

## Education Report 2011 – Making an Impact through Diverse Programs

### THREE YEAR TRENDS

	2009	2010	2011
<b>Overall Educational Service</b>			
Number of children served by onsite educational visits	130,008	118,265	111,898
<b>Total number (including adults) served by Education</b>	<b>221,003</b>	<b>219,155</b>	<b>221,824</b>
<b>Scholarship Program</b>			
Number of children served by onsite scholarships	13,610	15,763	21,721
Number of children served by AOW offsite scholarship visit	1,729	1,530	3,511
<b>Total number of children served by all scholarships</b>	<b>15,339</b>	<b>17,293</b>	<b>25,232</b>

As indicated, the total number of children served by onsite education programs has dropped by 14% from 2009 to 2011. This is a clear indication of the pressures schools are facing due to challenging state and local budget issues, as funding for field trips continues to be cut from school budgets. In response, the Aquarium has been increasingly successful in securing scholarship support, which provides free programming to Title 1 schools throughout Southern California. Approximately 67% of visiting students served by the Aquarium come from Title 1 schools. Although the Aquarium’s overall educational service number has remained steady at approximately 220,000, **there has been a significant 64% increase in the number of scholarship students served** over this time frame.



### NEW ACCOMPLISHMENTS FOR 2011



**High-tech Interactive Learning** The Roddenberry Education Videoconferencing Studio opened at the Aquarium in October, equipped with state-of-the-art green screen technology allowing staff to seamlessly transition between program visuals and educator- led discussion. This facility will help meet the needs of students who are not able to travel on field trips, such as a juvenile hall high school group who was the first group to participate. Animals were delivered to the school in advance, and education staff led the students through a complete squid dissection via videoconferencing. A total of 58 programs in eight states have been conducted in the fourth quarter of 2011, serving 1,261 students, and initial feedback from teachers has been very positive.

*“I would like to first thank you guys from the bottom of my heart. I have used a lot of technology, but have never done anything like this in teaching and was amazed how wonderful it was! You and your staff are not only awesome, but your love for your local ecosystem is clearly evident in all your presentations! Your staff fielded questions with such ease, and I was shocked at the breadth of the knowledge your team has!”*

*-Teacher from Baton Rouge, Louisiana*



**Field Trip Guides** The Aquarium’s new guides fulfill a vital need which has been specifically requested by our visiting teachers. They were developed to help teachers and other chaperones to provide inquiries and thoughtful questions in order for them to get more from their Aquarium tours. The guides provide grade level appropriate information on a unifying theme based on the Life Science portion of the California State Standards, using the Aquarium’s animals and exhibits to demonstrate lesson content. Teachers and chaperones lead their students through the Aquarium using the guide to discuss topics, tying relevant vocabulary and other lessons to what they are learning in the classroom, and asking students relevant questions at chosen exhibits. The guides are handed out as groups arrive, as well as available to download on the Aquarium’s website.

**Polar Region School Program** In November the Aquarium launched its newest education program for high school students, *Frozen*. The fifty-minute lesson incorporates the new NOAA Science on a Sphere® exhibit, and connects to California State Earth science standards. The program integrates a segment of the NASA-produced film *Frozen* and other footage. The class introduces students to new and sophisticated technology based on the capabilities of Science on a Sphere®, presents differences between the Arctic and Antarctic regions and their vital roles in controlling climate, and highlights up-to-date data that demonstrate how we receive information about Earth.



**Blue Whale Research** Photo and location data collected for the past four years by interns and staff on local whale watch trips has been saved and catalogued, and a new grant received in 2011 from the Boeing Employees Community Fund of California will allow the Aquarium to use mapping software to track and document whales that are being photo-identified, and develop onsite and online educational components for our visitors about these endangered whales and their behavior and movement.

*“I congratulate the Aquarium in its efforts to launch an interactive mapping tool for utilizing its spatial database on whales. I am also impressed and encouraging of the proposal to utilize this resource in a number of creative and innovative ways. It’s a rare and unique opportunity when a single project can effectively serve the triumvirate of education, research, and conservation, and I have no doubt that the Aquarium will create an amazing end-product for all stakeholders and users – from researchers to students.”*

*-Cheryl M. McCormick, Ph.D., Executive Director, American Cetacean Society*

## SCHOOL PROGRAMS AND PARTNERSHIPS

**Scholarship Program** As noted above, overall student attendance at the Aquarium continues to be impacted heavily by California’s budget problems and the downturn in the national economy. Teachers have communicated to us that the biggest hurdles they face when planning field trips are transportation costs and

administrative support. We expect economic problems with our school audience to continue into the foreseeable future, and we are working to increase support for teachers through fundraising that includes admission, programming, and bussing. **Thanks to our generous funders, over 25,000 children from throughout Southern California participated in Aquarium visits and programs at no cost in 2011.**



### **Chavez Elementary and Washington Middle School Partnership**

As part of the RISEabove (Raising the Impact of Science Education) partnership, Aquarium educators led and facilitated numerous events at Chavez Elementary and Washington Middle School in 2011. From a full hands-on grade appropriate lessons to family field trips, this program made a significant impact for 500 elementary and 1,000 middle school students in Long Beach. The program included a family sailing trip on the American Pride Tall Ship, a trip to the California Science Center, and a day of snorkeling for twenty teachers at Catalina island – enriching and unforgettable experiences for all who attended.

Both kindergarten and first grade classes had a live animal component to their lessons this year. First graders watched caterpillars change to butterflies, and kindergarten students cared for hermit crabs. And the science lab at Washington Middle School received new valuable classroom materials - thirty-six new lab stools and eighteen new dissecting microscopes were purchased to help facilitate future lessons by the science department. Dissection equipment was used for a squid dissection lesson at the middle school.

*“Without the Aquarium those kids never would have had any science...because they’re pretty much 100% Math and English, because they’re expected to take the same tests as regular kids...That’s why I so appreciate the Aquarium, because one thing we don’t have at school is a lab. We don’t have the training, the time or the resources to do any kind of hands-on. So when they came in and did an erosion lab, that was huge. Because how boring is it to study erosion in a textbook!” -6<sup>th</sup> Grade Teacher, Washington Middle School*

Thousands of Aquarium tickets were also given to Chavez Elementary and Washington Middle schools - provided as an incentive for attendance, academic performance, and behavior initiatives. This venture has been a success at both schools. For example at a recent event, Washington Middle School students proudly boasted about the number of tickets they received for proficient-and-higher scores on recent math and reading tests. Many students stated that they were looking forward to visiting the Aquarium with their families during spring break and serving as tour guides for younger siblings.



The RISEabove program culminated in an Aquarium event where students, teachers, and families from both schools were invited, and highlighted the Aquarium-inspired art and writing from throughout the year. Over 1,000 people attended the event, which included a live presentation by some of the Chavez third graders. Teachers noted that parents who don’t regularly attend school events were at the Aquarium for this special evening.

**Young Scholars and College Classes** December marked the culmination of our eighth year partnering with Cal State Dominguez Hills to teach *Introduction to Marine Biology*, a distance learning course in the Young Scholar Program. Students from various high schools throughout California enroll in the course and watch the class via webcast. The Young Scholar program provides students a start on college level credits while still in high school. The education department served over 120 students through college programming offerings during September and October. Cal State Fullerton’s animal behavior class participated in an animal enrichment class at the

Aquarium. In addition, over 80 students from UCLA's marine biology course participated in an Aquarium overview and in a demonstration on the Science on a Sphere.

**Marine Science Academy** May 2011 marked the culmination of another successful year of the Aquarium's Marine Science Academy partnership with Saint Anthony High School in Long Beach. During their first year students spend time interpreting exhibits with guests. In the fall of their second year the students enter the QuikScience challenge through USC. The spring semester is spent creating an interpretation station for the Aquarium. The program culminated this year with the seventeen students participating in a competition to create a new interpretation station using knowledge that they have gained over the last two years. The winning station focused on puffins and will be used as a new interpretation station for next year's incoming students.



**Aquarium on Wheels** The Aquarium on Wheels continues to attract a broad audience across Southern California, with over 31,000 people (including almost 21,000 students) served with the mobile touch lab, live presentations by Aquarium educators based on various themes such as sharks, marine mammals and watersheds. This unique mobile learning tool adds to the number of students we reach, as many are unable to come to the Aquarium.

*"I can't thank you enough for the wonderful presentation for the students at Challengers...The students were in awe of the real animals, loved the inflatable animals and were captivated by the sounds they heard. So many questions came to mind that the kids couldn't wait to ask more during the presentation...It was a real highlight for the kids and the staff saw their engagement - this was a great way to kick off an ocean studies program for teens."*  
-Teacher from Challengers Boys and Girls Club in Los Angeles

**Homeschool Visitors** In September the education department hosted its annual Homeschool Days. Homeschool families enjoyed hands-on learning stations and activities, special interpretations in the Ocean Science Center, and opportunities to interact with Aquarium staff and volunteers in the classrooms. This exclusive event was a success with over 2,200 participants. In December, the Aquarium hosted over 500 parents and children during the annual Homeschool Holiday event.

## TEACHER RESOURCES



**NOAA Office of Exploration and Research - Teacher Professional Development** A Learning Ocean Science through Ocean Exploration workshop was hosted by educators in May, and was attended by twenty-four local teachers. Shannon Johnson, research assistant from Monterey Bay Aquarium Research Institute, presented her work on bone-eating worms and whale falls. The education department also hosted a newly developed workshop entitled *Why Do We Explore?* in November. This one-day workshop included educational materials associated with the NOAA ship *Okeanos Explorer* and resources for teaching sixth through twelfth grade science standards using data from deep sea exploration.

**CSULB Pre-service Teacher Workshops** During March and April educators hosted three teacher workshops for California State University, Long Beach credential students. These programs introduced the teachers-in-training to Aquarium resources, activities that integrate marine science into their lessons, and ideas for connecting field trips

to classroom curriculum. Two groups of twenty elementary school teachers participated in a two-hour workshop, and ten middle and high school teachers participated in a three-hour workshop.

**Free Teacher Visit Opportunities** In the month of March we offered free Aquarium admission for teachers and reduced admission for their friends and family. More than 860 teachers took advantage of the offer, with over 550 guests attending. And In June, we offered Teacher Family Day at the Aquarium, where teachers were invited to bring three guests to the Aquarium for free admission. Over 1,200 people participated in the event, which aimed to get teachers comfortable with the facility and encourage future field trips. Also in October, teachers were invited to attend for free –with over 400 participants learned about upcoming workshops, Out of the Box Science trunks, scholarship opportunities, and other no-cost resources available through our website. Special programming at some of these events includes demonstrations of the department’s new videoconferencing capabilities and data interpretation of the Science on a Sphere®.

*“The words EXCITED and REJUVENATE do not begin to describe the feeling I had after leaving your facility. The aquarium has wonderful exhibits that renewed my love for the ocean and the study of biology”*

*-Jody Nathan, Biology Teacher, Poly High School*

**Education e-Newsletter and online resources** In 2011, the Aquarium expanded its efforts to connect with educators by email, capturing more addresses and significantly expanding its listserve. Each month, information about Aquarium events, resources, and other items of interest to teachers is sent to over 5,000 educators across the state and the country. The Aquarium’s website also continues to grow in popularity as a resource for educators, with over 1.53 million unique visitors in 2011.



**Warren Iliff Infectious Enthusiasm Award** In August the Aquarium hosted teacher Laura Romo, who worked with the Aquarium through the partnership with Chavez Elementary and was chosen for this year’s Iliff program because of her creativity and effectiveness in bringing resources to her students and colleagues. She spent one day at the Aquarium discussing ideas for integrating marine science and field trips into the classroom and another day exploring local coastal habitats at Bolsa Chica Wetlands and Upper Newport Back Bay.

## PUBLIC PROGRAMS

**Volunteering** Over 800 volunteers contributed over 65,000 hours of service to the education department in 2011 - a 12% increase over the number of hours donated in 2010. From age 9 to 69, this broad group of dedicated students and community members helped interpret exhibits, provided lesson assistance in classrooms, and contributed behind the scenes in many ways to contribute to the goals of the education department. One of the new ways volunteers helped in 2011 is during our summer late night events at the popular Ray Pool, Shark Lagoon, and jelly touch labs.

**Aquatic Academy, Lectures, and Forums** In 2011, 44 different programs featuring a variety of scientists, authors, policy makers and other community leaders offered a wealth of educational opportunities for adult learners. These popular community events and presentations are attended by Aquarium members and the public.





**Local Whale Watch Trips** These increasingly popular trips run throughout the year, with various whales and other marine life spotted as the seasons change. Aquarium educators and whale research interns are on board to educate guests, answer questions, and provide an enhanced experience for guests. In 2011, grey, sperm, humpback, orca, minke, and blue whales were all spotted within local coastal waters just a few miles outside of Long Beach.

**Day Camps and Sleepovers** The Aquarium education department has offered summer camps each year since opening, which has expanded to ten full weeks of programming as of 2011, and included the highest attendance yet. Over 250 hours of unique content is available for kids ages 2-18. Groups from the YMCA, Girl Scouts, and others are increasingly attending these camps. We also offer sleepovers for groups and families, which are also increasing in popularity.

**Library programs** Last summer, education staff hosted hour-long educational programs for over 240 attendees at seven of Long Beach's public libraries, oriented toward 6-12 year-olds. Programs focused on invertebrates and predator/prey relationships, and participants interacted with moon jellies in a mobile tank.



## PROFESSIONAL DEVELOPMENT AND COLLABORATION

In 2011 Aquarium education staff **collaborated with over eighty other institutions** including academia, school districts, governments, other aquariums, zoos, and conservation groups specializing in various aspects of science education and communication. Highlights include:

- Participating in **Reflecting on Practice** workshops with the Lawrence Hall of Science at UC Berkeley, which helps science educators become more informed and proficient in their educational practice. Participants included Smithsonian Marine Station, Mote Marine Lab, and USF College of Marine Science.
- Leading a **Climate Change communication workshop** along with colleagues from the Monterey Bay Aquarium. Thirty science communicators from thirteen institutions attended the workshop, co-hosted by the California Academy of Sciences and the Aquarium of the Bay in San Francisco.
- Attending the third and final meeting in an ongoing project with a network of aquariums across the country called the **National Network for Ocean Change Communicators**. Topics covered included (1) current research on corals and the science of ocean acidification, (2) sea level rise, especially where it pertains to marine spatial planning, and (3) climate models, certainty, and uncertainty.
- Traveling to Washington, D.C. to facilitate a workshop on science communication for **Knauss Fellowship** scientists. This prestigious fellowship draws talent from a national pool of graduate students, early career scientists, and lawyers who spend a year working on marine policy on Capitol Hill.
- Participating in an **Endangered Species Act training** presented by two representatives from the National Marine Fisheries Service. Training included a description of the Endangered Species Act, including protection and recovery plans, with an emphasis on black and white abalones.
- Presenting two sessions on the RISEabove project with Chavez Elementary and Washington Middle Schools and the *Reflecting on Practice* professional development project at the **National Marine Educators Association** annual conference.