

Working
collaboratively to
protect and restore
the waters and lands
of Tomales Bay
watershed



WINTER 2006

Bulletin

NUMBER 5

Watershed Stewardship

Keeping Watch

Tomales Bay watershed's human community today is increasingly committed to caring for the waters and lands of this beautiful ecosystem. Tomales Bay Watershed Council, founded in 2000 and currently composed of 29 members, organizations and individuals, has changed from a planning organization to an action one. We are implementing the protocols identified in the *Tomales Bay Stewardship Plan*, unanimously adopted by the Council in 2004.

This year's Bulletin tells of stewardship in action. From local high school students and salmon protection volunteers to regional water districts and government entities, citizens and organizations are embracing the role of watershed stewards.

What does that word — steward — mean to you? In English, steward originally meant a person assigned to keep watch over the home; its ancient roots meant to observe and to keep. In Spanish, the analogous word is guardian; my job title of ranger in Spanish-speaking countries translates to *guarda bosque* or keeper of the forest. Stewardship implies guarding and protecting — keeping something intact for the future.

Regarding Tomales Bay's watershed, what is it that we choose to keep? A healthy environment, wildlife abundance, safe water, a sound economy, open space, dairies, mariculture, recreation? Water binds them all together. The need to guard and improve water quality in Tomales Bay was the reason for TBWC's birth.

The Council is the place where all stakeholders in the watershed work together on strategies for keeping what we care about intact for the present and the future. TBWC has emerged as a leading institution in the fabric of West Marin life, demonstrating its effectiveness as well as its potential.

In the last year, we have been joined by Marin-Sonoma Cattlemen's Assoc, PRBO Conservation Science, Sierra Club, North Marin Water District,



Renewed water quality monitoring — a primary tool for watershed stewardship — began in early April (see page 2). A TBWC team collects data from Lagunitas Creek near the Green Bridge in Point Reyes Station. *Inset:* Technician Ed Strausser secures the first water sample.

Inverness Public Utility District, and Bolinas Community Public Utility District. The three water providers, along with Marin Municipal Water District, are collaborating in our regional water supply and stormwater planning effort (see page 2).

TBWC is still growing. With a major award of state funding in 2005, we have added staff. With Point Reyes National Seashore's support, we are moving to new offices. We formed the non-profit Tomales Bay Foundation to facilitate receipt of financial support (back page). Our deepest thanks go to Marin Resource Conservation District, a Council member from the start, for extending its reach to act as our early fiscal agent.

Taking care of the watershed is a responsibility we all must share, because we all depend upon it for our livelihoods, health, welfare, recreation and inspiration. All of us are watershed keepers.

— Carlos Porrata, TBWC President

A Council's Coming of Age

The Council and its Foundation (see back page) are feeling both excitement and growing pains as we transition from a planning body to an active partner in implementation of the Stewardship Plan. In April we will be relocating our office to Olema Valley — joining the Pacific Coast Science and Learning Center at their facility six miles south of the Olema junction. Point Reyes National Seashore has generously offered office space to the needs of our growing staff (read on!).

Water Planning for the Region

In January 2006, the State Waters Resources Control Board awarded Tomales Bay Watershed Council a sizable planning grant. Part of the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, such funds are known as Proposition 50 grants. Ours will fund the development of an Integrated Coastal Watershed Management Plan, as well as a Septic Solutions Report and Municipal Stormwater Assessment and Recommendation Report.

The project has several facets. One involves gathering and analyzing existing management plans in order to address water supply and water management issues — habitat protection, water supply reliability, flood management, recreation and public access, wetland enhancement and recovery, nonpoint source pollution control, and wastewater treatment. We will also assess four Areas of Special Biological Significance (Bird Rock, Point Reyes Headlands, Double Point and Duxbury Reef), map stormwater drain networks, and conduct water quality sampling of those networks.

Prop 50 funding to pay for all this (\$460,000) is the largest, most complex grant the Council's Foundation has received to date. We have hired Katie Burdick as program manager and assistant grant administrator and Andrew Lowry to help with bookkeeping and accounting. Katie is working with our partners at the Point Reyes National Seashore, County of Marin, and local water agencies as we initiate the project.

From Planning to Action

As called for in the 2004 *Tomales Bay Stewardship Plan*, and with support from the Marin Community Foundation and County of Marin, TBWC is implementing its Water Quality Monitoring Program. In March 2006, we hired Ed Strausser as a Water Quality Field Technician to assist with sampling at three local swimming locations (Ink Wells, SP Taylor and the Green Bridge), part of the County's continuing program to monitor these sites. We will also begin source area monitoring in Inverness, in Third Valley Creek and at Chicken Ranch Beach, to gather information about non-point sources of watershed pollution from septic systems and other human-related activities.

Committee Life

The Council's committees are where all of the Council's substantive work takes place. Our Water Quality Committee has developed a Monitoring Plan to guide source area and trend monitoring in the watershed, as well as a database where all partners can input data to a single repository. Our Habitat Committee is working with the Science Committee to consider prominent issues in the watershed and ways to guide management decisions. Our Outreach Committee has redesigned our website and will participate in Watershed Day along with the Recycle Circus on April 23rd. The Funding and Grants Committee has provided a forum for considering our collective funding needs, including a \$1.6 million request recently submitted to the State Water Board for Prop 40-50 funds (this grant would assist with the Giacomini Marsh Restoration Program and implementation of TBWC's Water Quality Monitoring Program). Council committees fuel our discussions and provide for the invaluable participation of local partners.

The coming year will be our most exciting yet, as our support base expands, talented new help arrives, and we start to see the synergy of so many committed partners and individuals coming to fruition.

—Neysa King, TBWC Executive Director

Tomales Bay Watershed Council Members & Affiliations

Jerry Abbott, *Inverness Yacht Club*
Tom Baty, *Watershed stakeholder*
Bob Berner, *Marin Agricultural Land Trust*
Paola Bouley, *Salmon Protection and Watershed Network (SPAWN)*
Maria Brown, *Gulf of the Farallones National Marine Sanctuary*
Catherine Caufield, *Environmental Action Committee*
Liza Crosse, *Marin County Supervisor*,
Steve Kinsey

Sharon Doughty, *Tomales Bay Agricultural Group*
John Finger, *Hog Island Oyster Co.*
Alex Forman, *Marin Municipal Water District*
Ken Fox, *Tomales Bay Association*
Kaaren Gann, *Inverness Public Utility District*
Tom Gardali, *PRBO Conservation Science*
Robert Giacomini, *Marin RCD*
Stan Gillmar, *Inverness Association*

Henry Grossi, *Sonoma-Marin Cattlemen's Association*
Vic Graves, *California State Parks*
Ann Grymes, *East Shore Planning Group*
Alex Hinds, *Marin Community Development Agency*
Dale Hopkins, *Regional Water Quality Control Board*
John Kelly, *Cypress Grove Research Center, Audubon Canyon Ranch*
Gregg Langlois, *California Department of Health Services*

David Lewis, *U.C. Cooperative Extension*
Jack McClellan, *Bolinas Community Public Utility District*
Mike McMaster, *North Marin Water District*
Michael Mery, *Watershed stakeholder*
Don Neubacher, *Point Reyes National Seashore*
Carlos Porrata, *Watershed stakeholder*
Sally Pozzi, *Marin Farm Bureau*
Gail Seymour, *California Department of Fish and Game*

Stewardship on the ground and in the waterways

Taking responsibility for the health of Tomales Bay's watershed involves varied collaborative efforts. Below find a sampling, with more information available at TBWC's redesigned website — www.tomalesbaywatershed.org — and the others listed.



In a project funded through Marin Resource Conservation District, a restoration area in San Geronimo receives "biotechnical" repairs: volunteers install a willow-wall revetment and brush mattress to help stabilize streambanks while providing for wildlife habitat.

With \$700,000 in funding from the State Water Resources Control Board, the Marin Resource Conservation District sponsored wide-ranging stewardship efforts through 2005. The Tomales Bay Watershed Enhancement Project involved ranchers completing some 40 conservation practices on their farms—from grassed waterways to sediment basins—for the purpose of improving water quality. The Lagunitas Creek Watershed Enhancement Program includes streambank repairs to improve wildlife habitat (photo above) and a study of "limiting factors" by Stillwater Sciences environmental consultants, determining over-winter habitat needs for salmonids (page 6). The Walker Creek Geomorphic Assessment will help prioritize projects that work with natural processes to restore fisheries habitat and effectively reduce detrimental sediment loads.

—Nancy Scolari, Marin RCD

To receive Marin RCD's newsletter, call Watershed Coordinator Tristy Schewe at (415) 663-1170.

Marin County Department of Public Works launched a Salmonid Fisheries Restoration Program in 2005, with the goal of restoring fish passage through existing County culverts that act as partial barriers to salmon migration. Two



The Woodacre community and Marin County completed a new fish passage project.

large projects in the San Geronimo Valley were completed in September. Community involvement on the Woodacre project (photo above) was inspirational. The County is also a partner with TBWC on the large Prop 50 planning grant (page 2), and will monitor stormwater outflow to Duxbury Reef.—Liza Crosse, Aide to County Supervisor Steve Kinsey

Learn about Marin County's Stormwater Pollution Prevention Program at <http://www.mcstoppp>.

Water quality issues at Chicken Ranch Beach led to a Neighborhood Septic Evaluation Program in 2005. It identified a non-functioning septic system adjacent to one of the watercourses that flows to the beach. The septic system was capped, septic engineers and County specialists were brought in, and late last year a full repair of the septic system was completed. As a next step, TBWC has secured two small grants (from the Marin Community Foundation and County of Marin) to conduct water quality sampling and testing of waters that drain to the beach. This project will be coordinated with the County's beach monitoring



Improved: the watercourse entering Tomales Bay at Chicken Ranch Beach in Inverness.



Taking readings with a water sample are TBWC technician Ed Strausser (left) and David Lewis of U.C. Cooperative Extension. David brings expertise and leadership to water quality monitoring efforts.

program in order to provide a more complete description of water quality at Chicken Ranch Beach and in the adjacent watercourses. The success of these efforts so far arose from active citizen involvement, help from County government, and cooperation from willing property owners. The long-term hope is for a restoration plan for the beach and the adjacent wetlands.—Tom Baty, TBWC member

The Giacomini Wetland Restoration, once completed, will restore a natural wetland area comprising some 50 percent of Tomales Bay's wetlands and 12 percent of wetlands along the central California coast. Benefits will include improved water quality flowing into the Bay and improved habitat for marine and estuarine wildlife. After five years of planning and public input, Point Reyes National Seashore aims to release a draft Environmental Impact Statement in the next few months. After a public comment period, and selection of one of the four alternatives, construction could begin by late 2006. Most of the work is slated for 2007–08, and members of the public will have opportunities to volunteer on revegetation projects and removal of invasive species.—Lorraine Parsons, Point Reyes National Seashore

On the Seashore's website, see www.nps.gov/pore/home_mngmntdocs_giacomini.htm

Of Coho, the Watershed, the Ocean, and the Weather: Cycles of Change

How did the 2006 New Years storm, which disrupted our routines and rearranged our environment, affect salmon spawning here? Is the local coho population strong enough to weather such a forceful event? And how well is the recovery proceeding in this Central California stronghold for coho?

National Park hydrologist/fish biologist Brannon Ketcham has worked extensively on coho studies and habitat restoration in the watersheds for Tomales Bay, Bolinas Lagoon, and Redwood Creek. In a February 2006 conversation, the TBWC Bulletin sampled Brannon's knowledge.

■ Events such as this year's "flood," which was estimated as a 30- to 40-year event, are within the norm from a wildlife and habitat point of view. This event certainly changed the channel conditions, bringing a great deal more woody debris into the system as well as moving very large amounts of streambed material and depositing it in new areas.

■ A coho population would naturally persist by being able to buffer against single-event impacts like droughts, floods, or landslides. This calls for big enough numbers, in more than one drainage. Imagine 10,000 coho in this region! With just 1,000 or 100, there's concern about the effects of such a big event on their survival.

■ Could the genetic type that spawns in Lagunitas and Olema Creeks colonize Walker Creek? A small percentage of coho may stray to a new spawning ground. A few pioneers of the same genetic type as Redwood Creek spawners have shown up in Pine Gulch and Eskoot Creeks, where they continue to persist though in very small numbers.

■ Because coho are three years old when they breed, there are three year-classes, called "cohorts," in a population. One includes this year's breeding adults and also their newborn offspring that will spawn in three years. Another was born last year and will spawn in two years time. Another was born two years ago, is now at sea, and will spawn next year.



Due to heavy stormwater runoff, Tomales Bay's floodplain in early January 2006 included parts of nearby towns.



A coho salmon returns upstream to spawn in the Lagunitas Creek watershed.

■ The cohort most affected by the 2006 flood was born last year. The small fish, still maturing in the stream, feel the force of a storm's runoff. To survive, they shelter in debris jams or else wash out onto the floodplain until the waters recede, then return to the stream channel. Adults spawning this year likely kept most of their redds or else had yet to arrive and lay eggs when the storm struck.

■ New research here is focused on habitat factors that may be limiting the coho population, and on the requirements of overwintering juvenile fish. This year has not been typical, but we do know that juvenile coho enduring heavy rainfall flows need lots of low-energy refugia such as the debris jams. What looks messy to our view of an orderly stream is actually preferred by the fish.

■ Ten years of data collection in the Lagunitas watershed have revealed a pattern of

weak/strong/strong cohorts. Adults coming back to spawn this year represent our weakest year-class: just a few hundred were counted last time, in contrast with the past two years in Lagunitas Creek when 1200-1300 fish were counted! This year's spawning cohort was strong until 1998, when a flood event smaller than this year's affected the overwintering juveniles; those same fish subsequently did poorly in their oceanic phase.

■ The ocean, with its variable food supply, has a huge effect on each cohort. Recently, a shift in ocean currents on the scale of decades has come to light. When the California Current is stronger and colder than the Alaska Current, salmon survival here is favored. The big jump in our local coho population has occurred since that most recent oceanic shift, in 1998.

■ As watershed stewards, we should continue taking responsibility for what we can control — improving salmon habitat in the creeks — but also recognize that the ocean phase of fishes' life cycle is beyond our influence.

A Sense of Place

Joe Kinyon is the Geographic Information Systems (GIS) and Biodiversity Database Manager for Pacific Coast Science and Learning Center at Point Reyes National Seashore. While preparing a major map exhibit at the Seashore's headquarters (see sidebar), Joe applied his expertise to develop a brand new cartographic view of Tomales Bay's watershed (the centerpiece of this newsletter). We asked Joe about the unique role of maps in promoting environmental stewardship.

Because every thing and every event has a time and a place, we can use computers to keep track of what is living when and where. Our GIS work in this region, simply stated, is the use of maps with computers to track the diversity of life in Tomales Bay and to support decision-makers.

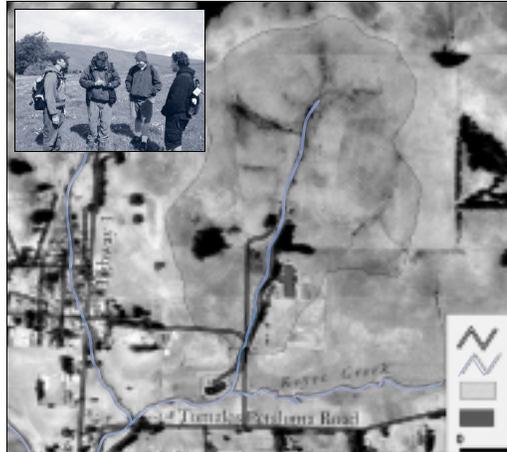
Maps help anyone who is a steward of a place to contemplate the landscape and communicate a plan for its care. Maps don't just support stewardship, they lay the foundation for the creation of stewards. People will take care of what they know, and maps are the best tool for quick orientation and introduction to a place.

Being able to read and appreciate maps is a type of geographic literacy that may need bolstering at present. In a National Geographic Society poll in 2002, three out of 10 people surveyed in the U.S. could not locate the Pacific Ocean on a map. How can we expect stewardship of the Pacific Ocean if a fundamental component to understanding it (its place) is not known by the same people who will make decisions that affect its future?

Once people do establish a sense of place, they start to see complex interrelationships between that environment and the organisms dwelling in it. Stewards are people whose sense of place and knowledge of interconnections have led them to choose in favor of preserving a place and its ecological processes. Everyone at some level is a decision-maker about the environment, and everyone has the ability to make wise decisions if their insight is supported by good information.

Maps carry information about a place that is fundamental to this conversation. By capturing our understanding of a place and its interconnections, maps create a legacy of knowledge to support stewardship.

—Joseph Kinyon, Pacific Coast Science and Learning Center



Students in Tomales High School's Environmental Learning Center, with Joe Kinyon, collected GPS data (inset) and developed a GIS map of their school's subwatershed (shaded and outlined in pale gray). They then presented their project at the American Geophysical Union's 2005 meeting in San Francisco, receiving very positive response. The full-sized color map is on exhibit (see box below). At <http://tomaleshigh.kinyon-gis.com/> click on "Goals."

Geographic Stories of West Marin

A Map Exhibit by the Pacific Coast Science and Learning Center

April 1 through June 30, 2006 • Red Barn Classroom, Point Reyes National Seashore Headquarters

Grand Opening Saturday, April 22nd, 2006 • 1:00 to 5:00 PM

Opening and Introductions 1:00 to 1:30 PM, followed by Map Presentations

Many of the map-makers will be on hand to answer questions about their work and the content of the maps on display.

A collaboration between the Pacific Coast Science and Learning Center, Point Reyes National Seashore Association, and the Tomales Bay Watershed Council. For additional information, contact Joseph Kinyon at Joseph_Kinyon@partner.nps.gov or 415.464.5249

■ **Sea Level Inundation of Tomales Bay** Rick Waterman, SFSU/Individual

■ **Tomales Bay Watershed** Joseph Kinyon, Pacific Coast Science and Learning Center

■ **Tomales Bay Bathymetry Mapping** Roberto Anima, USGS

■ **Vision Fire Map** Louis Jaffe, Green Info Network

■ **Modeling Landscape Characteristics of Northern Spotted Owl Nest Sites** Diana Stralberg, PRBO Conservation Science

■ **MMI Shakemap for the 1906 Earthquake** Boatwright & Howard Bundock, USGS

■ **Heron and Egret Nesting Colonies in the San Francisco Bay Area in 2005** Katie Etienne & John Kelly, Audubon Canyon Ranch, Cypress Grove Preserve

■ **Historic Maps of Land Ownership in Point Reyes** Joseph Kinyon & Carola DeRooy, Pacific Coast Science and Learning Center & Point Reyes National Seashore Archives

■ **Point Reyes National Seashore Trail Map** Tom Harrison, Tom Harrison Maps

■ **Marin** Jonathan Lawton/California State Automobile Association

■ **Landscape** Christopher Castle, Artist

■ **Marin County Farmland Protected by Marin Agricultural Land Trust** Tony Nelson/Marin Agricultural Land Trust

■ **Mapping Tomales High School's Watershed** Tomales Environmental Learning Center, Tomales High School

■ **National Marine Sanctuaries** Pam Van Der Leeden, Cordell Bank National Marine Sanctuary

■ **Western Pastoral Zone, Natural Resource Sensitive to Grazing, Point Reyes National Seashore** David Schirokauer, Point Reyes National Seashore

If there is magic on this planet, it is contained in water. — Loren Eiseley



Tomales Bay Watershed Council Foundation

Tomales Bay Watershed Council is a working group of stakeholders within the watershed. Since the Council is not a formal entity, it could not easily obtain funds from government agencies or foundations — needed in order to begin implementing the *Stewardship Plan* adopted in 2004. So TBWC decided to create a tax-exempt non-profit corporation as its funding vehicle, and the Tomales Bay Watershed Council Foundation was established with the pro bono assistance of San Francisco attorney Steve Ledoux. The Foundation has already received a state grant of more than \$460,000 dollars, in addition to a number of other smaller grants from Marin Community Foundation and the County of Marin. With the support of these funds, stewardship activities for Tomales Bay watershed are under way, with much more planned — as described in this *Bulletin*.

To help cover TBWC operating costs, you may make a tax-deductible contribution. Checks are payable to TBWC Foundation.

A new rendition of our website provides you with more information, as well as ways to become involved in the collaborative work of Tomales Bay Watershed Council.

www.tomalesbaywatershed.org

To be added to the mailing list, please contact us at:

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