback methods effective in identifying the strengths of the program and potential areas of improvement?
- » Does the "mini-sabbatical" structure of SIRF provide a sufficient balance between the scientist's independent research and the program's outreach obligations?

Outcomes questions

- » Is there an increase in students' engagement with STEM topics or their intent to pursue science-based career pathways?
- » To what extent do these programs bridge the gap between researchers and the public, effectively increasing science literacy within the wider Sitka community?
- » To what extent do the visiting scientists report an increased interest in applying community and education outreach activities into their own research?

GATHERING OF DATA

Since the start of the SIRF program, SSSC has collected feedback data from visiting scientists via a long-answer survey (n=34). A consistent 10-question survey (n=26) was given to fellows from 2012 to 2021. Since 2022, a more comprehensive 15-question long-answer survey has been employed (n=8) with additional focus on community outreach and connections for future collaborative research. This data does not include feedback from every past SIRF fellow, as surveys were not given to every participant and/or some data has been lost.

The SSSC feedback data was coded to identify common themes across the texts (Table 1). Themes were also coded based on the sentiment of the response, whether expressing more positive or negative connotations. This was done to identify from each theme responses that highlighted the program's strengths and potential areas of improvements. Themes were created naturally when reading through the text, while reflecting on the program's overall objectives to help assess if goals were being met. The text was coded using R (R Core Team, 2025) and the ShinyQDA app (Bryer, 2022). Word clouds highlighting the text used most often for different themes were created to visualize the topics within each theme.

To explore the lived experience of both the visiting scientist and community residents, this evaluation also incorporated phenomenology and experience based-learning through participant observation. The spring 2026 SIRF program had the external evaluator observe the one-month mini-sabbatical and participate in the community outreach activities planned with the fellow. Formal interviews were not conducted during this study, though

multiple informal conversations were noted. A post-program survey was distributed at the end of the month-long program.

The evaluator observed three different SIS and SIRF programs in the schools, a 3rd-grade volcano lava layering and ash lesson, a 5th-grade herring and carbon cycle lesson, and a 10th-grade volcano monitoring lesson. Different methods of evaluation were utilized for each grade level. To assess their science identity and view of science careers, 3rd graders were given a prompt to draw how they picture a scientist. After the 5th-grade lesson, teachers were asked what they thought would stick with the students the most, and for any other feedback on the lesson to ensure it met the curriculum. The 10th-grade classes were given a writing prompt to reflect on a past SSSC activity or lesson that stood out to them, to reveal the impact the lessons have had on the students over the years.

In previous years, surveys were given to classrooms after a SIRF fellow conducted a lesson plan in their classroom. This was done for five fellows from 2016–2018, with answers from 116 students. Four fellows had teacher evaluation survey data from seven different classroom teachers. The results of these surveys are reported in Madden's 2019 evaluation report and won't be noted here. It is recommended in the future to conduct pre- and post-survey data from both students and teachers that have a fellow attending their classroom, as this offers valuable insight into how the program may change students' attitudes towards science, and provides feedback from teachers on what went well and what could help in the future.

Table 1. The themes identified and coded from the feedback survey data.

CODE	DESCRIPTION
RS	Return to Sitka
ACP	Accommodations Positive
ACN	Accommodations Negative
PPP	Time for personal projects Positive
PPN	Time for personal projects Negative
PP	Preparation Positive
PN	Preparation Negative
TEKP	Traditional Ecological Knowledge Positive
TEKN	Traditional Ecological Knowledge Negative
CCP	Researcher's community building with connections/collaborators Positive
CCN	Researcher's community building with connections/collaborators Negative
SCP	Sitka Community Positive
EOP	Educational Outreach Positive
EON	Educational Outreach Negative
COP	Community Outreach Positive
CON	Community Outreach Negative
SG	Suggestions



Key Themes and Findings

RESEARCHERS BUILDING COMMUNITY CONNECTIONS

“The most important connections I made were with divers who actively participate in the geoduck industry. I felt that my role in the Fellowship provided me with access to divers who may not have been (but I can’t say) as readily available to take my calls.”

A primary objective of SIRF and SIS is to cultivate relationships between researchers and the Sitka community, including local youth, citizens, and professional organizations. The feedback data confirms that SIRF participants consistently value the program for its ability to connect them with a diverse array of future collaborators. Many past SIRF fellows highlight the professional relationships fostered by the program, including with SSSC staff. As a SIRF participant noted, *“Our connections with SSSC are already facilitating future collaborations, as Lisa Busch [past executive director of SSSC] is writing a letter in support of our pending NSF proposal, and we anticipate returning to Sitka to do research.”* Beyond SSSC, past fellows reported meeting with local biologists (at ADF&G and the U.S. Forest Service), local citizen scientists (Matt

Goff), researchers from other universities, local fishermen, and the Kayaaní Commission of the Sitka Tribe of Alaska, a group of elders and experienced plant harvesters who work to protect and preserve Lingít plant knowledge.

Sitka Community

“People in Sitka seemed primed already and scientifically aware, perhaps this is due to locale, events like Whale Fest, and other activities by SSSC, the college, etc. Regardless, I was impressed by the interest shown...”

Not only did fellows report increased professional networking, but also a deepened integration into the Sitka community. Past fellows' comments highlight how Sitka as a community is uniquely receptive to science, potentially an outcome from the long-term success of these programs—to have built a lasting culture of community curiosity. For example, a past fellow reported that *“I do think the opportunity to come to Sitka helps improve understanding of the role of science in society, and Sitka is a surprisingly diverse community with a well-educated population. I think it is helpful for small communities such as this to have the opportunity to see what their tax dollars procure in terms of scientific research, and I was pleased with the great turnouts and good questions that were asked in all of our public and school presentations. We would probably not do as well as in our hometown, which is of similar size.”*

Additionally, another fellow shared that *“I was blown away with the level of some of the questions after [the Natural History Seminar] and realized this is a serious citizen-science community. I learned a lot about Sitka that night.”*

Looking Forward

Moving forward, there is a strategic opportunity to further bridge the gap between SIRF fellows and local regulatory or industry groups. Recent fellows have expressed a desire to connect with the U.S. Forest Service regarding research permits in the Tongass National Forest and with the local commercial fishing sector. While some past fellows have met with these user groups, it would be best to proactively identify a fellow's target “user group” during the planning phase, so that SSSC can ensure fellows can expand their professional network.



Figure 2. Top 20 words within the theme Sitka community outreach.

COMMUNITY OUTREACH

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The SIRC and SIS programs strive to engage the community of Sitka with a diverse field of local and statewide research. The programs have a heavy hand in providing participating SIRC and SIS researchers with specialized training in science communication, enabling them to translate their research for a variety of audiences. By aiding fellows' science communication, community outreach activities better elevate local scientific literacy and education throughout Sitka. By increasing science literacy and knowledge about the local environment, they may increase community interest in understanding and ensuring the sustainability of the natural resources that are vibrant throughout Sitka.

This is accomplished through the vast variety of community outreach activities SSSC coordinates for the SIRF participants to engage with local community members. Community outreach activities by fellows often include local radio interviews and giving a presentation on their research at a natural history seminar at the local University of Southeast Alaska (UAS) campus. Outreach activities are often tailored to incorporate the visiting scientist's own interest; past activities have included an underwater photography workshop, snorkeling events, science café, a natural history writing class at Sitka Fine Arts, Whale Fest, community hikes, a community bike ride, and informal talks hosted at the local brewery.

A strength of SSSC is staff creativity and flexibility. If a fellow is interested in a certain topic or activity, SSSC staff can assist in making it happen. For example, an evening event focused on Pompeii was put together after discovering a shared interest between a member of SSSC staff and a fellow. This event was put together relatively quickly and ended up drawing 12 community members. These community outreach ideas develop organically while in discussion with fellows and ultimately result in more informal outreach events which impact different segments of the community that might not otherwise show up to a formal seminar event.



Figure 3. Top 30 words used within the theme community outreach.

The Natural History Seminar Series serves as a core community outreach event for SIRF fellows to participate in. In partnership with UAS, SIRF fellows present their findings to the broader community as a free weekday evening event. The recently observed Natural History Seminar was attended by about 80 community members. While formal survey participation was limited, with 13 total responses (seven online via QR code and six paper responses), the data collected showed interest in the topics of the visiting researcher.

Survey participants: *"Awesome opportunities for the community! Yay science research and communication!"*

"It's really good to have free available/accessible science/information available to the community. I find it invaluable to have these meetings."

All participants of the survey indicated that what they enjoyed most was the presenter's ability to clearly explain their research on volcanoes. When gauging interest and relevance of the topic, nine attendees indicated that the research was 'very relevant/of interest' and four stated 'a little relevant/of interest.' Over half of the respondents are frequent attendees, with 31% attempting to go to every session and 38% having attended five or more. Only one respondent was a first-time attendee, suggesting that the series has built a consistent and dedicated following. Attendees noted that they were motivated to join not only by the relevance of the topic to the Sitka community but also by a desire to support the program and the individuals carrying it forward.

SIRF fellows do a radio interview as one of their community outreach events. Two survey



Figure 4. Observed SIRF fellow delivering a Natural History Seminar to the Sitka community.

participants indicated they heard about the event via the radio interview, underscoring the importance of local radio for the community of Sitka. While the total reach of a radio segment can be difficult to quantify, this feedback confirms local radio outreach is at least somewhat successful for Sitka. The majority of survey participants indicated that they heard about the event via word of mouth (46%), and through Matt Goff's email (23%).

“ I think the most positive community engagement activity was the Natural History Seminar. There was a good turnout and people were very engaged. ”

“ It would be nice to aim a talk at the Alaska Native population in the future. It seems like the talks at the University have a very loyal following, but as I mentioned earlier, it does not seem to include a lot of Alaska Native participation (perhaps I am wrong here). If there was a way to present to the local council or aim a presentation specifically at this group, I think it would be good. ”

One area of community engagement that seems to be minimal and suggested by past participants is with the Indigenous community in Sitka. Perhaps with the new Partnership Manager position at SSSC, events with future SIRC fellows could be planned that are of interest to the Indigenous community. At the same time, it is worth

noting that the Sitka Tribe of Alaska (STA) is busy with their own priorities, and as one SIRC fellow noted, *“It would have been nice to interact with the Sitka Tribe [of Alaska] in some capacity, but I understand the burden that is placed on the Tribe with visiting scientists. I’m not sure if there could be a way to incorporate a meeting with folks at the Tribe as part of the SIRC training.”*

When SSSC is planning for incoming fellows, they could reach out to STA about the visiting scientist and their area of research, and then STA could decide if they have an interest in collaborating on a community outreach event. Or, the collaboration could start even earlier, with SSSC involving STA in the fellow selection process and prioritizing scientists that STA has the greatest interest in.



The goals for educational outreach in both SIRF and SIS are a major driving force at the core of these programs. The three primary intended educational outcomes are to increase student proficiency in scientific thought, expand student ideas about career pathways in STEM, and grow understanding of why science matters in Sitka's community and place.

Because of the longevity and integration of these programs in the local schools, assessing their impact on students' science identity within a short timeframe is challenging. Most Sitka students are exposed to these hands-on activities continuously as they progress through each grade level. Consequently, a comprehensive, long-term study would be required to fully quantify how these ongoing interactions shape students' long-term relationships with science. SIS programs and other outreach activities, including summer camps, after school programs, and community events with SSSC staff, are occurring with frequency, so much so that they could not all be observed while the evaluator was in town, with lessons occurring simultaneously for different grade levels.

Observations from the Classroom —

“ Not only do I really enjoy talking with K-12 students, but I also think it’s important to communicate clearly enough what we do as scientists so that they can at least understand the bigger picture, and maybe get excited about science too. ”

Every observed SIS program started off with SSSC educators asking the classrooms to reflect on the last time the students saw SSSC. Third graders were able to recall lessons taught by SSSC as far back as kindergarten (“the case of the missing boot!”), as well as summer programs such as “dinosaur camp.” Students eagerly recalled the experience earlier in the school year examining clams and “where cut clam and pulled the guts right out” for the dissection and “age by the lines.” Students also reflected on “jellybeans like ticks on moose,” a



Figure 6. A prompted drawing by a third grader reflecting their view of a scientist.



Figure 7. Prompted drawings by third graders reveal the impressions the visiting scientist had on their science identities.

lesson demonstrating symbiotic relationships and parasitism. Other students recollected their time in first grade, where they “incubated fish with yolk sacs,” and “let fish go,” as part of a salmon lifecycle lesson, and “learned about birds” (puffins). Yet others remembered a field trip to the beach and tide pools, learning about “the sea life cycle” (tides). The recollection of all these activities speaks to the breadth of SSSC programming and the impact they have on the students at a young age, being able to retain details from activities years later.

“ Meeting with multiple classrooms and with the small home school group was a great opportunity to show what being a scientist is all about. I was impressed with the engagement that the students showed; you can tell that there is a high value placed on science in Sitka. ”

The lessons conducted by SSSC through the SIS program are heavily focused on place-based topics, forming the connections of science to everyday life for students in Sitka. For example, the topic of volcanos becomes of greater interest to students when they can learn about the one in their own backyard, and how it may impact them and influence the environment that surrounds Sitka. The impact of these place-based lessons are apparent when looking at students’ drawings of how they picture a scientist (Figure 6). For example, students drew “scooba geer” and “anomial scientist” that are carrying tents and rifles, or flippers and tanks to breathe. The drawings show that many of the students don’t associate science only with people in white lab coats and

beakers, but instead as outdoor enthusiasts that need a rifle and tent, or flippers and a mask. Importantly, many scientists were drawn as female, reflecting an understanding that a career in science can be for anyone. Additionally, many students drew a scientist similar to the SIS geologist that came to their classroom, indicating the impression the visiting scientist had on the students (Figure 7).

For the 10th-grade classes, students reflected on past SSSC activity participation. Many students recalled a lesson on sled dog genetics, and one on volcano rock, both topics that many students can relate to, due to dog ownership and to the proximity of Mount Edgecumbe. Not only are the lesson plans related to place, they are also interactive, with one student reflecting that they enjoy “that we get to learn outside of school,” and that it was “interactive and cool to look at.” Many reported that they find the topics of SSSC activities to be interesting. One student even reflected on the role of SSSC at large, noting, “how generous they are and how much they do for this community,” and that they enjoy “the opportunity to do new things” (Figure 8).

While in the classroom observing these programs, it is clear that the students of Sitka are being exposed to a breadth of science that is relevant to their place as well as to their cultures. When shown a photo of Mount Edgecumbe, third graders were able to recall

its Lingít name (L’ux Shaa) and its meaning (“flashing light” and “mountain”). Leading up to the volcano lesson, students were taught the Lingít name in a cultural connections class, and shown different types of volcanic rock (obsidian, pompous, and basalt) that they then recalled in the science lesson. During the 5th-grade herring dissection, the Lingít name “yaaw” was used interchangeably for the species and students were able to recognize their importance in the ecosystem, reflecting:

- » “If all die out, our ecosystem will collapse.”
- » “If herring fed other fish and other fish, they would have nothing to eat if gone.”
- » “So all herring don’t die for next generation so they don’t go extinct since we don’t have a bunch.”
- » “Lot of animals eat them.”

When SSSC staff create lesson plans, they collaborate with teachers to ensure the teachers have the opportunity to provide input and lesson goals. Nonetheless, SIRC fellows teaching back-to-back classes are often de facto using the first class as a test run. Similarly, in SIS program debriefs, the scientists also reported feeling the initial delivery of a lesson felt like a test run. Consequently, students in the first-period class may miss critical content that is only integrated once the lesson is refined for the subsequent classes.

From over the years, what is a past activity or lesson you have had with the Sitka Sound Science Center that stood out to you?

How generous they are and how much they do for this community.

Figure 8. Writing reflection from a tenth grader on past SSSC activities.

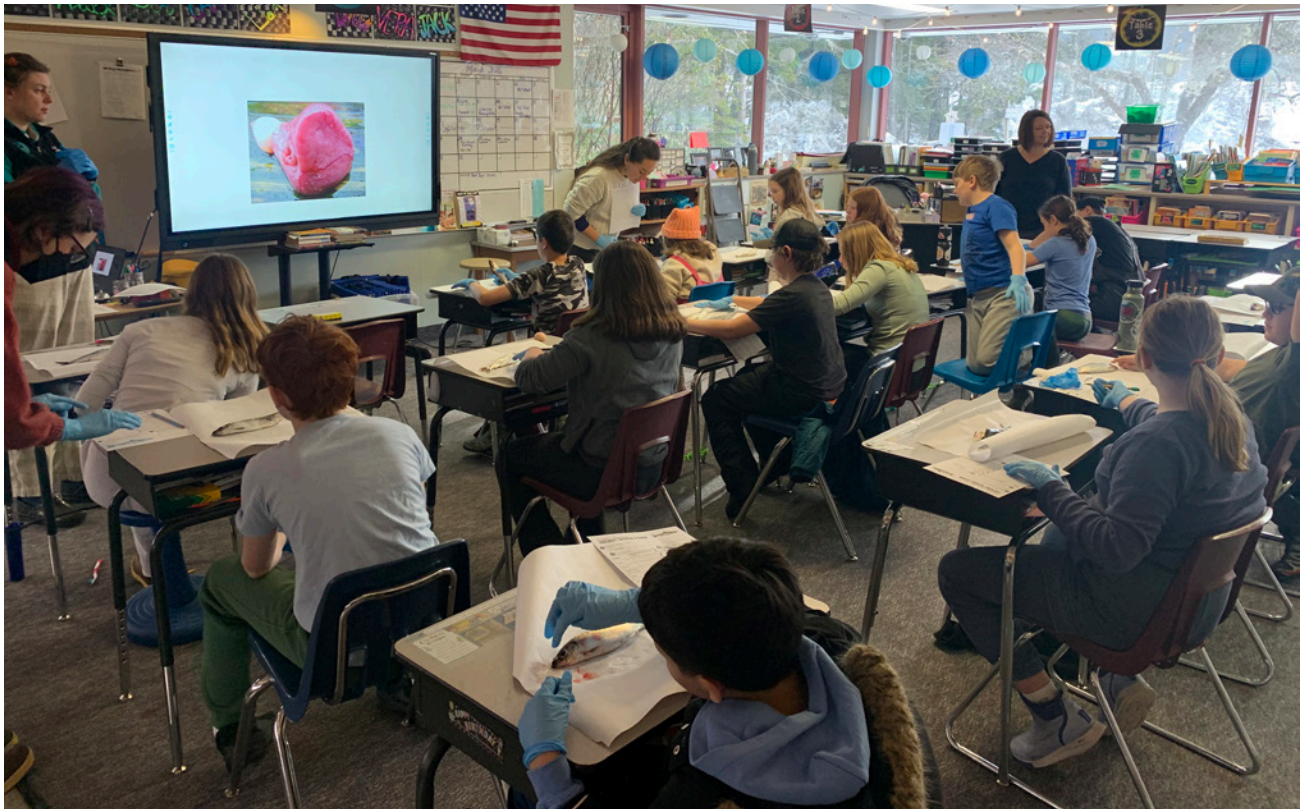


Figure 9. Fifth-grade SIS program herring dissection.

While the outward differences between what was taught in the different classrooms may seem small, they can produce significantly different responses from the teachers. For example, when two teachers hosting a SERF fellow were asked at the end of a two-day lesson what they thought would stick with their students the most, both agreed that the hands-on aspect of the lessons was the most effective element, and both suggested making the connection with herring from the previous day stronger into the carbon cycle lesson. The second-period teacher highlighted how the lesson was visual and appreciated the inclusion of the breakdown of vocabulary words. On the other hand, speaking with the teacher from the first period, the teacher suggested the need for the lesson to make the connection of place, herring and the carbon cycle more direct. More importantly, the teacher also requested that the carbon cycle be explicitly diagrammed with

direct arrows as this is what the students will be assessed on in testing. The teacher stated that she would “have to go back and re-teach” the lesson to ensure the students understood the concept they would be tested on.

While it is not SSSC’s responsibility to ensure students have mastered science testing concepts, it is recommended when SSSC staff plans with fellows, that specific content is highlighted that needs to be included to ensure the objectives of the lesson are met and align with state testing objectives for each classroom. An additional strategy to ensure that the first lesson plan of the day runs smoothly and meets required objectives would be to set aside time after lessons for SSSC staff to debrief and make note of the adjustments made for each lesson delivery, and this information shared with future incoming fellows.

Assessment of State Science Test Scores

Standardized testing provides a quantitative insight into the programs' effectiveness. An analysis of Alaska State science test scores over time can reveal the effectiveness of the programs from a testing standpoint. Science test scores from the past seven years for all students from the grade levels being tested—5th, 8th, and 10th grade—reveal that Sitka School District has a higher percentage of students at or above proficiency compared to the statewide average (Figure 10 and Table 2). To provide context, these test scores were compared to Cordova and Kodiak, which are similar coastal fishing communities that are off the road system. Notably, Cordova and Sitka scores are comparable over the last five years, and both are consistently higher than the state average. Like Sitka, Cordova is home to a robust science hub, the Prince William Sound Science Center, which also promotes educational outreach to local youth. The higher science test scores observed in Cordova and Sitka provide support for the idea that these science centers' educational programs have an effect on local youth science literacy. On the other hand, Kodiak's test scores are around the state average.

7-Year Average Science Test Scores

Community	Advanced	Proficient	Approaching Proficient	Needs Support	Percent Tested
Cordova City School District	19%	38%	25%	19%	98%
Kodiak Is. Borough School District	13%	29%	28%	30%	87%
Statewide Average	14%	27%	24%	36%	81%
Sitka School District	22%	33%	25%	20%	93%

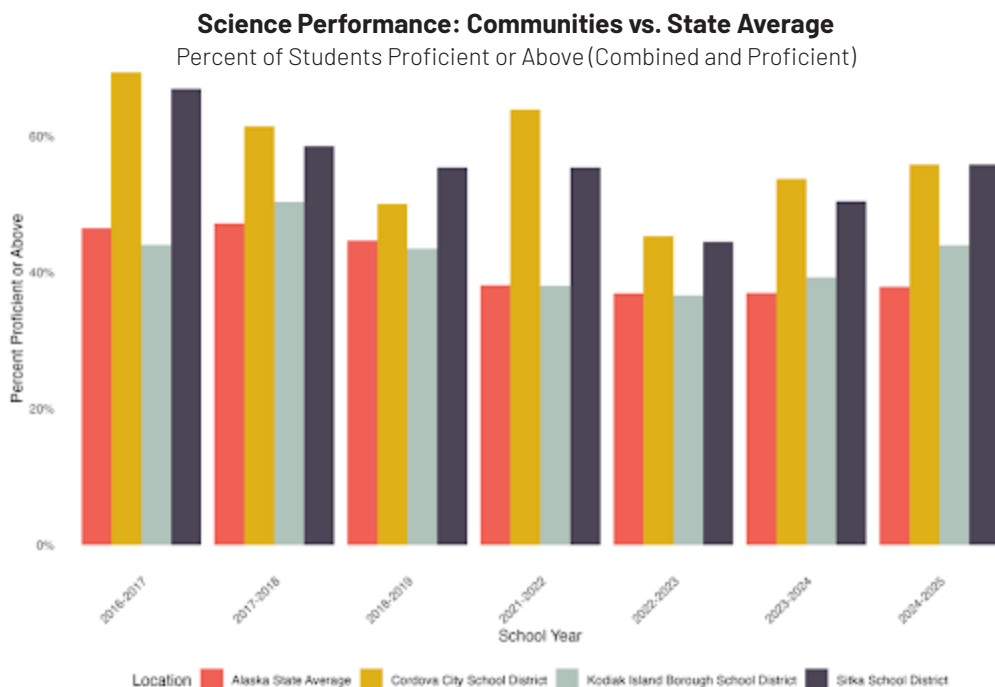


Figure 10. The science test scores of students from all tested grade levels (third, fifth, and tenth grade) from the Cordova, Kodiak, and Sitka school districts compared to the Alaska State average. Mount Edgecumbe is not included, as only tenth graders take the science test at the school.

Table 2. Science test scores of students from all tested grade levels (third, fifth, and tenth grade) across different communities compared to the Alaska state average. Mount Edgecumbe is not included, as only tenth graders take the science test at the school.

Year	Community	Advanced	Proficient	Approaching Proficient	Needs Support	Percent Tested
2016–2017	Cordova City School District	24%	45%	21%	10%	97%
	Kodiak Is. Borough School District	17%	27%	30%	26%	85%
	Statewide Average	20%	27%	25%	29%	88%
	Sitka School District	35%	32%	20%	13%	88%
2017–2018	Cordova City School District	18%	43%	28%	11%	98%
	Kodiak Is. Borough School District	16%	34%	30%	20%	89%
	Statewide Average	17%	30%	26%	27%	89%
	Sitka School District	27%	32%	26%	15%	95%
2018–2019	Cordova City School District	21%	29%	28%	22%	99%
	Kodiak Is. Borough School District	16%	27%	32%	25%	89%
	Statewide Average	19%	26%	24%	31%	88%
	Sitka School District	25%	30%	25%	19%	93%
2021–2022	Cordova City School District	24%	40%	10%	26%	99%
	Kodiak Is. Borough School District	10%	28%	27%	35%	85%
	Statewide Average	11%	27%	23%	39%	75%
	Sitka School District	17%	38%	21%	24%	94%
2022–2023	Cordova City School District	11%	34%	31%	23%	97%
	Kodiak Is. Borough School District	8%	28%	26%	37%	88%
	Statewide Average	10%	27%	24%	39%	77%
	Sitka School District	12%	32%	28%	28%	93%
2023–2024	Cordova City School District	15%	39%	28%	18%	99%
	Kodiak Is. Borough School District	12%	27%	27%	34%	84%
	Statewide Average	11%	26%	23%	40%	75%
	Sitka School District	21%	29%	29%	21%	97%
2024–2025	Cordova City School District	19%	36%	29%	16%	96%
	Kodiak Is. Borough School District	14%	30%	26%	30%	87%
	Statewide Average	12%	26%	22%	40%	76%
	Sitka School District	19%	37%	25%	19%	91%

Additional context to consider is that within the last ten years, budget challenges within the state education system have resulted in the loss of some school district science teaching resources. However, during this time, test scores in Sitka have continued to be above the state average. This could be, in part, because SSSC programs have been able to help fill this gap.

Mount Edgecumbe High School (MEHS) has Alaska state science test scores only for the 10th grade. For the last four years, average test scores from MEHS students are comparable to the state average for that grade, lower than students from the area's Sitka School District students (Figure 12). Incorporating more SSSC program activities and lesson plans with MEHS would better serve under-represented students. In addition, a few past fellows reported wanting to have interacted

with MEHS. While the working relationship between MEHS and SSSC is strong, only two of the last nine SIRF fellows interacted with MEHS. Prioritizing MEHS will help expand these programs and benefits to an underrepresented student population. Further, when students at the boarding school return to their homes at the end of the school year, they can share the science concepts they learn with their communities and thus expand the reach of these programs. Engaging MEHS students with hands-on, place-based science could have an exponential impact on their science identity, as many already interact deeply with the natural world through a subsistence way of life. These programs can reinforce that connection, demonstrating to students that they are already experts in the science of their own environments.

“ I would have enjoyed interaction with Mount Edgecumbe students, but realize that their schedule (they were in their last two weeks of school/finals) precluded this. This timing issue might be mentioned in the future to SIRF fellows that come in April (as I was unaware of the early end to their school year). ”

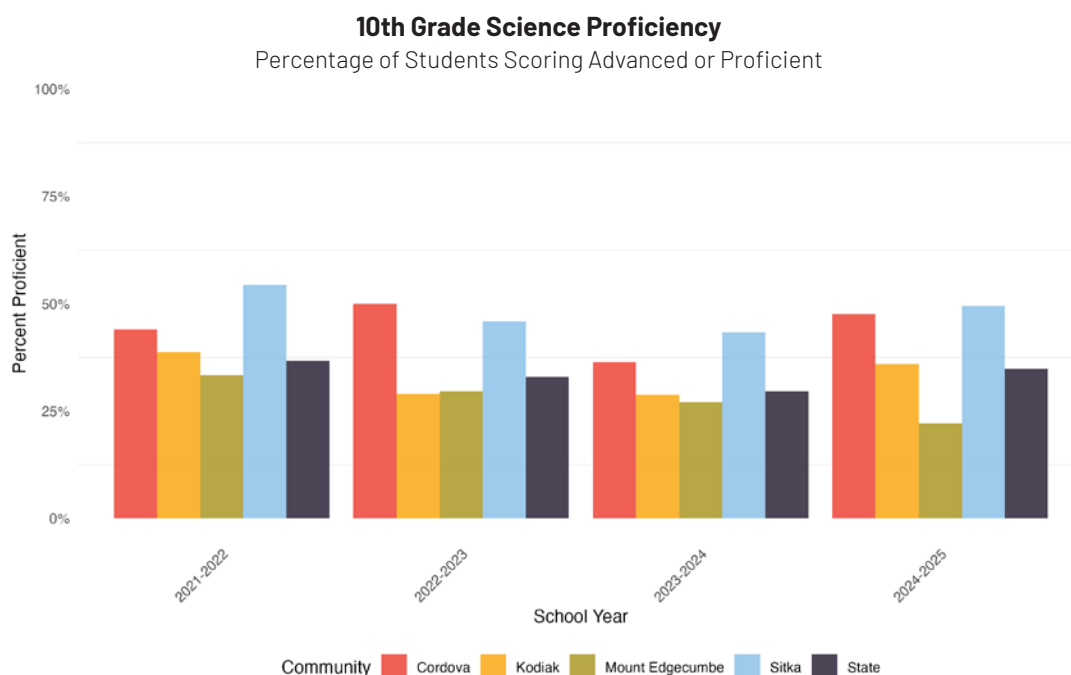


Figure 12. The state science test scores for tenth graders across different school districts, plus the state average.

Educational Outreach Impact on Researchers

“The most positive community engagement activity for me was going to Mount Edgecumbe High School with Janet and setting up classroom experiments with the students. I really enjoyed the curiosity of the students and learning how to put lessons together for students. It was memorable and a very positive experience for me.”

The benefits of these educational outreach activities extend beyond the students to the visiting researchers. Many past SIRF fellows identify the educational outreach component of their time in Sitka as one of the more challenging aspects—yet one of the most positive—of their community engagement activities. The lessons the researchers learned appear to have an impact on how they will engage with youth in the future, taking the skills they learned during the fellowship and applying them outside of Sitka. For example, a past fellow reflected how the experience of doing a lesson with MEHS influenced how they will prioritize encouraging students to the sciences, reporting: *“Interactions with local and native [Alaskan] students indicated to me that much more needed to be done in community outreach and education that would entice some of these students to enter the field of science in general and geology specifically. The influence I received from interacting with native students is the need to be more involved in science and that I need to consider this in the future when talking to them.”*

Similarly, another fellow reported the influence the program had on their style of communication to a variety of audiences, blending science communication and education: *“I worked to combine the best practice principles from science communication and science education in all of my activities, depending on the audience/context. At Sitka*

High, I worked to engage/intrigue students early, and to let their curiosity/questions guide the observation activity.”

Training researchers on interactive and engaging place-based science may enhance how future educators teach science and foster the next generation of scientists from rural Alaska.

BALANCING PERSONAL PROJECTS

A goal of the SIRF program is to provide visiting scientists with the essential time and space to work on their research, free from the competing demands of their primary professional duties. Past fellows frequently report significant progress on manuscripts, reports, and grant proposals during their time in the program. Additionally, the program's flexibility can extend to data collection, with one past fellow conducting field work during their fellowship, reporting: *"I was able to be in the field for research that was specific to my project, and greatly appreciated the opportunity to leave Sitka for a week to travel to other parts of the island to collect samples. Also appreciated the Center's help in coordinating boat travel for that trip."*

Feedback indicates that the majority of fellows value highly the balance between outreach activities and time for personal projects, without feeling pressure to do more outreach. This *"incredible gift of time"* is often cited as an impactful feature of the program, providing a necessary reprieve from normal work routines. The residency can also offer a rare opportunity for those balancing professional and personal caregiving roles, such as working mothers. For example, one participant noted: *"It was extremely fulfilling to be able to focus on my work for a month and get away from the many restrictions on my time. As a mother who is a working scientist, it was very beneficial to be able*

"The Fellowship definitely provided a much needed break from my usual schedule and helped me jumpstart a manuscript related to my research."

to break from that routine and focus on my role as a researcher without continually having to meet the needs of family. If you do have other applicants who are mothers, I hope that you would give them extra consideration. This kind of opportunity does not often present itself."

The program can help support diversity in the sciences by supporting nontraditional applicants.

"If I didn't spend enough time on my work, it was on me. I LOVED every outreach event I participated in and would have done more if I could. But in no way did I feel that outreach was pushed on me."

While most fellows maintain a balance between outreach and work, a few choose to immerse themselves completely into the outreach activities and take advantage of being in the vibrant community of Sitka. This was apparent while observing the spring 2026 program. If fellows remain open to all opportunities offered to them during their time in the program, they can find themselves feeling integrated into the community and exposed to more than just planned outreach activities. This immersion can include helping pull herring branches for elders, attending local community theater, and an abundance of informal dinners with community

members. On the other hand, some participants arrived with an over-ambitious research agenda and later regretted that they did not leave more time for local engagement. To help incoming fellows establish realistic expectations and strike an ideal balance between their research and community immersion, SSSC has been providing a calendar of local events. This allows the fellow to decide in advance whether to scale back personal project goals to accommodate high-value local opportunities. Ultimately, the SIRF program offers more than just a workspace, it provides a supportive environment where scientists can find both professional clarity and meaningful community connection.

“ I leaned more into the outreach side of things during my time in Sitka. I was still able to make good progress on my personal goals, but I definitely prioritized outreach. It was very exciting to me to be in the location of my research and be able to connect with people who are directly affected by my work. I wanted to take advantage of this during my SIRF [fellowship]. ”

Implementation of the Program

SIRF PREPAREDNESS

“ It was wonderfully coordinated. I felt the pace struck a nice balance between a healthy urgency in the work and a calm and flexible approach including time buffers between things to accommodate a coffee and so on. ”

In past feedback, the most consistent suggestion is greater preparation for the SIRF activities prior to starting the program; this is mentioned by over half of past fellows. One fellow reported feeling like they were “going into some events blind” and another

reported that they were “told they would go over and finalize details six weeks prior to the start of the SIRF [fellowship] and that it didn’t happen.” Specifically, the majority wish for more advanced planning with respect to structured outreach and education activities and knowing

what SIRF activities are planned around town prior to arrival. While people wish for more preparation, it does seem that overall, things come together once the fellow is in Sitka, and they have a great experience. Participants seem to understand that coordinating with teachers is complicated, and flexibility is needed. As one participant noted: *“I’ve also learned that SSSC staff are really good at shifting priorities last minute if need be. Sometimes education and outreach efforts require changing something up last minute and the staff are excellent at this. I am not as well practiced in this, so it was a little nerve-racking at first, but ended up being a great lesson for me! I learned how to adapt better and think on my feet—which are great skills to have.”*

While education outreach activities may be harder to plan in advance, community outreach events and logistical details could be communicated better before the start of the program. Researchers have to plan their lives and other duties around the SIRF activities, and would be more comfortable being aware of the plan before arriving. For example, one recent participant was originally told that their partner and dog could come, as it was a condition for them being able to do the fellowship, and then a week before coming was told that dogs were no longer allowed to join, which made them “feel like I was getting special treatment and a little uncomfortable.” Others have reported struggling to solidify dates with the program staff, which makes planning difficult.

“I’ve learned that SSSC staff are very good in-person communicators and seem to prioritize this form of communication. This presented challenges with coordination prior to my arrival in Sitka, but was cleared up as soon as I got there. For those who have not interacted with SSSC much prior to SIRF, it could be good information

to let them know that most of the planning and coordination will happen in person.”

Results from the pre-fellowship survey indicated that the fellow only somewhat knew what was expected of them during the program, somewhat felt prepared and supported, and somewhat had clear expectations about what outreach for the program should look like. While not entirely positive about preparedness, they strongly agreed that they were energized and excited to start the program.

Looking Forward

Because preparation seems to be the biggest issue past fellows mention, it would be worth having SSSC staff spend the extra time to communicate with SIRF fellows prior to their arrival. One suggestion from a past fellow is a short handbook (“What to Expect When You are SIRFing”) with expectations of what the day-to-day looks like, as well as logistic support such as recommended day-care options. While six weeks out might be too early for letting fellows know the planned activities, having SSSC check in with them a month before and two weeks prior is reasonable for finalizing details and communicating what to expect.

SIRF COMMUNICATION AND COMMUNITY TRAINING

Another component of the SIRF program is its focus on science communication and community engagement training. Initially, the training included in the SIRF orientation had a press- and journalism-oriented approach, such as using clear, plain-language vocabulary to explain the science; translating complex scientific concepts; and development of presentations tailored to diverse audiences. Today, the training has evolved to emphasize skills supporting meaningful engagement and reciprocal knowledge exchange with the diverse communities of rural Alaska and Tribes. Depending on the activities a SIRF participant chooses to pursue while in Sitka, elements of the earlier communication training are still incorporated to support the fellow's public outreach and presentations.

“The science communication skill I practiced the most during my time in Sitka was the ability to only share relevant and important information to tell a story. It is easy to include more information than is necessary and it's often difficult to effectively distill the information that is easy to access. I think over my time in Sitka, I was able to practice this skill in a variety of settings, and improved!”

The long-standing science communication training is mentioned by fellows as helpful in getting them to reflect on how to best communicate their research to a broader audience, with a past fellow noting: *“Science communication training encouraged creating clear stories that communicate your scientific work. I learned that there are different ways to create a story, whether that is circling back to something in the beginning or making parallels to everyone's lives.”*

The science communication training appears to be an important part of the fellowship, with another reflecting: *“The science communication training was one of the best parts of this experience for me, as this formal training was not something I had received before. The main takeaway that I got out of the training was connect before content. That's something I will not forget when putting together presentations, and it provides a clear step in effectively communicating your work and experiences through personal connection with all types of audiences.”*

However, the same fellow also suggests: *“I was expecting there to be more training sessions involved over the course of the first week or so, other than the initial meeting to go over the training document. I think the training was super informative and helpful, but it would be great if there could be more training involved somehow. Perhaps additional scheduled times to practice communication techniques with opportunity for feedback.”*

This can be contrasted with a different fellow, who noted: *“I have been fortunate to have had a lot of science communication training over the past decade, so the training materials did not contain a lot of new information for me. You might consider this for future SIRFs; you may find that other folks who apply for SIRF are already communication-interested people who have invested in [science communication] training in the past, and for whom this training material is familiar.”*

During the planning phase for each new fellow, gauging their past experience with science communication with a range of audiences—youth to community members—would aid in meeting the researcher where they are, and provide them with training that is relevant to the experience they have.

“ I really liked the handouts from the science communication training. They allowed me to refer to them later and absorb more information over time. I appreciated the emphasis on reaching back into the community and connecting the research to the community. ”

In addition, a goal of the SIRF program is to train visiting scientists in Community and Reciprocal Exchange (CaRE) principles, and apply these principles in future research projects. This training and implementation are a relatively new initiative of the SIRF and SIS programs, recognized as a long-standing need. This training focuses on how to do ethical research on traditional Lingít lands as well as doing research within a small community. During observation of the training, the conversation largely focused on bringing the

self forward before work, coming into spaces with a listening ear, and initially meeting people on a personal level. While working in small communities, it was explained how one is “always on” and to be aware of how one presents oneself, even outside of working hours. Additionally, the CaRE training focused on recognizing that everyone comes with different perspectives, and that an individual’s perspective may be different from the organization they are a part of.

The training included discussing the Sitka Tribe of Alaska (STA) protocols and how best to update STA without overburdening them during the busy herring season. During discussion, it was noted that STA’s Natural Resource Committee meeting was the next evening. Taylor White, SSSC Partnership Manager, reached out to STA to discuss next steps and what aspects of the SIRF fellow’s research might be of interest to the committee members and STA staff.

SSSC helps facilitate communication between the researcher and STA staff, with further meetings if appropriate, and makes the researcher aware of STA’s research policies. Planning in advance of the fellow coming to Sitka will aid in ensuring the visiting researcher has enough time to prepare to follow the respected protocol with STA, if appropriate. Overall, the CaRE training demonstrates the growing relationship with STA and how to ensure that visiting researchers are conducting their work in an ethical and respectful manner on the traditional lands of the Lingít people.

SIRF HOUSING ACCOMMODATIONS

Feedback from past SIRF fellows has been overwhelmingly positive regarding housing. Most appreciated being situated close to town, with some enjoying waterfront views. A recurring theme in past reports was the high value placed on having private space. Notably, finding housing in Sitka is difficult and they appreciate not having to coordinate their own housing during their stay. To help with coordination, SSSC recently acquired a bunkhouse for hosting visiting researchers and collaborators. This allows for a more affordable housing option to visiting scientists, staff, and SIS and SIRF participants.

While a valuable asset, the bunkhouse has introduced new challenges. The bunkhouse reaches capacity during peak seasons, so it is critical that SSSC communicates the specific living arrangements to visiting fellows well in advance. For example, if a fellow has to share a room during their stay at the bunkhouse, they

should not be learning that information the day they arrive—proper advance notice needs to be given. An unexpected living situation can be jarring and may overshadow the start of their fellowship. Furthermore, the close quarters may require the fellow to disclose (or unintentionally reveal) personal health information to their roommate. SSSC must recognize that a visitor may not feel comfortable sharing a home with 10+ individuals; managing these expectations is a fundamental responsibility of the SSSC staff.

The new bunkhouse is located approximately 1.5 miles from both the SSSC offices and the town center. While past fellows enjoyed the proximity of housing to downtown, this distance should be disclosed prior to arrival to ensure that fellows, particularly those who may have mobility challenges or who need to secure a vehicle, can plan accordingly.

SIRF OFFICE ACCOMMODATIONS

“ I was a bit unsure at times of whether it was OK to walk through rooms with active meetings, so I tended not to, so that might be clarified either way for the resident. Maybe a bit more communication about whether the resident can/should participate in regular meetings and what that might look like would be appreciated. I joined a Research Meeting and found myself drifting to think about my upcoming seminar, then I suddenly realized that perhaps I should be staying very focused on the SSSC meeting. ”

“ I loved the culture of the SSSC. It was very collaborative and welcoming. The research office was comfortable and my desk and monitor setup was good. ”

Past fellows report the workplace provided at SSSC worked well, and since it's largely a shared space, they often found they enjoyed being able to chat with fellow researchers throughout the day. A few past fellows reported some difficulty having online meetings without disturbing others. Some reported feeling uncomfortable having to walk through spaces where meetings were occurring and suggested being informed

of the schedule for the library. In response to previous SIRF and SSSC staff requests, there is now a calendar available for viewing and booking meeting times for the upstairs Salmon Meeting Room and is recommended to have the same for the library.

PROGRAM OUTREACH MATERIALS

The SSSC website has an overview of both the SIRF and SIS programs. The SIS program information includes a video that highlights the key components of the program quite well. The information provided on the website for SIRF is more limited, with the recommendation to expand the section as part of a broader update of the SSSC website slated for later in 2026. Additionally, the list of past program participants on the website haven't been updated since 2023. Feedback from fellows has included suggestions to help future participants communicate with past fellows, which the website could facilitate by providing contact information for past participants.

Suggestions by Past SIRF Participants

The table below summarizes suggestions from previous fellows. Items highlighted in green represent recommendations that are already adopted. These insights are intended to support SSSC's ongoing program development; the decision to adopt further changes remains at the discretion of the organization.

Table 3. Suggestions from past SIRF fellows.

Theme	Sub-Category	Suggestions
Logistics & Preparation	Pre-Arrival & Budgeting	» Provide cost estimates for local stay, center work, etc., for grant budgeting. » Clarify expected number of events or hours to guide fellows on what is appropriate. » Stock a few bulk items at accommodations. Provide a local newspaper.
	Onboarding & Training	» Delay training until after the first two days to avoid “info overload.” » Explicitly mention the Code of Conduct. » Provide training materials tailored to those who already have science communication experience. » Provide more examples of possible outreach activities so fellows know the different format options.
Program Structure	Internal Coordination	» Weekly meetings with the coordinator and fellow to review the calendar and prepare. » Dedicated time for fellows to prep materials and practice talk delivery. » Fellows should come prepared with measurable goals and loose lesson plans.
	Communication Skills	» Provide more examples of scientific messages improved through rewording/deeper thinking. » Offer science communication/outreach training to students and community members (potentially at Whale Fest). (x2) » Write a common application to organize future science communication workshops.
Outreach & Education	K-12 & Formal Learning	» Teacher-identified “teaching point goals” so scientists can provide specific examples. » Sister city schools program integration. » Outreach to cruise ship participants in summer, when school is out of session.
	Event Styles	» Spread activities out (e.g., one per week for a few hours) rather than all at once. » Balance formal meetings with agencies/tribes with “semi-structured” informal opportunities. » More unstructured meetings with students interested in biology/research.

Community & Social	Local Integration	» Casual (i.e. brewery) event before the larger formal event. » More access to social/recreation interaction in town. » Fellows join one non-work activity (e.g., beach clean-up).
Network & Continuity	Alumni & Fellows	» Mechanism to connect past fellows with each other. » Network of past fellows to share “insider info” (car rentals, kid options, etc.). » Create a “chance to return” for former fellows. » Create a small series of short videos featuring fellows.
Long-term Vision	Strategy & Inclusion	» Through collaboration, incorporate Alaska Indigenous culture, values, and people into SSSC long-term vision. » Create a civilian-based observation network for climate/fisheries (TEK + Citizen Science).

Summary of Key Findings

“The fellowship exceeded my expectations. I really enjoyed being a part of the science center. I felt that the outreach activities (after hours photography workshop, middle and high school lectures/activities, haunted hatchery, adult snorkel, whalefest) were great opportunities to interact with different locals in different ways.”

The overwhelmingly positive feedback from participants involved in the SIRF and SIS programs, as well as from teachers and community members, supports the continued need for these programs. Observing participating classrooms, it is evident how much the students appreciate the hands-on activities and relevant topics that are directly related to their place. A primary positive outcome is the measurable academic excellence demonstrated by Sitka’s students, who consistently achieve science proficiency scores significantly higher than the Alaska state average. This trend is mirrored in other “science hubs” like Cordova,

suggesting that the long-term presence of a dedicated science center effectively supports student literacy and academic success. Moving beyond standardized metrics, the programs use hands-on, experiential learning to foster a deep-seated “science identity,” allowing students to see themselves as capable of pursuing future STEM careers.

An additional strength of these programs is their successful integration of these place-based lessons into school curriculum and connection to Indigenous culture. By incorporating Lingít terminology, such as *yaaw* for herring and *L’ux Shaa* for Mount Edgecumbe, the curriculum honors local cultural heritage while making complex scientific concepts immediate and relevant to the students’ environment. This approach can aid in dismantling classic stereotypes of scientists as unapproachable figures in lab coats. Instead, through direct interactions with professional researchers, students may visualize scientists as outdoor enthusiasts, realizing that scientific inquiry is an accessible and diverse field.

The professional benefits for participating researchers are equally profound, as the programs provide a mini-sabbatical that balances independent research goals with community engagement. Fellows consistently report that the experience improves their science communication skills and fundamentally changes how they plan to integrate community outreach into their future work. Furthermore, the residency serves as a powerful catalyst for professional networking, creating opportunities for collaborations among scientists, local industries, government agencies, and SSSC.

Finally, the programs have successfully fostered broad community engagement that bridges the gap between professional

researchers and the general public. Well-attended events like the Natural History Seminar Series demonstrate a local interest in science and a dedication to supporting scientific literacy. By providing accessible platforms, ranging from radio interviews to informal brewery talks, SSSC has made science a central pillar of Sitka’s community identity. This integrated model ensures that scientific knowledge is not just taught in schools but is shared, valued, and sustained by the community at large.

While the program functions at a high level, there are areas where it could be improved. Feedback data suggests a need for better preparing fellows before arriving. Given that collaborating with schools requires flexibility, a greater focus on communication and preparedness would be beneficial. For example, many fellows expressed a desire to coordinate sooner on planning outreach activities. As one participant noted, SSSC staff are more thorough and responsive in face-to-face interactions. Informing incoming participants that most coordination will happen upon arrival may help ease initial fears. While events come together once the fellow arrives in Sitka, this lack of communication can affect the attitude and availability a researcher brings with them and can affect their experience and relationship with SSSC staff.

The majority of suggestions and recommendations made across all the themes could be addressed by increasing SSSC staff's advance communication and preparation with the fellows. For example, discussions around what user groups fellows hope to reach would better ensure activities can be planned to include those groups, especially when meeting with STA NRC is appropriate.

A lot of work is being done as part of the SIS and SIRF programs. Ensuring the gathering of feedback will aid in evaluation of the programs for future improvements as well as grant funding applications. It is recommended to implement surveys at the Natural History Seminar Series and gather feedback from students to document the effectiveness of the programs. A lot of great work is occurring at SSSC and it deserves to be recognized.

When developing new lessons and expanding on past lessons, main takeaways should be established in advance to ensure students from each period receive the same key information. While slight modifications between classes are expected, the main information that the lesson targets should be consistent. It would add to the workload of an already busy SSSC staff, but it is recommended to set aside time to debrief after lessons to record what worked well and what didn't, so that come the following year, new fellows can benefit from the lessons previously learned and provide better instruction out of the gate. Asking teachers directly at the end of the lesson what they thought worked best and what could be improved was an efficient way to gain feedback, particularly for the teacher. It is recommended to end lessons with this feedback opportunity to

ensure the lesson plans are the most effective and beneficial to the teachers.

Additionally, the program was heavily involved with the Sitka School District. It is a missed opportunity not to involve the SIRF and SIS programs more directly with MEHS. This may involve more planning, and meeting them where they are at, but it would better serve an underrepresented group of students. With the relatively new Partnership Manager position at SSSC, collaboration with the education team could ensure traditional values are being incorporated in the classroom. Incorporating different teaching methods that focus on traditional values may be most beneficial for the students. Including elders as visiting scientists for SIS may be productive.

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