CIOSS & SMILE: A Partnership for Ocean Sciences Education
The SMILE Program

Science & Math Investigative Learning Experiences (SMILE) Program: A University-School Partnership
The SMILE Program is ...

- An academic enrichment and college readiness program for historically underrepresented and other educationally underserved students

- A collaboration between Oregon State University, and twelve public school districts

- A program of activities that influence student attitudes and behaviors about learning, achievement, and the importance of staying in school
The SMILE Program

SMILE Communities

- Oregon State University
- Forest Grove
- Dayton
- Woodburn
- Willamina
- Siletz/Toledo
- Warm Springs
- Madras
- Sisters
- Chiloquin
- Cave Junction
- Pendleton
- Ontario
- Nyssa

Open minds. Open doors.
Program Goal

To increase the numbers of historically underrepresented and other educationally underserved students who:
• Graduate from high school prepared for college
• Pursue higher education and prepare for careers in: Engineering, Mathematics, Science, Health Professions, and Teaching

To accomplish this goal, we increase the number of targeted students who:
• Participate in after-school math and science enrichment, SMILE Clubs
• Attend college connection events
Enrollment in Clubs by Gender and Ethnicity

- Female: 63%
- Male: 37%

- Hispanic: 41%
- White: 24%
- Native American: 20%
- African American: 1%
- Asian: 1%
- Pacific Islander: 1%
- Multiracial: 12%
The SMILE Program

CIOSS/SMILE Partnership Goals
Bring ocean sciences and remote sensing to teachers, students and community members by:

• engaging graduate students and researchers in creating and delivering outreach
• increasing teacher understanding of ocean sciences and use of satellite data to engage students
• providing learning opportunities for high school students in clubs and on campus that engage them in applied ocean sciences
• promoting student’s interest in science, in science careers, and the importance of higher education
CIOSS/SMILE Programming

• Teacher Professional Development
• Activities and Materials for SMILE Clubs
• College Connection Event - High School Challenge (HSC)
Teacher Professional Development

• Providing the science background to support the high school clubs
• Providing activities and materials for the clubs
• Engaging teacher through hands-on activities
Example Club Activities
General Ocean Sciences

- Making Waves
- Comprehending Currents (temperature and density)
- Tracking Tides
- Oil Spill Clean-up Strategies
- Fisheries Management
- Boom and Bust Cycles
Example Club Activities
Satellite Data and Remote Sensing

• Observing upwelling through sea surface temperature
• Observing primary production through chlorophyll
• Shoebox satellites
• Observing ocean currents
• Weather maps and satellite images
• Color data interpretation
• Mapping activities, satellite data
College Connection Event-
High School Challenge

Students apply the skills and knowledge developed in their clubs by:
• Working in teams
• Learning and applying science in the context of a scenario
• Interacting with research faculty and graduate students in ocean science
• Sharing their knowledge with a larger audience
• Seeing science in a social context
Ocean Science HSC Scenarios

2005: Oil Spill Remediation
2006: Fisheries Science
2007: A Rescue at Sea
College-student mentors lead activities to develop team, communication and community skills.
The SMILE Program

Teams begin collecting initial information about the challenge problem

Oregon State University

Open minds. Open doors.™
Teams discuss their initial findings, forming their questions for the specialist sessions.
Team members learn science applicable to their challenge from faculty and graduate students in specialist sessions.
Teams prepare their presentations for the culminating activity of the challenge.
In sharing their conclusions with the public, students experience the connection between science and “real-world” problems.
CIOSS Benefits From

- Increased opportunities for researchers and graduate students to communicate with high school teachers and students
- Increased capacity to accomplish effective outreach
- Expanded outreach and engagement with underserved audiences through effective after-school programming
- Greater teacher awareness and content knowledge about the role of satellite research in ocean science
- Increased awareness and knowledge among high school students of ocean sciences research and careers
- Facilitated engagement and support for a COAS graduate student in the SMILE office
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Envision…Believe…Succeed…