



# THE TERN TIDE

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## *President's Tern*

### **2018 Numbers and Volunteer Appreciation**

By Charles Falzon

It is my pleasure to use this column to thank 2018's dedicated volunteers and to tell you the numbers of participants in our tours, bird walks, and FLOW classes. This is an impressive list of accomplishments, and it creates a full picture of the Amigos de Bolsa Chica's education and outreach work. And it could not have been achieved without donations from our members, some small grants, and our incredibly dedicated and knowledgeable volunteers. Thank you for your time and amazing efforts!

For our **first Saturday of the month public tours**, which had been curtailed the last months of the year due to the footbridge closure, we served 152 people. Docents for Saturdays were Jim & Jennifer Robins, Elissa Warrantz, Bill Stern, Kim DiPasquale, Bob Johnson, Barbara Felberg-Jackon, Chuck Drescher, Nancy Boyd-Baststone, Terry Jorris, Bob Johnson, Nancy Curtis, Bobbie & Gregg Placek, Terry Hill and Darla Zero.

**Last Saturday of the month Bird Walks**, also curtailed by the footbridge closure, had 72 participants. Birders who led those walks were Terry Hill, Karen McReynolds, Kim DiPasquale, and Vic Leipzig.

For **private, scheduled tours** for schools and scouts, we had 12 tours serving a total of 297 participants. Docents were Al Vari, Terry Jorris, Jerry Donohue, Nancy Curtis, Karen McReynolds, Janelle Sorenson, Susan Hardgrave, Kim DiPasquale, Barbara Stewart and Jim & Jennifer Robins.

656 students from fifth grade through community college participated in **FLOW**. The Citizen Scientists who assisted: Adam Babcock, Nancy Curtis, Annie Daw, Kim DiPasquale, Jerry Donohue, Chuck Drescher, Lily Falzon, Daniel Fillet, Linda Fillet, Rosy Falzon, Judy Huck, Terry Jorris, Kyoko Kremp, Tamara Mason, Michelle Miller, Jim & Jennifer Robins, Justin Stanphill, Bill Stern, Isabella Suarez and Wesley Turner.

*President's Tern continued on page 7*

# **Volunteer Naturalist Training Starts Thursday, January 31**

By Jennifer Robins

The Amigos de Bolsa Chica is happy to announce a brand-new Volunteer Naturalist Training Class (formerly known as Docent Training Class) to start on Thursday, January 31, 2019 at 7:00 p.m. at the Bolsa Chica State Beach Visitor Center, and run for eight weeks on Thursday evenings through March 21. Cost of the class is \$75.00 which includes a unique Training Manual, a binder of photos to use on the tour, an official name tag and upon completion of the classes, certification as a Volunteer Naturalist.

The topics to be covered are Birds, Endangered Species, Ecology, History, Restoration, Wetland Native Plants, Vertebrates and Invertebrates, the Gabrieleno Band of Mission Indians and Teaching Tips for New Naturalists. The presenters include experienced Naturalists, a retired teacher, the California Dept. of Fish & Wildlife Manager of the Bolsa Chica Ecological Reserve, and a Tribe Biologist of the Gabrieleno Indians.

Not only are we welcoming new faces who want to lead informative tours of the Bolsa Chica Ecological Reserve, we are strongly encouraging all experienced Amigos volunteers to sit in on the new classes at no cost as we have revised the scope of the training – and all of our educational material – so that Amigos tours of the BCER meet the Next Generation Science Standards.

The Next Generation Science Standards is a multi-state effort in the United States to create new education standards that are “rich in content and practice, arranged in a coherent manner across disciplines and grades to provide all students an internationally benchmarked science education.” The Amigos’ Docent Training has always been in-depth and has encompassed the material in the new standards; to an extent, it is nothing new. But by revising both the Naturalist (Docent) Training class and the Training Manual to focus clearly on the standards, the Amigos Docent-led tour can more directly assist teachers in their studies by presenting material to students and groups that is aligned with the new standards.

Not only will this effort encourage teachers and schools to schedule Amigos wetland tours, we feel this vastly simplifies the information Naturalists will have to present. For instance, rather than emphasizing bird species identification, which may be overwhelming to a first-time volunteer (or visitor) to Bolsa Chica, the Standards instead focus on birds’ adaptations to different habitats and different food sources with different bills and different feet. In revising the Training Manual, the Amigos Education Committee has created a bullet pointed syllabus that assists both new and returning volunteers in hitting the main topics students need to know. We look forward to meeting new people who are interested in learning about more about wetlands and who want to share their knowledge with students, scouts and adults. Please email [info@amigosdebolsachica.org](mailto:info@amigosdebolsachica.org) or call 714-840-1575 to sign up for Amigos de Bolsa Chica Naturalist training.

## **Thank You for Your Year End Donations**

Thank you to everyone who contributed during our year-end fundraising period. Your donations are what keeps the Amigos de Bolsa Chica in business. As of Decemeber 18, those who elected to be recognized in the *Tern Tide* are:

Maria Buhbe, Margaret Carlberg, Kim DiPasqualie, Charles Falzon, James & Patricia Gilchrist, Peter & Mitsuko Gordon, Thomas Greely, Peter Green, Winona Gustafson, Marilyn Harris, Tom & Lyn Hermstad, Terry & John Hill, Bob & Betty Hogan, Sally & Bob Kurz, James & Victoria Lane, Eva Lydick, Joan McCauley, Marvin Nellicks, Mel Nutter, Kevin Powell, Florence E. Purdy, Marilyn Rowe, Emily Renzel, Gordon Smith, Ellen Stern, William Stern, Terri Taylor, Mary Wilson, and Diane Zink.

# ***The Importance of Tidal Circulation in the Restored Bolsa Chica***

By Kim DiPasquale

The Bolsa Chica Ecological Reserve represents decades of challenges, legal battles, hard work, dedication, public education and multiple restorative efforts but it wasn't until August 24, 2006 that the 367-acre full tidal basin was opened to the flow of ocean water near Seapoint Street. This part of the restoration brought marine life and salt marsh habitat back to an area that had been separated from the ocean for over 100 years.

The Bolsa Chica is best described as a tidal salt marsh: a coastal ecosystem within the intertidal zone that is regularly flooded by the tides. Its multiple services include the mixing and distribution of nutrients, oxygen production, natural flood and erosion control, a nursery for fish, a habitat and food source for migratory birds, and a repository for native and endangered plants and animals. The marsh also functions as a carbon sink and helps remove carbon dioxide from the atmosphere.

There are many interacting factors that affect the structure and ecological function of a salt marsh such as climate, salinity, nutrient supply, and substrate but the frequency and duration of tidal flooding is the dominating factor. The importance of hydrology (the movement of water across the land) cannot be minimized because even small changes in hydrology can result in significant biotic changes and decreased support for the food web in general.

An ecosystem is defined as a biological community of interacting organisms and their environment. In a wetland, the starting point is the climate and the structure of the basin. These two factors will influence the speed and frequency of water that enters the system and the water level. The hydrology will then have an effect on the physical and chemical properties of the marsh sediment accumulation and oxygen and nutrient availability. These factors then influence the health, abundance and diversity of the vegetation, animals, and microbes. Since part of an ecosystem's function involves feedback loop mechanisms, the biota will then have an influence on both the physiochemical environment and

the hydrology. To say that these mechanisms are complex is almost an understatement, but that is the reality of nature.

In Southern California, tidal circulation is especially important to coastal marshes because of our minimal rainfall, low runoff, and general drought conditions. Therefore, sea water provides most of the soil moisture for inter-tidal wetlands. There is also a tendency for our wetlands to become closed to tidal flow through the formation of sandbars across the ocean connection. One reason for this is that longshore currents move sand along the coast making the entrance to marshes unstable and if the tidal flow and circulation are blocked, the water becomes stagnant, the salinity increases in the tidal basin, the water temperature increases, and oxygen levels drop. This clearly has a detrimental impact on all plant and animal life and on the overall health of the ecosystem. If the lack of tidal circulation is left unattended long enough, death of the ecosystem will result not to mention the unaesthetic conditions, the offensive odors, and the increased pest densities which would include disease carrying mosquitoes.

In order to protect the Bolsa Chica inlet at Seapoint Street, annual dredging services are required so that the vital ebb and flow of seawater into the full tidal basin can be maintained. This is an expensive undertaking costing roughly one million dollars annually and funding is likely to run out by 2020 so new sources of funding will most likely be necessary. The Bolsa Chica is a precious resource that was saved from the development of a marina and large neighborhoods and then restored and protected as an ecological reserve. It behooves us to continue to nurture and protect it for the treasure that it so rightfully is.

References:

Mitsch, Gosselink. *Wetlands*, 2007.  
Roman, Burdick. *Tidal Marsh Restoration*, 2012.  
Zedler, *The Ecology of Southern California Salt Marshes*, 1982

# FLOW Training Day Friday, January 18

By Jill Lemon

Would you like to learn more about Bolsa Chica, both beach and wetlands? Would you like to know about the organisms that create over half of Earth's oxygen and is the basis for the ocean food web? We need your help to keep an eye on Bolsa Chica's water conditions, productivity and chemistry. And, we would like you to share this knowledge with visiting students, many of whom are from underserved schools and have never see the ocean.



Entering its fifth year of looking at Bolsa Chica's microscopic inhabitants, the Amigos de Bolsa Chica's FLOW Program is hosting an intensive training for new Citizen Scientists. It will be held Friday, January 18 at the Bolsa Chica State Beach Visitor Center from 11:00 am to 2:00 p.m.

As a volunteer Citizen Scientist for FLOW, you will learn how to identify potentially harmful plankton species and measure water quality variables such as temperature, salinity, pH and nutrients in efforts to monitor the health of the ecosystem at Bolsa Chica. FLOW's volunteers also help teach all levels of students and the community about environmental and science practices. And you will be part of a network of citizen scientists that collect data all over the state and nation!

*Tom Pfeifer's Environmental Studies students from Segestrom High School earn extra credit during a November FLOW field trip. Photo by Thomas Anderson.*

The training day is designed to provide the knowledge and scientific skill sets you would need to participate, so no previous science background is needed. The Amigos de Bolsa Chica is working on plans for creating more opportunities for citizen science amongst both the volunteers and visiting students. 2019 promises to be the most exiting year for FLOW yet! Contact me at [flow@amigosdebolsachica.org](mailto:flow@amigosdebolsachica.org) to sign up!

## Getting to Know Our New FLOW Volunteers

By Jill Lemon

As the FLOW Program Manager, I want to thank the dedicated volunteers that make its work possible. Week after week, school trip after school trip, our volunteers bring their commitment and passion, acting as leaders for others to Follow and Learn about the Ocean and Wetlands. This year we welcomed some new volunteers.

Kyoko Kremp comes to FLOW with a medical background and experience with microscopes. Her attention to detail has raised all of our skills, and her thirst for knowledge and probing questions inspires learning.

Daniel Fillet is a student at Mater Dei High School and was looking for volunteer opportunities. He spent his summer Fridays at FLOW volunteering and learning about the environment and science; experiences that have prepared him for his academic career and future.

Linda Fillet introduced son Daniel to the FLOW program. As a local resident, they knew of the Bolsa Chica wetlands and wanted to engage and learn more. Linda was committed to providing transportation for Daniel but developed into a resourceful volunteer for FLOW even after Daniel returned to school.

*FLOW continued on page 5*

# Christmas at the Beach with Plankton Races

By Jerry Donohue



More than 50 people celebrated Christmas at the Beach on December 8 at Bolsa Chica State Beach. Before settling down on the beach to watch the film *Elf* projected onto the outside of the Visitor Center, young and old alike viewed plankton under the microscopes. Twenty young people participated in “Plankton Races” where they chose from a variety of lightweight materials in order to construct an object that is like phytoplankton. The intent is to mimic the properties of a species of phytoplankton, many of which cannot propel themselves through the water. If plankton floats too close to the surface, it can be harmed by ultraviolet light, and if it sinks too fast, it does not absorb energy from the sun. The object of the race, therefore, is to sink slowly to the bottom of the water container. Whoever creates the plankton that takes the greatest amount of time to sink wins. This teaches players that the slow descent allows the phytoplankton — the basis of the ocean food web — to absorb energy from the sun while in the most beneficial area of the ocean known as the photic zone. We had three winners whose creations took 5-10 seconds to reach the bottom of the tank.



Young people enjoying “plankton construction” before the movie at Christmas at the Beach. Photos by Lori Donohue.

## *FLOW continued from page 4*

Isabella Suarez is a student and California State Water Resources Control Board employee who engages in the FLOW program, taking a day from her work and studying. FLOW allows her to pursue a connection to her future and give back to the community at the same time.

Please join me in welcoming and thanking these new members to the Amigos family as they allow us to continue our mission of conservation and education.

# Footbridge Reopened and Amigos Public Tours Resume

By Jerry Donohue

Restoration of the bridge at the south parking lot of the Bolsa Chica Ecological Reserve has been completed ahead of schedule. The Amigos will be resuming the regularly scheduled Last Saturday of the Month Bird Walks on December 29, and the first Saturday of the Month Public Tour on January 5.

Enthusiastic walkers, birders, photographers, and new visitors are excited to be able to access the southern half of the reserve once again. The restoration process used 2"x4"x16' composite boards manufactured by Trex Deck. The Havana Gold color mimics tropical hardwoods. These boards have "high performance shells that protect against rot, warp, splinters and termites" for 25 years.

We thank everyone for their patience during this disruption to their routine access to the Reserve. It is a joy to have this area open for the New Year!

*Photos by Jerry Donohue*



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## First Saturday of the Month Tour

Free tours of the Bolsa Chica Ecological Reserve led by Amigos docents.  
9:00 a.m. to 10:30 a.m.

## Last Saturday of the Month Bird Walk

Free bird walk led by Amigos docents. 9:00 am.  
Reservations are encouraged,  
714-840-1575

**Free monthly tours are on a first come, first served basis. Carpooling is encouraged as parking at the Bolsa Chica Ecological Reserve is limited. All tours begin at the south parking lot, PCH between Warner Ave. and Seapoint St.**

# Army Corps of Engineers Evaluates the Largest Remaining Flood Plain in Orange County

By Kim DiPasquale

The Westminster/East Garden Grove area is the largest remaining flood plain in Orange County. On November 5, 2018 the Chicago Division of the Army Corps presented a preliminary study of this area and potential solutions for flood protection against the next 100-year flood.

California has suffered from catastrophic flooding every 100-200 years with the last one being in 1861 when it rained for 43 days and dumped 60 inches of rain in Los Angeles alone. Incidentally, this flood was preceded by a 20-year drought. With this in mind and with concern over climate change and sea level rise, the Corps has been working on options for what they refer to as upstream and downstream modifications. Upstream options include building bypass channels,

dams, and retention basins, and modifying the structure of existing channels. Because there is constriction of water flow under the Warner Bridge and because optimal function of the tidal gates is critical, possible downstream modifications include dredging the Outer Bay, rebuilding or removing the tidal gates, building a sea wall, and possibly raising Pacific Coast Highway. The downstream modification will be addressed first.

The Army Corps does recognize and appreciate the potential risk to marine life, adjacent fringe wetland habitat, and migratory birds. They emphasize that this is a preliminary study only and that a final report is expected in early 2020. They also indicated that this project will take decades to complete.



## President's Tern continued from page 7

The Amigos also participated in various community events with the following volunteers:

- Newport Bay Conservancy World Wetlands Day: Jerry Donohue, Judy Huck, Chuck Drescher, Joana Tavares, Kim DiPasquale, and Jim & Jennifer Robins.
- Bolsa Chica Earth Day: Bill Stern, Chuck Drescher, Jerry & Lori Donohue, Jim & Jennifer Robins, Roman Garcia, Bob Johnson, Nancy Boyd-Batstone Tom Pfeifer, Zion Pfeifer and Tom Pfeifer's environmental studies students.
- Fountain Valley High School STEAM Fair: Jerry Donohue, Jim & Jennifer Robins, Chuck Drescher, Daryth Morrissey, Daryth's students, Zion Pfeifer, Tom Pfeifer and Tom's students.
- *Saving the Bolsa Chica Wetlands*, Woman's Group Presentation: Fran Pike, Jim & Jennifer Robins and Susan Hardgrave.
- Tiger Woods International STEM Studio: Jerry Donohue, Kim DiPasquale, Daryth Morrissey, Jim & Jennifer Robins, Dan & Linda Fillet, Joana Tavares and Kyoko Kremp.
- Girl Scout Conference: Jerry Donohue and Kim DiPasquale.
- Golden West College Science Symposium: Jerry Donohue, Daryth Morrissey and Kyoko Kremp.
- *Saving the Bolsa Chica Wetlands*, Huntington Beach Senior Center Presentation: Bill Stern, Jerry Donohue and Kim DiPasquale.
- California Coastal Cleanup: Kim DiPasquale, Bob Johnson, Jim & Jennifer Robins, Tom Pfeifer and students.
- Girl Scout STEM Expo at Cal State Fullerton: Judy Huck and Jerry Donohue.
- UCI Climate Solutions Summit: Shirley Dettloff, Charles Falzon, Judy Huck, Jerry Donohue and Joana Tavares.
- Christmas at the Beach: Jerry & Lori Donohue.



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## AMIGOS DE BOLSA CHICA MEMBERSHIP APPLICATION

I support the specific and primary purpose of Amigos de Bolsa Chica, which is to advocate the preservation, restoration and maintenance of the Bolsa Chica, to encourage the public acquisition of all the wetlands and sufficient surrounding open space to create a viable ecosystem, and to provide education about the importance of wetlands.

### ANNUAL DUES

\$ 10 Student

\$ 25 Individual

\$ 40 Family

\$100 Sustaining

\$1000 Life Member

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

### Additional Contribution:

\$ \_\_\_\_\_ Fund operational expenses    \$ \_\_\_\_\_ Fund education projects    \$ \_\_\_\_\_ Total enclosed

### Please check if you are interested in volunteering for:

FLOW Citizen Science \_\_ Docent training/wetland tours \_\_ Wetlands cleanups \_\_ Fundraising \_\_ Grantwriting \_\_

All contributions to Amigos de Bolsa Chica are tax-deductible as allowed by law under IRS Code Section 501(c)3.

No goods or services were provided in consideration of this gift.

Return application to: Amigos de Bolsa Chica, P.O. Box 1563, Huntington Beach, CA 92647