

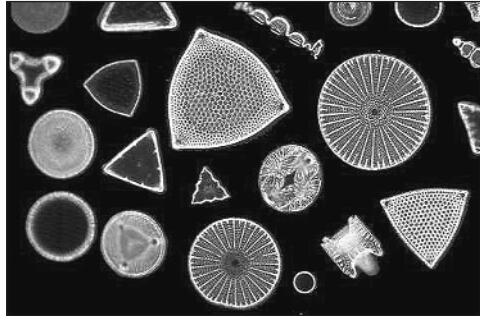
TRACKS

A Publication of the Newport Bay Naturalists & Friends

December-February
2007-2008

It's ALL About the Water

Upper Newport Bay is an estuary—a place where fresh water and salt water mix. The Bay is home, year-round or seasonally, to over 200 species of birds and nearly 100 species of fish. Clams, mussels, worms and other invertebrates abound in the mud. And while visitors may see the birds diving for fish or picking at clams in the mud, all of these animals are dependent directly or indirectly on the abundant living organisms that are present in the water and can only be seen with the aid of the microscope. Welcome to the fascinating world of aquatic ecosystems.



Phytoplankton (Diatoms 400x)

NBNF Mission:

- To *preserve and restore* the ecosystems of Upper Newport Bay.
- To *educate* the public about the ecological value of the Bay and its watershed and help ensure compatible public use.

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Living organisms acquire their food in a variety of ways. On land, plants are able to “produce” their own food by using the energy of the sun. The plants are “consumed” by plant-eating herbivores which in turn are consumed by flesh-eating carnivores. All food chains start with many producers at the lowest trophic (feeding) level and end with only a few large carnivores such as a mountain lion or bald eagle at the highest trophic level.

In the open water the algae are the producers. Although algae are not plants, they have chlorophyll and are able to produce food by the process of photosynthesis. During this process, organisms use carbon dioxide, water and light to make carbohydrates. The oxygen which is released as a byproduct becomes part of the dissolved oxygen content in the water. It is the dissolved oxygen, and not the oxygen in the water molecule itself, that fish and other animals use for respiration.

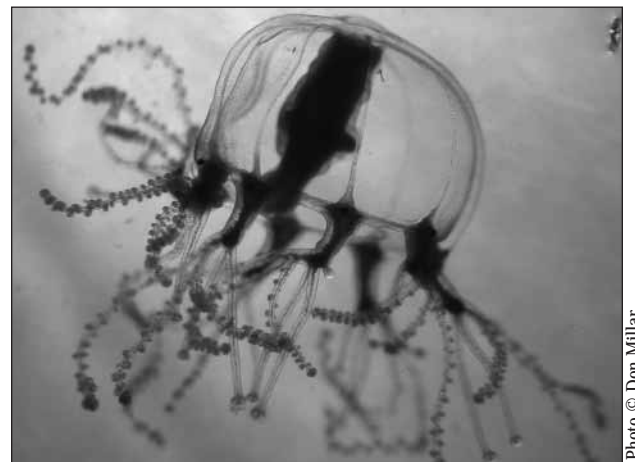
Visitors to the Bay see the floating mats of sea lettuce and other large algae, but most of the algae in the water are microscopic phytoplankton. These miniscule plant-like organisms are food for tiny zooplankton (animal-like floating organisms), the next trophic level in a marine ecosystem. The zooplankton include the eggs and larvae of fish that spawn in the Bay. Most of the eggs and larvae are in turn food for the consumers at the next trophic layer, which includes not only fish but also mollusks and many other fascinating marine creatures. Mollusks, such as clams and mussels, filter the water to collect their food. This diverse animal group can be found in the mud flats at

low tide where they are a source of food for migratory birds. As we move up the many interconnected marine food chains at the Bay we finally get to top predators such as the leopard shark and the osprey.

We need to recognize the effects we cause to complex food webs through our activities. It is imperative that all species in the food web are viable because they are interdependent. Catching undersized fish clearly threatens the survival of the species, if not enough fish reach maturity and reproduce. As some species of fish may lay as many as a million eggs, this poaching also affects the whole food web.

We also impact the food webs by what we do to the water. The unique chemistry of water allows for the existence of a multitude of organisms in aquatic environments. One characteristic is the transparent nature of water, which permits light to penetrate the surface allowing photosynthesis for various types of producers. Another characteristic is the particular molecular structure of water that allows required nutrients to be able to dissolve in water. Yet another important quality of water is its heat-absorbing capacity. Because the amount of heat energy required to raise its temperature is high, a body of water provides a stable environment for its inhabitants despite large atmospheric temperature fluctuations.

The amount of dissolved oxygen is one important indicator of the quality of water and determines the number of organisms which *continued on page 4*



Zooplankton (immature jelly 40x)



Yes, I want to be a Friend in 2008 at the membership level noted:

- | | |
|--|---|
| <input type="checkbox"/> \$1,000 Heron | <input type="checkbox"/> \$500 Osprey |
| <input type="checkbox"/> \$100 Egret | <input type="checkbox"/> \$50 Tern (Family) |
| <input type="checkbox"/> \$25 Pelican (Individual) | |

Name: _____

Address: _____

Phone: _____

My check payable to the Newport Bay Naturalists & Friends* is enclosed.

Please charge my Visa Mastercard Discover

Exp. Date _____

Card # _____

Signature _____

I wish to make an additional gift of: \$ _____

Total Amount given: \$ _____

Please send me information on Planned Giving

*A registered 501 (c) 3 non-profit organization. Your donation is deductible to the full extent of the law.

Mail completed form and payment to:

Newport Bay Naturalists & Friends
P.O. Box 10804
Newport Beach, CA 92658-5008

Membership Benefits:

Heron: \$1000

Two exclusive private guided walking, canoe, or kayak tours for up to 8 people. 11x14 signed color photograph by renowned photographer Russ Kerr. Scheduled kayak tours with 50% discount. Quarterly TRACKS newsletter. 10% discount on NBNF merchandise.

Osprey: \$500

One exclusive private guided walking, canoe, or kayak tour for up to 8 people. 8 x10 signed color photograph by renowned photographer Russ Kerr. Scheduled kayak tours with 50% discount. Quarterly TRACKS newsletter. 10% discount on NBNF merchandise.

Egret: \$100

Laminated color brochure, Local Birds of Orange County. Scheduled kayak tours with 50% discount. Quarterly TRACKS newsletter. 10% discount on NBNF merchandise.

Tern \$50 (family) and Pelican \$25 (individual)

Scheduled kayak tours with 50% discount. Quarterly TRACKS newsletter. 10% discount on NBNF merchandise.

**For additional information, please call
(949) 640-1751 or visit us at
www.newportbay.org.**

Looking Forward to 2008

This is the time of the year when we, as an organization, assess our accomplishments and project our future goals—a difficult task given the diversity within our organization.

Our mission is to protect and restore the ecosystems of Upper Newport Bay, to educate the public about the ecological value of the Bay and its watershed, and to help ensure compatible public use. We have close to 200 active Naturalists—about the same as the number of species of birds found here at the Bay. Each Naturalist has a niche—much as each species of bird does. But just as the Bay is more than the birds, our organization is more than the Naturalists. Just as the waters and mudflats of the Bay are teeming with life that provides sustenance to the birds, our Friends members, sponsors and donors provide sustenance to our Naturalists as they strive to carry out our mission. The Summer 2007 issue of *Tracks* paid tribute to all our Naturalists who together put in over 10,000 documented hours of volunteer service last year. We would now like to thank everyone else who contributed to our success.

In many ways 2007 has been a time of rebirth for our partners and ourselves. We support and are in return supported by OC Parks, California Department of Fish and Game (DFG) and the City of Newport Beach, and we collaborate with many other organizations at the Bay, in its 154 square mile watershed, and beyond. The Spring 2007 issue of *Tracks* spotlighted the many new OC Parks and DFG staff at the Peter and Mary Muth Interpretive Center and the Back Bay Science Center. We are pleased to report how well everyone has been working as a team. The teamwork is exemplified by the very successful Cleanup Day organized jointly by DFG, OC Parks, California Coastal Commission, Newport Seabase, Newport Aquatic Center, Rotary Club, NBNF and others. More than 1,200 members of the public came out on September 15 and collected roughly 16,500 lbs. of trash and 7,500 lbs. of recyclables from in and around the Bay. Thank you to everyone who participated.

State Street has awarded us a generous grant to procure and outfit a vehicular trailer to store and transport tools to the various restoration sites around the Bay where we replace invasive plants with native ones, and perform trail maintenance. The dedicated trailer will cut mobilization/demobilization time drastically and allow the staff and volunteers organizing and leading the many joint community-based restoration events around the Bay to be far more effective. Expect to see more and more ambitious restoration events next year and beyond with this added capability.

I look forward to 2008 with tremendous enthusiasm. We celebrate forty years of “Friends” nature tours at the Bay. The new Back Bay Science Center will be open. A major exhibit upgrade will take place at the Interpretive Center. Development of a Comprehensive Resource Management Program for the state, county and city lands and water at Upper Newport Bay will be underway. And an integrated vision for the watershed that will provide better long-term protection for the Bay will be in place. The opportunity to build our education programs is particularly dear to my heart. As a Naturalist nothing pleases me more than to see the looks of joy on the faces of inner-city students seeing a heron or egret for the first time. I feel privileged to have helped them to discover the beauty and awe of nature. And, as Executive Director of the Newport Bay Naturalists and Friends, I feel a sense of achievement in helping make things happen.

If you are already a Friend, thank you again for your support. We hope that you will continue that support by renewing your individual or family membership for 2008. If you are not yet a Friend, please take this opportunity to join us by completing and returning the form on the left. To find out about the benefits of Friends Membership, or obtain information on our Corporate Membership program, please call (949) 640-1751 and request a brochure or visit us at www.newportbay.org.

*Roger Mallett, Executive Director
Newport Bay Naturalists and Friends*



Upper Newport Bay Calendar of Events

December 2007–February 2008

Steward Days—Every Wednesday, 9:00–11:00 a.m.

Support the Bay's unique genetics at our restoration sites by collecting seeds & propagating plants. Learn how to grow natives in your backyard, attract wildlife and conserve water. For information call (949) 640-0286. Location code: BBSC

Kayak Tours—Every Saturday, 10:00 a.m.–Noon at the Dunes

Join a trained naturalist for a guided kayak tour of the Back Bay. Meet at the Newport Dunes Resort. \$15/person, 8 & up. \$10/NBNF members. Be prepared to get wet. Reservations (949) 923-2269. Location code: NDR

Kayak Tours—Every Sunday, 10:00 a.m.–Noon at the NAC

Join a trained naturalist for a guided kayak tour of the Back Bay. Meet at the Newport Aquatic Center. \$15/person, 8 and up. \$10/NBNF members. Be prepared to get wet. Reservations (949) 923-2269. Location code: NAC

Walking Tour—Saturday, Dec. 1, Jan. 5, Feb. 2, 9:00 a.m.

Join a trained Naturalist for a 2 hour walk along the bay. Bring binoculars and sun protection. Free. No reservations needed. For information call (949) 923-2269. Location code: BBSC

"Wintry Wetland"—Saturday, Dec. 8, 4:00–5:30 p.m.

Join park staff for an evening of "cool" nature activities. Learn how our local wildlife "chills-out" during winter, enjoy a twilight nature walk and create a holiday nature craft. \$5 per person, ages 3 and up. Call (949) 923-2275 to register or email unbic@ocparks.com. Location code: IC

ROOTS Restoration Teamwork—Saturday, Dec. 8, Jan. 26, Feb. 23, 9:00 a.m.–Noon

Help restore Back Bay habitat by installing and maintaining native plants while learning about wetland ecology. Reservations required. Refreshments, tools provided. (949) 640-0286 for information, reservations and location.

Friends of Newport Bay Walking Tour—Saturday, Dec. 8, Jan. 12, Feb. 9, 9:00, 9:15, 9:30, 10:00, 10:15 a.m.

Walk along the Back Bay listening to Naturalists and visiting Interpretive Stations featuring natural history specialists. Free. No reservations required. Information (949) 923-2269. Location code: EB

2nd Sundays Restoration Program—Dec. 9, Jan. 13, Feb. 10, 9:00 a.m.–Noon

Join the staff at the MIC to enhance the Nature Preserve habitat with non-native plant removal, native plantings and Butterfly Garden maintenance. Reservations (949) 923-2297. Location code: IC

Shellmaker Discovery Tour—Saturday, Dec. 15, Jan. 12, Feb. 9, 9–10:30 a.m.

Join a Naturalist to learn about Shellmaker Island's rich history; the future of the Back Bay Science Center; and discover unusual and endangered plants, birds and crab habitats. No reservations required. No latecomers. Free. For information call (949) 640-9956. Location code: BBSC

Marine Life Inventory—Saturday, Dec. 15, Jan. 12, Feb. 9, 8:15–11:30 a.m.

Marine biology students ages 8 and up are invited to participate in a variety of hands-on marine life monitoring programs in Newport Bay with the Dept. of Fish and Game. Children under 18 must be accompanied by an adult. Free. Reservations (949) 640-9956. Location code: BBSC

Big Canyon Walking Tour—Saturday, Dec. 15, Jan. 19, Feb. 16, 9:00 a.m.

Join a trained Naturalist for a 2 hour walk along Big Canyon Trail and the bay. Bring binoculars and sun protection. Free. No reservations needed. For information call (949) 923-2269. Location code: Big Canyon parking lot.

Sunset Stroll—Saturday, January 19, 4:30–6:00 p.m.

Join park staff for a twilight hike and learn about the wonders nighttime brings to our nature preserve. Dress warmly. This program may be re-scheduled due to bad weather. \$5 per person, ages 3 and up. Call (949) 923-2275 to register or email unbic@ocparks.com. Location code: IC

Art in Action—Saturday, February 16, 4:30–6:00 p.m.

Courtesy of the U.S. Fish and Wildlife Service, join park staff as we combine art and science to celebrate conservation and wildlife management. This program is part of the California Jr. Duck Stamp program; students are encouraged to create artworks featuring native ducks. Various art mediums and techniques will be available. Artwork created will be entered in a state contest. For more information, visit www.caljrduckstamp.org. \$5 per person, ages 5 and up. Call (949) 923-2275 to register or email unbic@ocparks.com. Location code: IC

Scout Programs—Tuesday through Saturday upon request

Join a naturalist for a 2-hour Brownie or Junior Girl Scout Try-it or badge program; or join us for Tiger Cub, Bear Cub or Webelo badge programs. Call (949) 923-2269 or email scoutssi@sbcglobal.net. \$7/child includes patch. Location code: BBSC

For all of the following, call (949) 923-2275 to register or email unbic@ocparks.com. \$5 per child. Location code: IC

Toddler Time (Ages 2–5)

10:30–11:15 a.m. for ages 2–5 years. Join park staff for a parent-child experience with stories, movement and hands-on fun.

Call for program—Wednesday, December 5

"Brrr Bay"—Wednesday, December 12

"Cloud Creations"—Wednesday, December 26

Call for program—Wednesday, January 2

"Nap Time!"—Wednesday, January 9

"Mighty Migrants!"—Wednesday, January 23

Call for program—Wednesday, February 6

"Animal Amour"—Wednesday, February 13

"Rock On!"—Wednesday, February 20

Bayside Buddies (Ages 2–7)

3:30–4:30 p.m. for ages 2–7. Come discover the natural history of the bay through crafts, hands-on activities and nature walks.

"Homeward Bound"—Friday, December 14

"Hibernation Happiness"—Friday, December 28

"Cool Critters"—Friday, January 11

"Weather Wonders"—Friday, January 25

"Cupid's Clues"—Friday, February 8

"Micro World"—Friday, February 22

Wild! Tales (Ages 2–7)

10:30–11:15 a.m. Come visit the park staff for story-telling fun. Learn more about the natural history of the Bay through crafts, hands-on activities and nature walks.

"When Winter Comes"—Thursday, December 13

"Who Lives in the Snow?"—Thursday, December 27

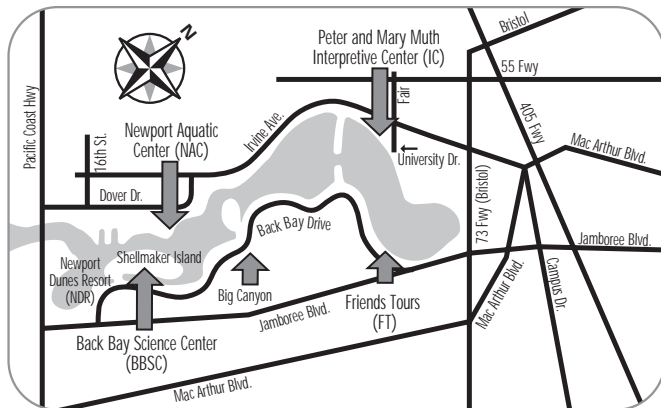
"Flute's Journey"—Thursday, January 3

"Ruby in Her Own Time"—Thursday, January 17

"Quiet Night"—Thursday, January 31

"A House for Hermit Crab"—Thursday, February 7

"Wiggling Worms at Work"—Thursday, February 21



WEB SITES

Newport Bay Naturalists & Friends: www.newportbay.org
 Peter & Mary Muth Interpretive Center:
www.ocparks.com/unbic
 Back Bay Science Center: www.backbaysciencecenter.org
 California Coastal Commission: www.coastal.ca.gov

TRACKS CREDITS

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 Jean Whitaker

LOCATION KEY

Peter and Mary Muth
 Interpretive Center (IC)
 2301 University Drive
 Newport Beach, CA 92660

Back Bay Science Center (BBSC)
 600 Shellmaker
 Newport Beach, CA 92660

Newport Aquatic Center (NAC)
 1 Whitecliffs Drive
 Newport Beach, CA 92660

Captivating Creatures

Marine animals take on many fascinating forms. Some are even mistaken for plants. One of the simplest and most primitive of animals is the sponge. This filter-feeding omnivore is really just a stationary colony of living cells attached to one another. The cnidarians (pronounced "nigh-dare-ee-ans"), another fascinating group of simple animals, use stinging cells called cnidocytes (nigh-doe-sites) to obtain their food. These cells contain poisonous barbs which paralyze their prey. Sea anemones, jelly fish, and corals are cnidarians found in our local marine waters. Microscopic forms of the sea anemone live in the mud flats at Upper Newport Bay.

A more mobile group of animals is the echinoderms, which includes sea stars, brittle stars, sea urchins and sea cucumbers. Usually they have 5-part symmetry. In the sea star and brittle star this is immediately apparent. But this 5-

part symmetry is also present in the sea cucumber; it is just that this creature lies on its side and has become elongated. A sea star has hundreds of tube feet on the underside of its arms. These are tipped with suction cups that are used to grip the shell of a clam or mussel. The sea star can then turn its stomach inside out and insert it into the bivalve and eat it from within.



It's ALL About the Water (cont.)

can be sustained by a particular aquatic environment. Seemingly innocent human activities such as washing cars many miles inland may impact dissolved oxygen at the Bay. The soapy water gets carried by the storm drain system to the Bay. Some chemicals in soaps act as fertilizers and can cause an excessive growth of algae—an algal bloom. As the algae die off, large amounts of oxygen are used in the decomposition process. The dissolved oxygen level may fall so low that fish and other aquatic organisms may not be able to survive.

We must develop an awareness of how organisms depend upon each other. Local educators, students and the community are key parts of this awareness. We can establish guidelines for educational investigations involving local marine environments. Incorporating sound analysis and process skills is vital, too. Educators should motivate their students to gain an understanding of the importance of water quality to the survival of organisms in Upper Newport Bay and other nearby coastal areas. There can be intrigue, inquiry, problem solving and analysis, all in one experience. Perhaps you have seen the delicate stages of sea urchin embryology under a microscope. How this embryo is able to survive long enough to become an adult is dependent on water quality as well as other environmental factors such as human impact. This and many more topics can be addressed in an inquiry based learning environment. The study of marine biology topics with hands-on problem solving techniques will prepare the youth of today with the skills necessary to be the guardians of our ecosystems for many years into the future.