

Bay Lines

MARINE
SCIENCE
INSTITUTE

500 Discovery Parkway
Redwood City, CA 94063-4715



Fall
2007

www.sfbaymsi.org

Delicate Balance: Water and Biological Diversity

Californians are facing a large problem in the form of a small fish. How much of the water headed towards San Francisco Bay should we take for humans, versus leaving for nature to utilize? - While many organisms in the Bay are caught in this dilemma, the Delta Smelt has emerged as the focal fish due to a recent court order restricting fresh water withdrawals from the Delta by up to

one-third. This is a dramatic change considering the importance of this water to agriculture in the central valley, and as a source of drinking water for more than 25 million Californians.



Delta Smelt, USFWS

The Delta Smelt, *Hypomesus transpacificus*, is in the same order of fish as salmon; think of them as their tiny cousins. Like salmon, they head upstream towards fresher waters to bear their young, and then typically die. The balance of fresh water to salt changes seasonally in the Delta, and is an important cue for the smelt - effectively telling the fish what time of year it is and when it's time to migrate. Because they can live only within a limited salinity range (2-14ppt), they can not survive in the saltier waters of the ocean or completely fresh waters of the rivers. This is typical of species adapted to the unique habitat of the Delta, but it is also a weakness since their bare necessities of water quality, quantity and habitat are also greatly desired by people.

Once numbering in the millions, the Delta Smelt was listed to

Continued next column

the U.S. Endangered Species Act in 1993 . Concerns remained high as their populations continued to drop—by 90% in just 20 years. Then this past Spring, state fisheries biologists found only 5% of what was there just one year ago.

Delta Smelt have declined for a variety of reasons: fresh water diversion, introduced species, habitat degradation, and pollution. Drawing away water from the Delta is a top concern as we continue to pull out record-setting amounts in each of the past several years, combined with findings this past Spring that turbines have killed hundreds of thousands of eggs, fry and juvenile Delta Smelt.

Already, of the 29 fish species that evolved in the Delta, 12 have been eliminated or are endangered of extinction. How we decide to use our precious water resources could forever affect the fate of this fish and the entire ecosystem. The silver lining may rest in recent redoubled efforts to restore wetlands, reduce pollution loads, and reduce water consumption. Maybe water is more precious than gold after all!

Summer Marine Camp wrap-up, and more good news...

2007 Marine camp was a huge success. The Marine Science Institute had over 1,040 campers in the 9 weeks. The campers enjoyed a week full of hand-on marine science and exploration field trips to the Estuaries, Beaches and Aquarium. We would like to extend a huge thank you to the staff for making this camp "The Best on the Bay".



MSI is proud to announce that Julie Xelowski-Brooker has been promoted to Program Manager. She replaces Andrea Swensrud, who left us after many years to work for the Girl Scouts Save the Bay. Julie comes to us from the Sonoran Sea Aquarium and has just finished running a superb summer of marine camp. We are excited to have her on our team.

2 easy ways to help
MSI every day!



go to
www.sfbaymsi.org
for details

A Salute To Our Funders

The Marine Science Institute receives grant support from many different foundations and businesses. We would like to recognize those who helped MSI bring science to life in the past year.

\$100,000+

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Does your company have a matching gifts program? Please contact your HR Department or MSI for more information.

Did you know you may make a charitable bequest to MSI? Please contact MSI for details.

Meet the Staff

Alice Lemieux moved to Redwood City from New Hampshire in June of '06 to work for the Marine Science Institute's Summer Marine Camp. She brought with her a Bachelor's degree in marine science, a Master's in environmental education, and a whole lot of enthusiasm to apply both. After an exciting and challenging summer, she decided she liked it so much she wanted to stay on for the fall, winter, spring and another season of camp.



Alice speaks for the fish

Currently, Alice can be found teaching any of the land- or boat-based programs. She especially loves the idea of facilitating an exploration of the Bay for the area's children, forging a very tangible emotional and physical connection. When she's not saving the world, she enjoys craftwork, reading, tide pooling, hiking and camping.

THANK YOU!!!

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Fifty volunteers helped MSI pick up miles of coastline as part of California Coastal Cleanup 2007! Great job team!

Bay Lines
Aaron Tinker, Producer & Editor

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Bay Quilt Project

During the 2006/2007 school year, MSI instructor and quilt artist Jennifer Snedeker started the Bay Quilt Project. Jennifer has been working with 11 of the classes that have studied the bay through programs at Marine Science Institute and Hayward Shoreline Interpretive Center to help the classes create quilts about their experience at the bay. Creating the quilt gives the students an opportunity to creativity reinforce what they have learned about the bay. The class gets to keep the quilt to remind them of their special day at the bay and to reference as they continue to study.



The Bay Quilt Project will be expanding during the 2007/2008 school year to work with more organizations and work with volunteers to sew together the quilts the students are creating. Also, in the fall the Bay Quilt Project will offer a workshop for teachers on how to create their own quilts with their classes following a nature-themed field trip.

The workshop will be held at the Marine Science Institute on Saturday, October 27th from 9 am - 5 pm. For more information about the Bay Quilt Project, volunteering with the project, or the teacher workshop, please contact Jennifer at jsnedeker@jensnedquilts.com or check her website at www.jensnedquilts.com.

Life In the Bay

Thornback Ray ~ *Platyrrhinoidis triseriata*



MSI Instructor Julia Bicht carefully handling a beautiful ray

This past Summer we came across some unusual visitors, the Thornback Ray (or Thornback Guitarfish). Unlike the Bat Rays we see far more frequently, Thornbacks lack the smooth wings and toxic barbed stinger. Instead, these animals rely on rows of tiny thorns lining their back and sides. Here's a little bit about these cool creatures...

They prefer to inhabit sand and muddy bottoms—which explains what they are doing in SF Bay. Still, the sighting is something of a rarity; none have previously appeared in our 30 year database of fish caught on our Daily Voyages on the Bay.

Out in the ocean, they live around kelp forests and can be found to depths of 50 meters. These rays bear live young, with 1 to 15 pups in a litter. Like their elasmobranch relatives, the sharks, they feed on small sand-dwelling crustaceans, worms and mollusks. And amazingly, they possess ampullary electroreceptors which can “feel” small amounts of electricity!

CHECK OUT MSI MYSPACE!

We've just put our little toe into the strange world of myspace. There is not too much there yet, but we hope this will grow into a fun network for students, campers, instructors, and friends everywhere who have been touched by MSI. If you have ideas to make it better, please let us know!

www.myspace.com/marinescienceinstitute

F a l l E v e n t s 2 0 0 7

SEASIDE STORY HOUR Third Saturday of Each Month, 11am ~ noon

Join MSI naturalists for whales of tales and touch live fish & amazing artifacts from the seas. This FREE event is held on the third Saturday of every month at the Redwood City Library's Main Branch on 1044 Middlefield Road in downtown Redwood City. On September 15th come out to read about, see and touch our **Intertidal Marine Life**, from seastars to hermit crabs! October 20th we'll discuss California's **Marine Mammals**. November 17th get close to **SF Bay Fish**. And December 15th we bring out our popular Leopard **Sharks** to teach all about those cute & toothy cartilaginous fish!



Explore Elkhorn Slough by Pontoon Boat! Saturday, October 6th 10am ~ noon

Join MSI to learn first-hand about one of California's most spectacular estuaries. Nationally recognized and protected as an Estuarine Research Reserve, Elkhorn Slough is naturally bountiful as a migratory bird flyway, otter & seal habitat, and home to thousands of other plant and animals. A great family outing! Cost is \$20 for kids, \$28 for adults. Space is limited to 22 people, please register through our web site www.sfbaymsi.org.

Call to the Rescue!

Saturday, October 20th 10:30am ~ noon

Learn what it takes to be a marine mammal rescuer - from the experts! Help staff at the Marine Mammal Center (www.tmmc.org) rescue and rehabilitate a stranded "seal" (a seal model is used) in a simulation activity. Starting on the beach, you will participate in a mock rescue. You will transport the "seal" to our classroom, where you will learn about the tools and techniques used to care for our marine mammal patients. This program takes place at the Marine Mammal Center in the Marin Headlands. Must be at least 6 years old to attend. Cost: \$10/person. To register, contact MSI at 650-364-2760 x16.

Evening Low Tide Walk at Half Moon Bay Saturday, October 27th 5pm~7pm

A perfect alignment of Earth, Moon and Tides will make this a very special walk indeed! Join MSI naturalists as we explore the diverse and colorful intertidal marine life of Pillar Point. Already one of our favorite outdoor classrooms, we expect this to be more stunning than usual as the extreme low - 1.4 foot tide coincides within a minute of sunset! Bring appropriate shoes & a flashlight. This event is free, but advanced registration is appreciated as always. Directions on our web site.

Discovery Voyage in San Francisco!

Saturday, Nov 17th 10am ~ noon

Back for an encore, we are offering another Discovery Voyage for MSI members this Fall. Departing from Pier 40 in San Francisco, this voyage offers you a unique opportunity to see Golden Gate and Bay Bridges and Alcatraz from Central SF Bay. At the same time, delve through mud samples to discover the fascinating invertebrates that thrive at the bottom of the Bay, use a trawl to catch a wide variety of fish species, including sharks and rays, and catch plankton to view under a microscope! These voyages are for MSI members only. Must be at least 4 years old to attend, and ALL children must be accompanied and supervised by an adult. Closed-toe shoes required. Cost is \$10 / person. Space is limited - online registration required at sfbaymsi.org.

Ginger-fish Decorating Party Saturday, December 1st 1-3pm

Tap into your creative powers and design a gingerbread creation with an oceanic twist! In our Marine Science Center we will have leopard sharks, bat rays, starfish castles and **Brownlee** boats waiting to be decorated. All materials provided. Fun for the whole family! See web site for details.

Find out more about our programs and sign-up information at www.sfbaymsi.org
Contact Aaron for reservations (650) 364-2760 x16, or email aaron@sfbaymsi.org