

# Bay Lines

MARINE  
SCIENCE  
INSTITUTE

500 Discovery Parkway  
Redwood City, CA 94063-4715



DISCOVERING OUR BAY

Fall  
2005

[www.sfbaymsi.org](http://www.sfbaymsi.org)

## MSI Supports Oyster Reintroduction into Bay

Native oysters, *Ostrea conchaphila*, were once common in San Francisco Bay, forming thick reef-like beds along the bottom. Today, as any member of the "Mud Club" can tell you, the only remnants of this once-thriving population are broken bits of oyster shells suspended in mud. So what happened to all of the oysters?

As the species name *conchaphila* or "shell lover" implies, planktonic oyster larvae like to settle on beds of large oyster shells. However,



Adult oyster shells in bags ready to go into the Bay.

after decades of dredging, bay fill and gold mining, researchers believe the oyster beds of San Francisco Bay were eventually covered with thick layers of silt. Once the

beds were buried, the young no longer had a place to settle, all but disappearing in the early 1900s. Invasive predatory snails (see pg. 3), pollution and over harvesting may have also accelerated the decline of native oysters.

Today, the restoration of native oysters has been identified by scientists as a key component to cleaning up San Francisco Bay. In addition to serving as a natural filter for the Bay's water, oyster beds create rich micro-habitats for a wide variety of fish, invertebrate and plant life.

MSI, in partnership with the National Oceanic and Atmospheric Administration, the Smithsonian Environmental Research Center,

the Marin Rod and Gun Club, Fish America, and Mactec Engineering and Consulting Inc., have begun to investigate the feasibility of restoring oyster beds in San Francisco Bay. Four months ago, mesh bags full of oyster shells were placed at two sites at the mouth of Redwood Creek and at five other sites around the Bay to see if baby oysters would attach. After monthly monitoring, we are happy to report that we began to

(see "Oysters", page 2)

## Cleaning Up Bair Island

For the third straight year, MSI headed to nearby Bair Island for California Coastal Cleanup Day on September 17. Over fifty MSI members and volunteers attended to cleanup the three miles of trails around this nature preserve.

After three hours of hard work in the morning sun, volunteers picked up over 400 pounds of garbage, ranging from cigarettes and lost shoes to bocce balls and foam insulation. While the amount of debris collected seemed like a lot, we were happy to notice that we collected less garbage than last

year—even though we had more participants this year. Our efforts seem to be paying off.

Statewide, over 50,000 volunteers collected over 800,000 pounds of debris from coastal areas! Once again, the California Coastal Cleanup proved to be the largest single-day garbage cleanup in the world.

Thank you to everyone that helped. MSI would also like to thank Allied Waste/BFI for donating garbage and recycling bins to this worthwhile cause.



## The Brownlee in the Central Bay

This November, for the seventh consecutive year, MSI will run Discovery Voyage programs from docks in San Francisco and Richmond. Apart from fantastic views in San Francisco, voyages in the Central Bay provide unique opportunities to see marine life not normally seen in the South Bay, such as pink bay stars and colorful nudibranchs.



Likewise, Richmond is known to give students some of the best, most diverse fish catches of the year.

In addition, spending two weeks in each location helps MSI reach out to new schools, particularly low-income schools that could not afford the transportation costs to Redwood City for a program.

The *Brownlee* returns to her home dock in Redwood City just in time for Thanksgiving.

## Meet the Staff

### Jackson Gentry-Captain

Jackson came to MSI with an extensive background in commercial fishing. He is full of knowledge about marine life on our coast and in the San Francisco Bay. At MSI, Jackson captains the ship four days a week as well as doing all of the maintenance work required to keep it running. He enjoys working with students all day and is a pro at teaching them all about navigation!



## Translating the Tides

### "Life on the Bay"

Wind blowing in my face  
Sun glowing in the sky  
Nets dragging behind  
The excitement of learning.

Mud splattering all around  
And uncovering tube worms  
Microscopic plankton zig zagging  
Crabs are viciously attacking.

Silvery minnow squirming and flashing in the sun  
Strong frustrated halibut  
Wet velvety scared bat ray  
All anxious to escape.

Boats floating by  
Slimy seaweed floating  
Murky water glimmering  
Sound of peace and stillness.

Katie Swimly  
6<sup>th</sup> Grade

Program Funder: Sidney S. Byers Charitable Trust

## Oysters

(continued from pg. 1)

see the first baby native oysters grow on adult shells right here in Redwood Creek! Initial results are indeed promising.

MSI, along with its partners, will continue to monitor the shells for settlement, growth and survival as well as monitor the invertebrate and fish community that develops around the shell bags.

- By Dennis Rogers

## Fun Facts

- Male bay pipefish (a relative of the seahorse) are the ones to carry the baby eggs.
- About 40 species of organisms have been introduced to San Francisco Bay with oyster shipments over the years.
- Leopard sharks and brown smoothhounds are the two most common sharks found in the Bay.

## Thank You Funders

Grants play a major role in allowing schools to participate in our programs. On average, grants cover 40% of the cost of programs, making them affordable for schools. Grants also allow us to expand our programs. Listed below are all of MSI's funders of \$1,000 or more since Jan. 1, 2004. We thank you for your support of marine science education!

### \$1,000—\$5,000

- \*AAA
- \*A&B Foundation
- \*BAE Systems
- \*The Bernard Osher Foundation
- \*Bill Graham Foundation
- \*California Casualty Group
- \*Calpine Foundation
- \*Central Contra Costa Sanitary District
- \*City of San Jose
- \*Contra Costa Water District
- \*The Corrigan-Walla Foundation
- \*Danford Foundation
- \*Delta Diablo Sanitation District
- \*Doering Family Foundation
- \*Dow Chemical Company
- \*Greater Bay Bancorp Foundation
- \*Jones and Stokes
- \*Junior League of Palo Alto-Mid Peninsula, Inc.
- \*Kimball Foundation
- \*Lockheed Martin Missiles and Space
- \*Morris Stulsaft Foundation
- \*Mt. View Sanitation District
- \*PacifiCare Foundation
- \*Peninsula Community Foundation
- \*Recreational Equipment, Inc.
- \*Scandling Family Foundation
- \*South Bayside System Authority
- \*Toyota Motor Sales
- \*Turner Designs
- \*Ulele Hamway
- \*Wells Fargo Foundation

### \$5,001—\$10,000

- \*Agilent Technologies
- \*Alza Corporation
- \*Danford Foundation
- \*David and Lucile Packard Foundation
- \*Dean and Margaret Leshner Foundation
- \*John and Marcia Goldman Foundation
- \*Juniper Networks Foundation
- \*Lam Research Foundation
- \*Moore Family Foundation
- \*Sand Hill Foundation
- \*Sidney S. Byers Charitable Trust
- \*Sobrato Development Companies
- \*Synopsys

### \$10,001—\$20,000

- \*Cisco Systems Foundation
- \*Oracle Corporation

### \$20,000+

- \*Cable Co-Op
- \*The Robert Brownlee Foundation

## Life in the Bay

### Atlantic Oyster Drill — *Urosalpinx cinera*

One of the more fascinating invertebrates of the San Francisco Bay is also one of the peskiest. A nuisance to oyster farmers, and for that matter to oysters themselves, this small, but crafty snail makes its living by feeding on oysters as well as mussels and barnacles. But how does a snail break open the hard outer shell of an oyster?

The answer, of course, is in its name. This marvel of



Atlantic oyster drill seen here attached to an oyster.

adaptation uses a specialized boring organ, called a *radula*, to drill through the shell of its prey. The *radula* secretes a thick, acidic enzyme that softens up the shell for drilling.

Once through, the snail then simply sucks out the meat.

You may also notice from its name that this invertebrate is not native to the San Francisco Bay. Accidentally introduced to the Pacific between 1869 and 1888, it is now common in San Francisco Bay, Tomales Bay and Elkhorn Slough.

## More Tax Relief for Donations

Did you know that there are *new*, extra tax incentives for individuals who donate large gifts to charities between now and December 31, 2005?

There is no better time to donate to MSI than NOW! Call Jeanine Borland, Development Coordinator, at (650) 364-2760 x14, for more information.

*Bay Lines* is produced by  
Tyler Hammer



WITH THE COMING OF FALL, MSI HAS A COLORFUL VARIETY OF EVENTS FOR PEOPLE OF ALL AGES. IF YOU HAVE ANY QUESTIONS OR WOULD LIKE TO SIGN UP FOR AN EVENT, YOU CAN CONTACT TYLER AT 650-364-2760, EXT. 16 OR BY EMAIL AT [TYLER@SFBAYMSI.ORG](mailto:TYLER@SFBAYMSI.ORG).



### **GOLDEN GATE SAIL – CALL OF THE SEAS VOYAGE!**

**Saturday, October 29<sup>th</sup>**

**1:30pm – 5:00pm**

MSI is happy to offer a truly unique opportunity to sail the San Francisco Bay aboard Call of the Sea's ([www.callofthesea.org/](http://www.callofthesea.org/)) authentic 82-foot steel staysail schooner – *Seaward*. This newest addition to San Francisco Bay's fleet just arrived from Boston in September, so you can be among the first to sail it in the Bay! This voyage will depart from Sausalito and take you on a never-to-forget tour of the central Bay while learning about navigation, coastal history, seamanship and our environmental impacts on the Bay. For ages 7 and above. Cost: \$35/person. Online reservations required, [www.sfbaymsi.org](http://www.sfbaymsi.org).

### **SUSTAINABLE SEAFOOD COOKING CLASS WITH WHOLE FOODS**

**Saturday, November 12<sup>th</sup>**

**3:00pm – 5:00pm**

Spend an afternoon with a chef and seafood specialist from San Mateo's Whole Foods Market. This cooking class demonstration will not only give you the know-how to prepare a delectable seafood dish, but will also provide information and insight into how and why to choose seafood in a sustainable and environmentally friendly manner. Sampling of four dishes and wine tasting included. *Menu and more information to follow soon for this special member event.* Recommended for adults. Cost: \$35/person. Limited availability – Online registration required, [www.sfbaymsi.org](http://www.sfbaymsi.org).

### **SEASIDE STORY HOUR — SEALS AND SEALIONS**

**Saturday, November 19<sup>th</sup>**

**11:00am – 12:00noon**

Join a MSI naturalist for tales of some of the Bay's most beloved animals. This **FREE** event is held on the third Saturday of every month (except December and August) at the Redwood City Library's Main Branch on 1044 Middlefield Road in downtown Redwood City.

### **QUILTING WORKSHOP**

**Saturday, December 3<sup>rd</sup>**

**2:00pm – 5:00pm**

Come help create a group quilt for the Marine Science Institute! We will be making blocks with fish prints and painted pictures of sea life. MSI instructor and quilting extraordinaire, Jennifer Snedeker, will lead this hands-on quilting workshop and will help sew the blocks together. Kids can help with tying the finished quilt. You will also get to create a small piece of fabric art to take home. For ages 8 – adult. Cost: \$5/person. This event will take place in the Marine Science Center. For reservations, please contact Tyler Hammer.