CRYSTAL COVE ALLIANCE
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Media Contact:
Anika Ramirez/HKA, Inc.
(714) 426-0444, anika@hkamarcom.com

POP! FIZZ! ORANGE COUNTY STUDENTS TO CONDUCT OCEAN ACIDIFICATION EXPERIMENTS AT CRYSTAL COVE

Through Crystal Cove Alliance's New Environmental Education Program, Local Students Work with Researchers to Study a New Global Concern

Newport Coast, Calif., Jan. 29, 2009 – Crystal Cove Alliance (www.crystalcovealliance.com), the non-profit organization dedicated to the restoration, conservation and education at the Crystal Cove State Park Historic District, is connecting students from 10 Orange County classrooms with University of California, Irvine, Stanford University, and Oceana researchers to study the global environmental issue of ocean acidification.

Part of Crystal Cove Alliance's annual SNAP! (Science and Nature in the Park) Exhibition, the new Ocean Acidification Lab will be conducted at the Crystal Cove Park & Marine Research Facility (historic cottage No. 22) from Feb. 2-11.

"Within our first year of SNAP! and the opening of the Park & Marine Research Facility, we've developed an exciting new educational program that immerses students directly into a critical environmental issue," said Harry Helling, president and CEO of Crystal Cove Alliance. "The program is designed to increase student interest and performance in science, improve environmental literacy and showcase California State Parks as a place for innovative programming. The Ocean Acidification Lab was developed over the course of a year and is one of the highlights of a new series of public and K-12 educational programs offered during the four-month SNAP! Exhibition."

Concerned with the global environmental issue of ocean acidification, Crystal Cove Alliance research partners have been investigating this phenomenon at Crystal Cove. Ocean acidification is when carbon gases caused by human activities are released into the atmosphere and then absorbed into the ocean where carbonic acid is formed. The acidity poses a serious threat to coral reefs, some shelled animals and marine ecosystems.

Through the SNAP! Exhibition, Crystal Cove Alliance is involving Orange County students in the study of ocean acidification through the use of a curriculum designed by UCI, Stanford University and Oceana researchers and a team of committed junior high and high school teachers. This curriculum helps Crystal Cove Alliance make science instruction in the classroom relevant to local students by supporting classroom learning with hands-on lab experiments at Crystal Cove's Park & Marine Research Facility.

Each day of the Ocean Acidification Lab, a different participating class from an Orange County junior high or high school will conduct various lab activities. In the Park & Marine Research Facility, the students will rotate through four different studies:

> **Field Sampling:** Students will collect seawater samples from Crystal Cove's shoreline and carefully record physical parameters such as temperature and pH.
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> **Testing CO^2 In the Ocean:** Using lab equipment**,** the students will investigate how carbon dioxide in the atmosphere can increase acidity in the oceans. Students will mix a combination of yeast, sugar and water to generate CO^2, which is bubbled through their seawater sample where pH is carefully monitored.
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> **Effects of Ocean Acidification on Calcifying Organisms:** Students answer the question of which of Crystal Cove's shelled animals could be most affected by acidic oceans by measuring the loss of mass in nine different shell samples submerged in a mild acid.
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> **Urchin Lab:** In a collaborative project with Stanford University, students measure the average length of sea urchin larvae arms grown in normal and acidic ocean conditions.

Part of the training for teachers included a real-time connection via videoconference with Oceana's Dr. Jeff Short directly from the International Climate Conference in Copenhagen, Denmark last December. After the students leave Crystal Cove, they will spend four months preparing for an environmental debate. Each class will send a delegation to UCI on May 22, 2010 representing a developed, developing, or undeveloped nation for the U.N.-style debate. Participating Orange County schools include:

- Costa Mesa High School
- Dana Hills High School
- La Paz Middle School
- Marina High School
- Rancho San Joaquin Middle School
- Sage Hills High School
- Segerstrom High School
- South Lake Middle School

About SNAP! (Science and Nature in the Park) Exhibition
The Ocean Acidification Lab is part of Crystal Cove Alliance's new SNAP! Exhibition initiatives, which leverages the $750,000 raised to bring the Park &

Marine Research Facility (Cottage No. 22) into operation. SNAP! attracts scientists into the park in exchange for new data to better manage Crystal Cove Alliance's natural resources and for participation in the non-profit organization's emerging educational programs. Occurring annually from November through March, SNAP! enables world-class environmental experts to conduct park research while directly involving students and park visitors in the science that impacts the environment.

Throughout the inaugural 2010 SNAP! Exhibition, "Serving Up Science," Crystal Cove Alliance park visitors and K-12 students have worked with scientists and participated in a variety of research projects in addition to the Ocean Acidification Lab. Projects include Dolphin Citizen Science research that logs public observation of dolphin movements in the park; tidepool research walks; endangered Snowy Plover population study; gnatcatcher population study; and a MicroSurfscience Lab where tiny organisms that live in the surfzone at Crystal Cove are studied. During the four month duration of SNAP!, Crystal Cove's Rotating Exhibition Center in cottage No. 46 will showcase the various SNAP! programs happening in the park and how visitors can get involved.

About Crystal Cove's Park & Marine Research Facility
In 2008, Crystal Cove Alliance restored and transformed historic cottage No. 22 within the Crystal Cove State Park Historic District into a state-of-the-art Park & Marine Research Facility. The new facility is available for use by researchers conducting approved projects within the park and is outfitted with both wet and dry labs, marine aquarium, microscopes, centrifuges, autoclave, a de-ionized water maker and high-speed Internet. In little more than the one year since it opened, the Park & Marine Research Facility has attracted scientists and researchers from Oceana, SCRIPPS Institution of Oceanography, University of California, Irvine, Chapman University, Stanford University and California State University, Fullerton.

About Crystal Cove Alliance
Recently referred to as "the most important non-profit to emerge in the region," Crystal Cove Alliance is dedicated to protecting and preserving the Crystal Cove State Park Historic District's cultural, natural and historic resources.

Crystal Cove Alliance was founded in 1999 to stop a planned luxury resort in Crystal Cove. The organization went on to become Crystal Cove State Park's official non-profit partner, secure the 20-year concession contract for the restaurants and cottage rentals and clean up the Los Trancos watershed. In 2007, Crystal Cove Alliance was awarded the prestigious Governor's Historic Preservation Award for restoring 21 of the historic cottages. Today, Crystal Cove Alliance's leadership in fundraising, restoration, education and concession services has led to one of the most successful public-private partnership models in California State Park's history.

For further information, or to become a member of Crystal Cove Alliance, please visit www.crystalcovealliance.org

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