

# Molly Community Science Project

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## Scale-Up Evaluation of the *Molly's Salmon Protector Camp* Prototype

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# Executive Summary

The Molly Community Science project, a collaborative research and design initiative involving rural Alaskan communities, educators, researchers, media producers, and cultural advisors to support STEM education grounded in Alaska Native culture, **developed an engaging, place based, culturally responsive educational camp that supports environmental science learning for children aged 6 to 8 in rural Alaska Native communities.** The prototype, *Molly's Salmon Protector Camp*, leverages a multimedia approach and the popularity of the PBS KIDS series, *Molly of Denali* to engage children in science learning while centering Alaska Native values and practices.

Using a principles-based framework (Patton, 2018), this report assesses how effectively the prototype curriculum and materials developed for *Molly's Salmon Protector Camp* align with and support the goals of the Molly Community Science project's co-design efforts. The framework's guiding principles are listed below.

- Supports the development of environmental identity/stewardship
- Supports intergenerational learning
- Supports learning about potential science careers
- Braids Indigenous science content and Western science content together while supporting Indigenous ways of knowing, being, and doing
- Reflects local and culturally meaningful topics, traditions, and knowledge
- Incorporates innovative uses of technology to promote learning, including:
  - Videos that introduce science topics, provide role models, and act as a springboard for hands-on activities
  - An app that helps children document and share their experiences with others
- Leverages the popularity, appeal, and educational approach of *Molly of Denali*
- Leverages existing community assets and partnerships

Data for the **scale-up evaluation** was drawn from 1) written responses and follow-up interviews with **reviewers** who explored and rated the camp materials using a **curriculum review rubric**; and 2) interviews with **co-design team members** who were involved in iterative prototype testing in the three communities that co-designed the camp.

# Key Findings

Key findings emerged across three themes:

## **Integrating Indigenous Practices**

*Molly's Salmon Protector Camp* effectively weaves together Indigenous and western science by elevating local expertise and supporting Indigenous practices. Reviewers valued the integration of Elders and culture-bearers into the camp and appreciated the focus on intergenerational learning. However, some identified the reliance on Elders to provide localized knowledge and cultural connections as a potential barrier for communities where Elders and culture bearers are less accessible. Additionally, some reviewers were in favor of increasing the use of Indigenous language throughout the camp.

## **Scientific Teaching in Physical Environments**

By engaging camp participants in outdoor and interactive activities, *Molly's Salmon Protector Camp* embodies age-appropriate principles of effective science teaching. Reviewers cited the consistent use of science journals for camp participants, supported by the use of videos and purposeful questions to reinforce concepts like observation and data collection, as evidence for the camp's use of best teaching practices. Reviewers valued the variety of hands-on activities and the opportunities for learning outdoors. Reviewers also valued the use of Indigenous scientists in the video, although some expressed a desire for additional opportunities to highlight science careers or roles in the community. Additionally, some noted that fishing trends and declines in salmon population may serve as a barrier for communities in Interior regions of the state that are unable to access salmon for camp activities.

## **Effective Use of Technology and Materials**

Reviewers highlighted *Molly's Salmon Protector Camp's* use of live-action videos, animation, a digital science journal app, and characters from *Molly of Denali* as unique and effective features that engage participants and support learning through a multi-sensory experience. They valued the comprehensive supporting materials, such as a camp preparation guide, noting that these resources support the camp's adaptability for communities across the state. While some reviewers expressed concern that reliance on video and app-based components could pose challenges for smaller or under-resourced communities, all agreed that the multimedia elements remain a key strength of the camp.

# Discussion

Findings from the scale-up evaluation highlight the effectiveness of *Molly's Salmon Protector Camp* in achieving the Molly Community Science Project's objectives to engage children in environmental science learning by leveraging local expertise and centering Alaska Native values and practices. Features such as learning from Elders, incorporating Indigenous language and stories, offering engaging and dynamic activities, and providing flexible curriculum and materials contributed to a program that reviewers believed would be both adaptable and valuable to Alaska Native communities statewide.

While reviewers identified some potential barriers for communities based on resources or geography, the scale-up evaluation also identified several recommendations to future camp implementation or design:

- Incorporate more Indigenous language into the camp curriculum, along with additional language materials to support camp facilitators.
- Include a list of culturally-relevant stories to support communities who are unable to recruit an Elder or culture-bearer.
- Expand on examples of science careers or local science experts, while maintaining a broad view of what science roles in a community can look like.
- Incorporate more information on historical and current fishing trends, along with proposed actions for camp participants to embody a salmon protector.
- Expand accessibility of the Molly's Science Journal App by making versions compatible with more devices.
- Incorporate examples and advice from facilitators as camps are implemented across the state.