



Report Date: June 2008

Award Date: June 2007

Grant ID#: 51047

Grant Amount: \$20,000

Aquatic Adventures, a San Diego based non-profit organization, educates urban youth about science, the ocean, and nature through tuition-free programs, creating the next generation of scientific and environmental leaders. The *SEA Series Initiative* fosters increased study of conservation science, promotes scientific inquiry through discovery in natural environments, exposes students to opportunities for further study of science and careers in science, and cultivates a lifetime stewardship ethic through activities that generate an understanding of the value of natural resources and demonstrate how youth can take action in upstream areas to positively impact San Diego Bay. The program includes a wide array of educational supports, including professional development for teachers and field learning experiences.

SEA Series Outcomes:



- 2,456 students participated in the *SEA Series Initiative*.
- 13,131 total educational hours were provided.
- 51 teachers participated in professional development.
- 51 classrooms received books and science materials.
- 827 student-created conservation campaign buttons were made and distributed to the 6th grade *SEA Series* participants at Monroe Clark Middle School, Montgomery Middle School, and O'Farrell Community School.
- 20 bags of trash were removed from students' neighborhood canyons.
- Native seed was collected and dispersed in students' neighborhood canyons.
- 15 storm drains adjacent to the students' school were painted with "No dumping...I live downstream" stencils.
- 215 youth were mentored by older students in how to make positive environmental decisions.



Content assessments and attitudinal surveys for these units were administered and are being analyzed. **These evaluation data will be available in August 2008.**

Work Completed

Over 2,456 students participated in the *SEA Series Initiative* during the 2007-2008 school year. Students participated in classroom and field based activities where students learned about San Diego's local environments and how their upstream actions impact San Diego Bay.

Each Unit Incorporates:

<p>In-Class Activities</p> 	<p>Students participated in four to six hands-on, interactive, standards-based science lessons in their classrooms led by Aquatic Adventures staff. Interactive program content helped all students to retain information and second language learners to better comprehend subject matter.</p> <ul style="list-style-type: none">• 3rd Grade: Students became "<i>Invert Investigators</i>" learning about invertebrate adaptations to the rocky seashore habitat and how coastal habitats are linked to inland neighborhoods.• 4th Grade: Students became "<i>Wetland Avengers</i>" learning about the importance of the wetland ecosystem and its functions.• 5th Grade: Students became "<i>Research Scientists</i>" performing experiments and exploring the scientific process.• 6th Grade: Students became "<i>Time Travelers</i>" using geologic evidence to discover what the Earth was like in the past and the forces that are shaping its future.
<p>Field Exploration</p> 	<p>All students participated in one science or environmentally focused field trip led by Aquatic Adventures staff, offering a venue for experiential learning of science content and an opportunity to explore local coastal resources.</p> <ul style="list-style-type: none">• 3rd Grade: Students tide pooled to discover invertebrate behaviors and adaptations in the rocky seashore habitat and conducted quadrat analysis to assess biodiversity.• 4th Grade: Students explored wetland habitat at the Chula Vista Nature Center.• 5th Grade: Students voyaged on a research vessel, using scientific instruments to gather information about the ocean environment, and identifying live plankton with different types of microscopes.• 6th Grade: Students visited the Birch Aquarium where they used visualization technology to "fly" over the Earth's ocean and to better understand plate tectonics and simulate coring techniques to study microfossils.

<p>Environmental Service</p> 	<p>All students participated in a locally based environmental service project related to the science curriculum and led by Aquatic Adventures staff.</p> <ul style="list-style-type: none">• 3rd Grade: Students conducted a street cleanup in their neighborhood and painted storm drains with “No Dumping” signs emphasizing how local actions in urban communities affect their neighborhood environment and tidelands.• 4th Grade: In partnership with the Sierra Club San Diego Canyons Campaign, students worked with community volunteers to conduct habitat restoration in an urban canyon neighboring their school. Students worked on projects to improve habitat function in their area of the watershed to benefit the bay and ocean. Restoration activities varied depending on each canyon’s needs and included planting native species, collecting and dispersing native plant seed, removal of trash, and creating a native plant demonstration garden.• 5th Grade: Students mentored younger students while playing the “Save Our Island!” board game which requires them to make good environmental decisions.• 6th Grade: Students designed and created posters to encourage others to conserve resources and to reduce, reuse, and recycle emphasizing that individual, local actions can make a difference.
<p>Classroom Teacher Support</p> 	<p>All teachers received support and classroom materials to enrich and extend their students’ science and literacy learning.</p> <ul style="list-style-type: none">• All teachers participated in a curriculum-based professional development workshop led by Aquatic Adventures.• All sixth grade teachers participate in a science-based professional development workshop led by a research scientist.• All classroom teachers received standards-based language arts, science, social studies, and math lessons linked to the hands-on science activities for use in their classrooms.• All classroom teachers received theme-related books for use with the curriculum units, enabling them to meet language arts requirements. In addition, all sixth grade teachers received a science kit for use with the curriculum units enabling them to provide hands-on scientific learning experiences.