

Marine Invasive Species Learning as a Component of Bering Sea Days, St. Paul Island

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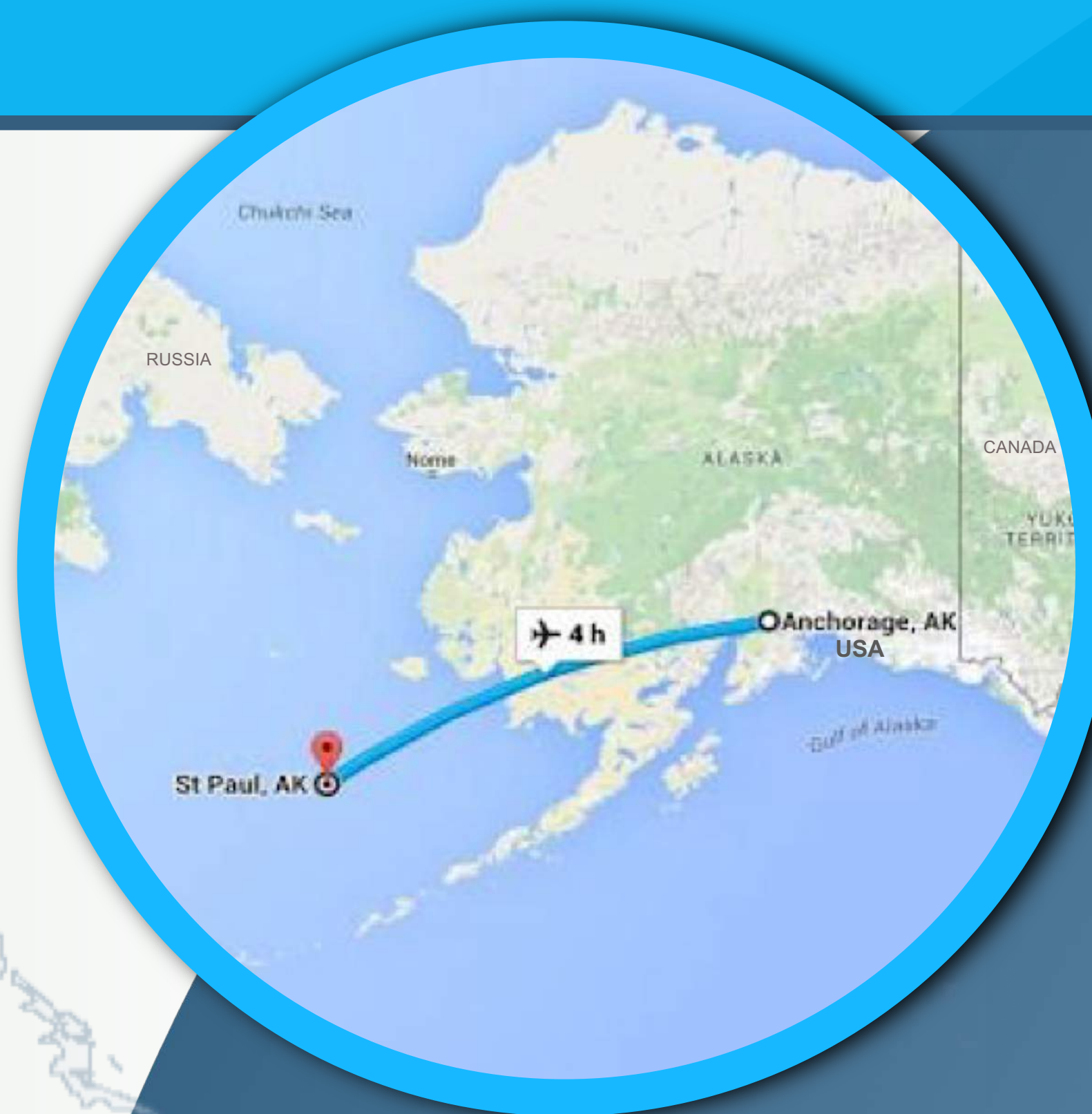
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Introduction

Bering Sea Days is a weeklong program for grades Pre-Kindergarten through 12 held on St. Paul Island. Visiting scientists lead classes and field trips on cultural and environmental subjects. The 10th Annual Bering Sea Days was held October 9–14, 2017.

In 2017, the Arctic Council adopted the Arctic Invasive Alien Species (ARIAS) Strategy and Action Plan, which encourages use of community-based monitoring programs to expand monitoring for invasive species as human activities increase in the Arctic.

We worked with the St. Paul School District and Aleut Community of St. Paul Island to establish community-based invasive species monitoring on St. Paul and integrate new lessons on invasive species into Bering Sea Days.



Methods

- ❖ In an invertebrate lecture and lab, students worked with live native invertebrates from St. Paul. Then, at the harbor, students collected physical data and learned about the Plate Watch Program's monitoring for marine invasive invertebrates.
- ❖ We developed an invasive species tag game based on "sharks and minnows." First, European green crab "minnows" invaded St. Paul from the mainland and were tagged by currents and fish predators as "sharks," slowing the invasion. In the second round, we attached the crab to boats, making them harder to tag, illustrating the effect human vectors have in increasing the spread of invasive species.

- ❖ Students played an invasive species forensic game developed by Kendra Bush-St. Louis. Each sailed a "vessel" of hydrochloric acid to worldwide "ports" and exchanged their "ballast." One infested port contained hydrogen peroxide instead of hydrochloric acid, which revealed the infestation by turning pink. Students used their "log books" showing the order of ports visited to identify the infested port.



Objectives

- ❖ Establish marine invasive species monitoring to support ARIAS Strategy objectives using the Smithsonian Environmental Research Center's Plate Watch Program.
- ❖ Develop lessons for Bering Sea Days that focused on marine invertebrate fouling communities.

- ❖ An Arctic Council simulation placed students in grades 6–12 into delegations from four Arctic Council nations: Iceland, Norway, The Russian Federation, and Canada. In a simulated working group meeting, the delegations negotiated a proposal for invasive species monitoring and recommendations for ballast water reporting for the Arctic. Younger students learned about Arctic geography.

Outcomes

- ❖ A marine invasive species monitoring station for the Plate Watch Program was established on St. Paul Island and integrated into the invasive invertebrate lecture, lab, and field trip.
- ❖ Through an invasive species tag game, students in grades 4 and 5 learned how humans spread invasive species.
- ❖ Through an invasive species forensics game, students in grades 4 and 5, and 6–12, learned how ballast water from vessels visiting different ports spreads invasive species.
- ❖ In an Arctic Council simulation, students in grades 6–12, learned how the Arctic Council is structured and how decisions on ballast water management in the Arctic might be made.
- ❖ Students in Pre-K and grades 2 and 3 learned Arctic geography.
- ❖ Throughout the week, students demonstrated understanding of the concepts taught in the lessons.

Acknowledgements

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