

Seabird Education Awareness on Alcatraz: Reducing Disturbance Through Education

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Environmental education and outreach programs are an effective tool for reducing human-caused disturbance to wildlife and increasing public awareness. In the San Francisco Bay area, there is a significant lack of public awareness of the nesting seabirds on Alcatraz Island. PRBO's data document that nesting seabirds on Alcatraz are subjected to a substantial amount of disturbance from human activity, particularly walking, boating, and flying too close to seabird nesting sites. To reduce human caused disturbance to seabirds, education staff at PRBO Conservation Science created a multi-visit classroom and field seabird education program, "SEA Alcatraz." The SEA Alcatraz program focuses on three topics related to seabirds on Alcatraz: marine food webs, seabird ecology and conservation, and human-caused seabird disturbance in San Francisco Bay and on Alcatraz Island. After completing SEA Alcatraz, student awareness of human-caused disturbance, the marine food web, and seabird ecology and conservation issues increased. Students gained an awareness of Alcatraz as important wildlife habitat and demonstrated their knowledge of the threat of human disturbance to seabirds through the creation of outreach materials for marine user groups. Students created outreach posters urging people to reduce disturbance to seabirds on Alcatraz by boat, aircraft and foot; respect and protect seabirds for their role in the food web; and respect the environment. Posters were distributed to marine user groups around San Francisco. Student posters and additional marine user outreach has contributed to decreased disturbance to the seabirds of Alcatraz as documented by PRBO data. SEA Alcatraz is one of many necessary steps to raise awareness of the value of public places for wildlife habitat, reduce human caused disturbance, and help foster a more conservation-minded local and global community.

Key Words - *seabird; disturbance; education; conservation*

Theme: Public Education

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POSTER ABSTRACTS: Public Education, Outreach, & Research Journal

National Estuarine Research Reserve's Education Programs: Effectively (and Easily) Broaden the Impact of Your Research Through Partnership

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NOAA's National Estuarine Research Reserve System strives to improve the management of our nation's estuaries through integration of research and education. San Francisco Bay National Estuarine Research Reserve offers education programs that share results of research conducted in the Reserve sites and elsewhere in the estuary with the public, K-16 students and teachers, and coastal decision makers. There are several ways that estuarine scientists can partner with San Francisco Bay NERR's education programs to effectively inform or involve these audiences. Options for partnership range from easy, no-cost opportunities like the provision of simple content for use in our "Research in the Reserve" poster series, to working with our Coastal Training Program to develop workshops that provide science, tools, and techniques to decision makers.

Key Words - *broader impacts; outreach; Rush Ranch; China Camp; education*

Theme: Public Education

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Science-Based Delta Restoration Curriculum

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The Restoration Trust (Trust) has developed an environmental education program for fourth grade classes to be used in conjunction with restoration of the tidal and upland habitats at the Shin Kee site located in Stockton, California. The Shin Kee restoration site is a 142-acre tidal marsh that was constructed in the fall of 2008. The environmental education program emphasizes hands-on activities, presentation skills and inquiry learning. The Trust developed the curriculum based on California State science standards and worked with educational consultants to reflect opportunities or weaknesses in current school programs. The curriculum focuses on Delta food webs, the formation of the Delta, and current challenges facing the Delta.

The Trust developed a 16-page Student Field Book that includes site-specific information, a “Road Trip” through the Delta’s major ecosystems, a glossary of science terms, specific places for students to record their fieldwork, observations, results and conclusions, plant and wildlife keys, and activities that develop science vocabulary. The 24-page Teacher’s Guide includes a reproduction of the student book, explanations of class and fieldwork, details how fieldwork addresses content standards, and provides a description of pre- and post- classroom visits.

The Trust leads classroom and fieldtrips in both the fall and spring to explore Shin Kee and engage in site experiments. In the fall, the classroom day is centered on Delta formation. During the fall field day, students plant bulrush and measure their size to see how much they will grow by the next field day. They also look at a cut within the soil to observe soil characteristics in the marsh. In the spring, the classroom session focuses on food webs and primary productivity in the Delta. In the field, students measure the growth of their planted bulrush and conduct a phytoplankton pull.

Key Words - *environmental education; delta; restoration; shin kee; tidal marsh; food web; delta formation*

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The Watershed Project's Clean Shorelines Initiative

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Marine debris is a problem for oceans, coasts and watersheds around the world, and humans are the cause of it all. Our single-use mentality and "out of sight, out of mind" relationship towards human waste, especially garbage, is threatening the healthy survival of our waterways. The San Francisco Bay is in critical condition due to high pollution levels, most of it flowing from our local creeks. The fundamental problem is the culturally dysfunctional relationship between urban communities and nature, stemming from a lack of understanding of the impacts of litter and the connectivity between our creeks, shoreline, bay and ocean.

The Clean Shoreline Initiative (CSI), is designed to reconnect urban communities to nature, resulting in long-term behavioral change. Our holistic approach includes a community-based marine debris prevention, reduction and removal program that integrates K-12 education, public outreach, and volunteerism. Through this combination, the CSI program will actively remove debris from local waterways and educate local communities on how to reduce and prevent marine debris.

To date, we have facilitated efforts among Bay Area citizens of all ages, from both private and public sectors, to stop littering and start stewarding. Last year, we reached over 200 teachers and over 4,000 students through our education campaigns. Moreover, two thousand volunteers came out for 30 clean up events, removing over 8,174 lbs of trash from our creeks and shorelines. We are using Urban Rapid Trash Assessment Surveys to assess the composition and quantity of trash that accumulates in hotspots around West Contra Costa and North Alameda County, and plan to track this data and compare changes over a five year period.

The CSI vision is a Bay Area citizenry that appreciates and actively stewards our waterways. By changing our cultural view of watersheds, we shall change our behavior, and reduce riparian and marine debris.

Key Words - *education; outreach; marine debris; pollution prevention*

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Environmental Science Academy at Oakland High

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The Environmental Science Academy (ESA) at Oakland High School (OHS) is highly focused on educating the urban youth about the environment and how much impact humans have on the environment. Students apply to join the academy at the end of their freshmen year and are accepted in their sophomore year of high school. Once accepted, they take both biology and environmental studies their sophomore year. As seniors, they are required to take Advanced Placement Environmental Science. During the sophomore year, students go to Lake Merritt every Tuesday to study the lake's water quality and establish baseline data for the lake. Additionally, throughout the year, students in the ESA can go on various trips to places ranging from the Catalina Island Marine Institute in southern California to Lake Tahoe in northern California; moreover, all trips involve a college tour so students are allowed to increase their knowledge of colleges to help them make wiser choices when applying. Students who are part of the ESA at OHS also volunteer with environmental groups like EarthTeam and Save the Bay to clean up local creeks, plant native plant species at marshes, collect electronic waste, and etc. Not only does this benefit the local community, it also helps the students to understand that simple actions can help the environment. These experiences make them aware of the importance of the Bay in our lives and the need to protect its water quality, wildlife and beauty.

Key Words - *ESA; Oakland; High; EarthTeam; Save the Bay; Environmental Science Academy*

Theme: Public Education

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Overcoming the Tragedy of the Commons via Persuasive, Educational Surveys

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With the Tragedy of the Commons, the self-interested majority favors a climate-harming policy because of perverse individual incentives. “If only I change, I’m worse off; if we all change, we’re all better off ... hence, I won’t change.” Self-interested Bay Area majorities favor two climate-harming policies: a) Prefer Not-In-My-Back-Yard (NIMBY) land use policies over regional smart growth to minimize driving, b) Prefer free suburban workplace parking to subsidize solo commuting over green commute alternatives. Two persuasive surveys provide a “fair” set of pro/con policy arguments for #a and #b (where “fair” follows political science “framing” theory). The pro-climate arguments are based on a richer set of facts, but the main argument is an explanation of the Tragedy, followed by an appeal for long-term over short-term optimization. Both surveys were sufficiently persuasive to “change belief” to bring about a pro-climate voting majority. [Research funding provided by U.S. Environmental Protection Agency’s Transforming Office Parks into Transit Villages Study.]

Key Words - *NIMBY; smart growth; parking; commuting*

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Environmental Science Academy of Oakland High

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ESA isn't only just the Environmental science academy of Oakland High, a learning opportunity for inter-city students about the Environment, it's also a community outreach effort. It starts out for most students during the 10th grade with a 2 period block of classes. The students could have taken other classes, like a PE class or an Art class that they need to finish but they decide not to. Then as the year progresses the new sophomores come down to the local lake for a hands-on learning experience. The 60 students of that year of ESA are grouped together, forming a community amongst themselves. Once their sophomore year is finished the students spend a break from the environmental sciences, but are still grouped in their community in their junior yr. During this time and into college the students are offered a wide variety of trips from tours of UC Merced, white water rafting, and snorkeling in the vast ocean. Then during the academy students' senior they take the AP course of environmental sciences a vigorous course like other AP classes. Once a graduate these students may come back to provide to the community as environmentally educated leaders. Graduates will contribute to the protection and preservation of our community and even our bay with their education. Even if the ESA alumni do not work in the environmental sciences field because they know how to make a difference. Once they show that they as individuals can make a difference, they will get others in their community to step up also. That is the mission of the Environmental Science Academy, we don't only reach out to our own students, we reach out to the community around us.

Key Words - *ESA ; School ; intercity ; academy ; student*

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Giving wetlands a voice

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The San Francisco Bay Joint Venture (SFBJV), one of 18 habitat Joint Ventures nationally, is a partnership of public agencies, environmental organizations, the business and agricultural community and local governments all working to protect, restore, increase and enhance the wetlands and watersheds of the San Francisco Estuary.

We have two websites, both considered invaluable tools for outreach. **www.sfbayjv.org** is our internal website serving our network of over 100 partners with useful and timely information about wetland related funding, projects, issues, jobs and events. The website is promoted through our extensive mailing list through a bimonthly electronic bulletin.

For the more general public we offer **www.yourwetlands.org**, which features downloadable audio programs including bimonthly podcasts about wetland related issues and the people doing the work to protect them. We also offer audio tours of the bay, including our most recent posting of three stop, learn and listen locations in the South Bay.

The poster will highlight some of our outreach tools, including information about the tours:

- To inspire creativity and the use of social media as an important component to any outreach strategy.
- To highlight and promote our recent audio tours of the South bay.

Key Words - *outreach; education; podcasts; audio; social media; wetlands*

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San Francisco Estuary and Watershed Science

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San Francisco Estuary and Watershed Science is an online scientific publication that serves to educate the interested public, inform the scientific community and encourage informed discourse and public involvement by providing free access to peer-reviewed scientific research about the Delta, the Estuary, its watersheds, and the adjacent ocean. The journal publishes the latest scientific knowledge describing the health, importance, and critical issues affecting the Estuary. For example, since 2003 SFEWS has published 16 papers that address both climate change and sea level rise and their effects on the estuary. The information provided by SFEWS also addresses the nexus between scientific research performed in the Estuary, its conclusions, and its affect on water management policies and the future of the Sacramento-San Joaquin Delta and San Francisco Estuary. The impact of SFEWS has grown since its inception in 2003, as evidenced by a steady increase in the number of articles down-loaded per year and its inclusion in important international search engines. Our goal is to make the latest peer-reviewed research about the region readily available for people to discover, digest, and discuss, recognizing that credible science is a critical ingredient if the community is to take effective action on behalf of the Estuary.

Key Words - *San Francisco Estuary; Sacramento-San Joaquin River Delta; scholarly publication; on-line journal; open-access; research; climate change; water management policy; sea level rise; effective action; peer review*

Theme: Research Journal

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