



Salish Sea Expeditions

“Sound and Source”

NOAA B-WET Conference

Stephen Streufert & Jenny McColloch

Pacific Northwest Region

July 14-16, 2009



Salish Sea Expeditions

* Core Program

◆ *Sea Investigators*

* B-WET (2008 – 2010)

◆ *Sound & Source*

◆ Enhancement to *Sea Investigators*

* Lessons Learned







Guiding Precepts

#1

Student Choice





Guiding Precepts

#2

Real World Experience



The Sea Investigators Experience



1. Prep Sessions – Classroom



2. Expedition - Carlyn



3. Synthesis Visit - Classroom



Classroom: Group Research Design



Inquiry-Based Approach



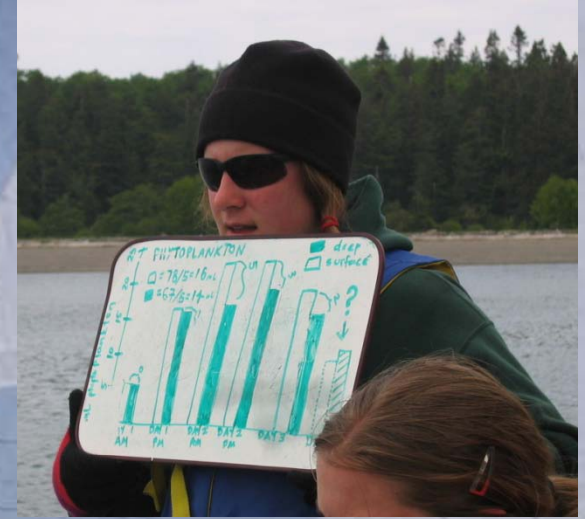
Expedition: Science and Sailing



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Synthesis: Communication of Results



Journal of Student Research on Puget Sound



Journal of Student Research on Puget Sound

The collected reports of the student scientific explorations aboard the *SV Carlyn*

Salish Sea Expeditions is a catalyst for students in their inquiry of Puget Sound through boat based-scientific exploration.

Does Phytoplankton Like Phosphates?

**Trafton Elementary School -- Grade 5
Arlington, Washington**



2005
Volume 1:1-4

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Salish – By the Numbers

- ✳ 5600 students and teachers served since first expedition in 1997
- ✳ Target: 75% Public Schools
- ✳ Target: 25% “Free/Reduced Lunch Schools”
- ✳ > 30% of Students from Traditionally Under-Represented Populations
- ✳ ≈ 550 students annually on ≈ 25-30 Research Expeditions, 3-5 days in length
- ✳ Programs in Spring and Fall



“Sound and Source”

Repeating the Cycle of Inquiry

- ✳ **Enhancement of *Sea Investigators* programs**
- ✳ **Watershed-based field investigations**
 - ◆ Precepts of Student Choice and Real World application consistent
 - ◆ Individual needs assessments with participating teachers & teacher trainings
 - ◆ Salish staff present in classroom visits and field-based data collection
 - ◆ Curriculum support and equipment loans
 - ◆ Research Grants



“Sound and Source”

Repeating the Cycle of Inquiry

* Puget Sound Student Science Symposium



Potential Investigations

- * Streams/Lakes
- * Beach or Coastal Zone
- * Forests
- * Salmon
- * Major Rivers (i.e. Duwamish)
- * Agricultural areas
- * Urban systems (i.e. wastewater)
- * Schoolyard Studies
- * Long-term site studies





Sound & Source Objectives

- * Deepen students' scientific understanding & comfort level
 - ◆ Repeated inquiry-driven projects
 - ◆ Marine research further contextualized with watersheds
- * Broaden scope and context of Salish experiences
 - ◆ Additional students' involvement (up to entire grade level)
 - ◆ Mitigate restricted boat capacity and costs
- * Increase community partnerships
 - ◆ Connections to ongoing, real-world research and projects
- * Establish Traditions of Research in Schools
 - ◆ Provide teachers with skills, support and motivation



Bainbridge High School

- * Fall/Spring Sea Investigators expeditions (up to 58 students)
- * Sound & Source (120 students)
 - ◆ Participation in ongoing C.O.B.I. & Suquamish Tribe Beach Seine Project (juvenile fish and spawning habitat)
 - ◆ Practice investigative methodologies (homework):
 - ◇ Beach transects for species diversity around coastline
 - ◇ Build-Your-Own plankton net tows (through NOAA student plankton net construction guidelines)



Bainbridge High School (cont'd)

- ◆ Each of 4 sections designed & conducted extended nearshore investigations (in class & homework)
- ◆ Applied for “research grants” for materials and equipment loans
- ◆ Puget Sound Student Science Symposium



Lessons Learned

- * **Consistency of approach**
 - ◆ Value of Choice for Students
 - ◆ Value of Choice for Teachers/Schools
- * **Variety in teachers' abilities to instigate and manage field research**
- * **Excitement from boat program is catalyst for field investigation enthusiasm spreading to other students and teachers**



Lessons Learned (cont'd)

- ✳ Strength of Salish's B-WET model has drawn additional funding and partners
 - ◆ Weyerhaeuser Labs
 - ◆ WA Department of Ecology; area Foundations
- ✳ Recognition of advantages of “controlled” (and contained) environment of boat platform vs. onshore
- ✳ Successes in working with diverse populations and schools is rooted in fundamentals of program design
- ✳ Tending the balance between the process and product of science



Thank you!

“Going through the process of designing, executing, analyzing, and presenting a research project is done better at Salish than anytime in these students’ K-12 experience.”

–High School Teacher

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