

Over \$10,000 Awarded to Education Projects in 2007

Each year, Estuary Program staff sets aside a portion of the program's annual US EPA grant funding for distribution to the community via the Education and Outreach Mini-Grant Program. **Since 2000, more than \$125,000 has been awarded** to local agencies, organizations and individuals to implement community education projects that improve the health of the Morro Bay Estuary.

The following projects received funding in 2007:

4th Street Overlook Kiosk, Morro Coast Audubon Society, \$1,000
Audio Visual Equipment for Estuary Presentations, Camp KEEP Cambria, \$2,900
Fishermen's Clean Boating Program, Central Coast Women for Fisheries, \$4,500
Projector and Laptop for Community Presentations, Marine Mammal Center, \$2,000
Water Conservation Outreach Event, Health 2 Water Outreach, \$535

Mini-Grant applications are accepted four times a year, with the next deadline falling on March 7th. For more information about both the Mini-Grant Program and Implementation Grant Program, visit www.mbnep.org and click on the grants tab.

Sincere thanks to all of the Estuary Program partners and grantees who help to protect, preserve and restore the Morro Bay Estuary.



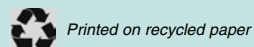
An Estuary Program grant helped the Marine Mammal Center upgrade their community presentation equipment. If your group would like to receive a free educational presentation about the Center's marine mammal rescue work, contact Joyce Ladwig at 712-3354.



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The Morro Bay National Estuary Program is a local non-profit working to protect, preserve and restore the Morro Bay estuary and its watershed. The MBNEP is funded by the U.S. Environmental Protection Agency.

"Turning the Tide" is a free quarterly newsletter. To subscribe, call the MBNEP office or visit our website.



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New Water Quality Monitoring Equipment Installed in the Bay

If you have been out on the bay or have driven South Bay Boulevard recently, you may have noticed several new pieces of equipment in the bay. The new devices are continuous water quality monitoring units installed by SLOSEA (San Luis Obispo Science and Ecosystem Alliance). SLOSEA is a new Cal Poly-based research group focused on the study of the estuarine, coastal ocean and watershed components of the Morro Bay estuary. It is their goal to provide new research data that will create a basis for improved understanding of the Morro Bay ecosystem and promote ecosystem-based management.

Part of the SLOSEA water quality initiative includes four continuous

water quality monitoring stations within Morro Bay and a single station in Estero Bay. Currently, all four bay stations have been installed. Two



Photo by Ian Robbins, Cal Poly CCMS

stations monitor creek flow in the salt marsh, one station is off Pasadena Point and the fourth station is near the harbor mouth.

The pole in the picture supports the 'dry' portion of the equipment including solar panel, battery and wireless communications. The lower portion of each station monitors water conductivity, temperature, turbidity, dissolved oxygen levels, nitrates, and more. The stations have been installed by John Penvenne (see photo at left), with a local company called Penscil that is under contract to SLOSEA.

The most recent measurements from the bay stations are displayed at www.slosea.org/news/dash.php.

Does Driveway Car Washing Impact Aquatic Ecosystems?

What can individual residents do to reduce their contribution to water pollution? According to a new study, not washing your car in your driveway should be at the top of your list.

The problem starts when car wash runoff, including detergents and vehicle surface residue, is allowed to run into the nearest stormdrain, most of which carry such excess water into nearby waterways without providing any treatment. This wastewater carries not only detergents, but trace amounts of metals, fuel and automotive fluids.

To better understand the impacts that car wash runoff can have on aquatic ecosystems, Seattle-based Environmental Partners, Inc.

conducted a series of scientific tests using fish mortality rates. They found that washing your car in the driveway and letting runoff enter stormdrains that empty into natural waterways can be deadly for local fish.

The researchers ran two tests to measure acute impacts to juvenile rainbow trout at various concentrations of car wash runoff. For the first test, runoff was collected from the parking lot of an automotive service facility during a car wash fund-raising event. This water ran across approximately 30 feet of asphalt before collection and likely included contact with petroleum hydrocarbons and the grit and grime typically associated with a heavily traveled asphalt lot.

Juvenile rainbow trout (*Oncorhynchus mykiss*) were exposed to the runoff at varying concentrations in a 96-hour toxicity test. Trout were placed in solutions of 6.25%, 12.5%, 25%, 50%, or 100% car wash effluent diluted with potable water. The goal of the dilution was to find the concentration at which 50% of the fish survive. All tested concentrations of the car wash effluent water caused 100% mortality within 24 hours of test start.

A second test with lower concentrations was developed and run. This simulated effluent was mixed according to product container instructions and was further diluted to account for rinse

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Meet Our Volunteer Monitoring Intern

The Morro Bay Volunteer Monitoring Program is pleased to announce a new member of their team: Craig Jacobson. Craig was hired as an intern this past October and is already contributing to important work including heading out in the field with volunteers to complete water quality monitoring, assisting with a major Estuary



Program restoration project on Walters Creek (Phase II), and preparing for a new sedimentation sampling project.

Craig has been a resident of San Luis Obispo County for seven years. In June of 2007, Craig received a Bachelor's Degree from Cal Poly in Biology with an emphasis in conservation and management techniques. While pursuing his degree, Craig worked for Rancho El Chorro Outdoor School as a naturalist's assistant and at Linnaea's Café as everybody's favorite barista (he claims he can still make a mean latte). His interest in conservation and estuarine issues are what lead Craig to the Estuary Program.

Driveway Car Washing Impacts continued from page 1

water. Juvenile rainbow trout were exposed to a concentration series of the simulated effluent at solutions of 0.01%, 0.05%, 0.1%, 0.5%, 1%, and 10%. The simulated effluent solution caused 100% mortality in the 10% concentration solution and 2.5% mortality in the 1% concentration solution. The LC50 – the concentration of simulated car wash runoff at which half the fish are killed within 96 hours – was 3.046%, or approximately 1.6 parts per million.

The researchers then modeled the concentrations of detergent that could occur in a hypothetical Puget Sound setting in which a small stream is subjected to car wash effluent via storm drains. The estimated detergent concentration ranged from 0.2 ppm to 1.5 ppm for high and low stream flow conditions, respectively. Thus

estimated detergent concentrations during low flow conditions were similar to the 1.6-ppm value that was found to be lethal to 50% of juvenile rainbow trout tested.

...fish in the stream could be killed and...the detergent would wash mucus from the gills of surviving fish making them more susceptible to disease.

living in the stream would also likely be affected, depending on a species' sensitivities.

If you live in an urban area with stormdrains, and taking your vehicle to a commercial car wash is not an option for you, consider this simple solution:

Thus, some fish in the stream could be killed and it would be likely that the detergent would wash protective mucus from the gills of other fish. The survivors would thus be more susceptible to other contaminants and disease. It is also possible that oxygen uptake necessary for survival may be impaired. Other freshwater organisms

Need a Speaker for a Community Meeting?

Help spread the word about the value of the Morro Bay Estuary. The Estuary Program's Outreach Coordinator, Cheryl Lesinski, is available to give an informative and entertaining presentation about the work of the Estuary Program and the importance of protecting and preserving the Morro Bay Estuary.

For more information, contact Cheryl at 772-3834 or by email at cheryl@mbnep.org.

washing vehicles on permeable surfaces such as gravel driveways or grass prevents runoff and allows for natural treatment of many pollutants. To read additional details on this study go to http://www.stormh2o.org/sw0710_practical.html.

A Special Note to Our Readers
The County of San Luis Obispo's draft Stormwater Ordinance takes an 'only rain down the drain' approach that would prohibit the discharge of car wash runoff into stormdrains. As this goes to press, there has been considerable controversy over this proposed prohibition.

The study summarized in this article makes it clear that such runoff can be lethal to the fish in our creeks. We strongly encourage readers to use commercial car washes (that discharge wash water to a wastewater treatment system) or to wash your car where the runoff can soak into the ground rather than flow directly to our creeks and ocean.

Annual Eelgrass Mapping is Underway

Each fall, the Morro Bay Volunteer Monitoring program oversees an effort to map the extent of eelgrass beds in Morro Bay. The monitoring tracks the health and extent of the eelgrass beds in the estuary, which provide critical habitat for marine species and a vital food source for Brant geese. Eelgrass is also recognized as a bio-indicator of bay health because it is sensitive to sediment and water pollution.

The process used to identify the number of acres of eelgrass in the bay employs a high-tech approach, with a little old-fashioned field work. Detailed multi-spectral aerial photos are taken during an extreme low tide period, when most eelgrass is exposed on mudflats. The eelgrass beds are then identified, and the bed density classified using digital image analysis software. This year, the flight took place on November 24th during a -1.6

low tide. In addition, field work is needed to confirm the location of beds that have been difficult to classify in the past.

Volunteers and staff took to the bay in outrigger canoes for several days of ground-truthing in November. Volunteers spotted and flagged notable eelgrass beds whose location and condition were entered into a GPS unit. This data will assist in creating accurate eelgrass imagery classification.

Sincere thanks to the volunteers who participated, many of them assisting despite difficult weather! A special thanks to Orchid Outriggers for the supply of boats, paddlers and flags!



A small octopus found during eelgrass transects.

Walters Creek Phase II Restoration Construction Complete

After a very busy fall, the construction phase of the Walters Creek restoration project is complete. The massive restoration project is taking place on CA Dept. of Fish and Game land off Highway One near Gilardi Road. Construction included the removal of all existing berms and culverts, burying the old incised creek channel

and cutting a new wider creek channel and floodplain that followed the creek's historical path. A new bridge, pictured below, was also part of the project.

The grass you see in the channel is a permanent erosion control strategy to stabilize the new channel bottom. The



bright green sod consists of creeping wild rye (*Leymus triticoides*) and Baltic rush (*Juncus balticus*). Both species are native to the site. The plant's dense underground roots and rhizomes will help to lock up the clay creek bottom when flowing water comes through the channel.

Hydroseeding is scheduled for December and the next phase is the revegetation component of the project. Over 13,000 native plants will be installed on the site including California Sycamore, Fremont Cottonwood, Mugwort, Coyote Brush and a dozen other species.

A full project update and additional photos will be included in the next issue of *Turning the Tide*.

2008 MBNEP Grant Deadlines and Meetings

Executive Committee
February 13th, 2008
May 14th, 2008
August 13th, 2008
November 12th, 2008

Implementation Committee
February 6th, 2008
May 7th, 2008
August 6th, 2008
November 5th, 2008

Mini-Grant Deadlines
March 7th, 2008
June 6th, 2008
September 5th, 2008
December 5th, 2008

Implementation Grant Deadlines
June 6th, 2008
December 5th, 2008