Acontecimientos (watershed events)

by Carlos Porrata, TBWC Chair

In the eight years of the Tomales Bay Watershed Council’s existence, many events have occurred in our watershed. This past year has been one in which, instead of observing “events in the watershed,” we are experiencing “watershed events”—some negative, some positive—of great significance, watershed-wise and beyond.

Early in 2008, biologists from spawn¹ and other agencies were asking what had happened to our coho salmon run. Fewer coho spawned in Marin County streams in winter 2007–08 than was typical over the last decade, and biologists do not know why. It should have been a prime year for coho, with many three-year-old fish returning because the species had a banner year here in 2004–05. With terribly low numbers of fish spawning throughout the region (and Chinook salmon so scarce offshore that the Department of Fish and Game completely closed that fishery), this event seemed much larger than anyone could imagine.

At the other end of the spectrum, we are celebrating the Giacomini Wetlands Restoration Project—a huge and positive “watershed event.” With the return of 550 acres of pastures to tidal wetlands—equivalent to twelve percent of the coastal wetlands California has lost—this is by far the largest and perhaps most significant project affecting the Tomales Bay watershed to date. Resulting from efforts by many, and led by the National Park Service and Point Reyes National Seashore Association, this invaluable project is giving us a richer and wilder future.

In my native country of Puerto Rico, we use the Spanish word acontecimiento in a particular way. Though it literally means an “event” or “occurrence,” we use acontecimiento to mean a superlative event. To my mind this is the single word that best describes the Giacomini Wetland Restoration Project’s moment of truth. At the end of October 2008, the flow of waters resumed—unimpeded after so many years, turning the pastures back to wetlands, and regenerating the many life-giving processes for wildlife, the bay and beyond.

Un gran acontecimiento! ¹

¹ Salmon Protection and Watershed Network
Monitoring Water Quality

by Rob Carson, TBWC Water Quality Program Manager

Water is a principal element of ecosystems. Locally, it defines Tomales Bay and our streams, and it provides drinking water. Through its presence and health, water shapes our lives in many ways—our commerce, agriculture and mariculture; our recreation and aesthetics; the presence of wildlife; and more.

Water is affected by the environment through which it flows—by natural conditions and by human-caused effects. Our waters have sources in the ground, sky and ocean, so monitoring water’s health is a way to gauge the health of the watershed and the ecosystem as a whole.

The role of water quality as a “vital sign” has led Tomales Bay Watershed Council to make it an integral part of every cooperative effort toward a healthier watershed. In 2007, in response to a TBWC proposal, the State Water Resources Board awarded the Council a Proposition 50 grant to implement the Tomales Bay Wetlands Restoration and Monitoring Program.

The aims of this program are (1) to integrate water quality monitoring into the restoration of the Giacomini Wetlands and (2) to reduce and eliminate existing threats and identify emerging threats that face this critically important watershed.

The Prop 50 funding supports three main elements:

- monitoring the wetland restoration;
- monitoring source areas where contaminants may be entering the watershed; and
- establishing long-term monitoring at fixed sites in the lower reaches of 11 tributary watersheds and at 4 bay sites—making it possible to analyze long-term water quality trends in the watershed.

By monitoring the Giacomini Wetlands—before and during the restoration activity—we can evaluate the project’s effects and measure the potential water quality improvements. By concurrently monitoring water at fixed sites at the bottom of eleven important tributaries and at four bay sites, TBWC can provide a picture of the entire watershed’s health. Results will show how restoration activities fit within the context of long-term trends in water quality in our watershed as a whole.

Detective Work

Source-area monitoring, another aspect of TBWC’s water quality monitoring effort, aims to identify existing and emerging threats to our waters. It involves selecting potential source areas and responsive monitoring there. A highlight of the Council’s work in this area has been storm-water monitoring in the community of Woodacre during the 2006–07 and 2007–08 winter seasons. Monitoring results suggested the possibility of septic problems in the community. With this information, and the support of the County of Marin, a local community group, the Woodacre Flats Wastewater Group, has taken a lead role in addressing this question. Their approach, echoing the success obtained...
Early this spring, while I was standing in Olema Creek to collect a water sample, several coho smolts—juvenile fish undergoing transition to ocean life—ran rapidly upstream right past my legs. In hot pursuit was a very focused river otter—so focused, in fact, that it didn't see me until it was directly beside me in the creek. I don't know which of us was more surprised, but the otter did a massive double take. Needless to say, the coho got away.”—Rob Carson

River otters began showing up in Tomales Bay watershed in the 1990s and have become increasingly common. Among the area streams where they now breed and raise young is lower Lagunitas Creek near Whitehouse Pool. Though they generally disperse along watercourses, otters can travel overland; sightings have been reported along the back streets of Point Reyes Station, for example.

How to get involved

We invite the varied stakeholders in the watershed to play a role in the protection, enhancement and enjoyment of a healthy ecosystem. For more information, contact Rob Carson, Water Quality Program Manager for the Tomales Bay Watershed Council. Call 415-868-9081, or email robcarson@tomalesbaywatershed.org.

The Council’s monitoring efforts are ongoing, and results are disseminated directly to the public through our website:

www.tomalesbaywatershed.org/waterquality.html.
Agricultural interests, especially ranchers who graze animals around Tomales Bay, will be an important part of the collective campaign to restore water quality in the region. With coordinating support from local agricultural organizations, ranchers here have begun working to comply with standards mandated last year by the United States Environmental Protection Agency (EPA). This is a complex process and will take some time to achieve.

The effort began in January 2007, when the EPA approved a Total Maximum Daily Load (TMDL) for pathogens in the Tomales Bay watershed. The TMDL was based on specified limits of pathogens in the water that should not be exceeded for uses such as shellfish harvesting and recreation. The new regulations identified over 18 implementation actions, ranging from submittal of municipal storm-water plans to determining the need for boater disposal/pump-out stations along Tomales Bay.

One of the actions called for in the TMDL, and approved in July 2008, is the first such requirement of its kind specific to grazing practices. Called the Conditional Waiver of Waste Discharge Requirements for Grazing Operations, this action attempts to address two concerns: the currently approved total daily maximum load of pathogens; and planned TMDL’s designed to address levels of mercury, sediment and nutrients.

Under the Waiver, landowners or operators managing properties of 50 acres or more are required to comply with the following five-step program:

**Step 1: Notice of Intent**—Submittal of a Notice of Intent to participate in the Conditional Waiver Program, due to the Regional Water Quality Control Board by January 31, 2009.

**Step 2: Ranch Water Quality Development Plan**—Development of a Ranch Water Quality Management Plan for pathogens, sediment, nutrients and mercury (in areas of the Walker Creek watershed relevant to this latter pollutant) by November 15, 2009.

**Step 3: Ranch Water Quality Plan Implementation**—Implementation of the Ranch Water Quality Management Plan through the duration of the Conditional Waiver, which expires June 8, 2013, and beyond—assuming the Conditional Waiver is renewed.

**Step 4: Monitoring and Inspections**—Routine monthly and storm-based ranch inspections, with records kept of inspections and findings.

**Step 5: Annual Certification**—Submittal of Annual Certification by November 15 of each year, including records of monitoring and inspections.
Marin’s dairy industry has dominated the county’s agricultural landscape for 150 years, with diversified farming an equally long tradition here. As the dairy industry took off in the 1860s, farmers also grew apples, pears, potatoes, wheat and barley, and they raised pigs, sheep, beef cattle, turkeys and chickens. Yet these activities were dwarfed by the output of milk, cream, butter and cheese. Tiny Marin County was the largest statewide producer of dairy products for much of the last half of the 19th century. As dairy production grew, crop farming diminished and animal agriculture blanketed the fertile peninsula.

By 1900, bigger dairies in the Central Valley eclipsed Marin County’s statistical lead, and in the 1920s crop farming (peas, artichokes, hay, corn) found a new life here. This was short-lived, however.

The agencies working to provide ranchers with assistance include the U.C. Cooperative Extension Service, the USDA Natural Resources Conservation Service, Western United Dairymen, Marin Agricultural Land Trust, Marin Organic, and Marin Resource Conservation District. Although it will take some time to develop staff resources—and a program that is compatible with the Waiver’s requirements—producers will be standing by for notification and step-by-step action, once the program is ready to be rolled out.

The outlook

According to the best estimates, approximately 250 agricultural producers will be required to comply with the Waiver requirements in the coming year and thereafter. Many agricultural producers already have developed Ranch Plans, bringing them one step closer to compliance. The remaining producers may choose to develop their own plans or seek assistance from local agricultural resource agencies and organizations.

By the end World War II, the cow again was king (or, more correctly, queen). Dairy and beef production again dominated the county output and today remains the top product from the land.

In 2007, Marin’s cows produced over 23 million gallons of raw milk!

—Dewey Livingston, historian and Inverness resident

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“Time changes everything, including people’s priorities. Every few years dairies disappear here, and in the next 20 years we’ll continue to see this trend. In the case of the Giacomini Wetlands, we’re returning it to what it was 100 years ago, which is rare. When my father bought the ranch in 1945, the priority was to make land productive. Times have changed, and now the priority is to return the land to what it was originally.”

—Bob Giacomini, Tomales Bay dairy rancher

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Ranch lands and sub-watersheds of Tomales Bay are intimately connected. Here, lower Walker Creek is seen across its tidewater delta. The view inland, to the northeast, barely hints at the hidden expanse of this drainage. But it tells of the primary land use here: some 95% of the Walker Creek area is agricultural. Ranchers in this watershed have enhanced over ten miles of tributary streams over the past ten years.
In summer and fall of 2008, Point Reyes National Seashore Association and Point Reyes National Seashore began the second and largely final phase of the $6.1 million Giacomini Wetland Restoration Project. The project, which took seven years of planning to complete, will restore natural hydrologic and ecological processes and functions to approximately 613 acres in the former Waldo Giacomini Ranch and Olema Marsh in Point Reyes Station—where the streams flowing into southern Tomales Bay meet the tidal waters of the estuary.

The first (and smaller) phase, in 2007, removed agricultural infrastructure such as barns, pipelines and fencing, and it created habitat for special-status species such as the California red-legged frog.

The second phase, nearly concluded, concentrated on removing impediments to natural hydrology such as levees, spoil piles, ditches, riprap, culverts and tidegates, as well as reestablishing natural hydrologic processes by recreating and realigning tidal channels. Certain areas were lowered, through excavation, to increase the hydrologic connectivity of the marshplain/floodplain, and habitat was created for additional special-status species—the threatened California black rail and the endangered California clapper rail. A small breach was created in the berm that constrains the outflow of Bear Valley Creek from Olema Marsh, thereby improving hydrologic connectivity with Lagunitas Creek.

What to watch for as the 2008–09 wet season progresses. High tides peak on December 13th (6.6 ft, 10:45 AM), January 10th (6.6 ft, 10:30 AM), and February 8th (6.4 ft, 10:30 AM). Coho salmon run up Lagunitas and Olema Creeks after enough rain has fallen. Waterbirds flock to flooded wetlands as new food concentrations develop. Mammals explore opportunities—by land (coyotes, bobcats) and water (river otters). Pacific herring spawn in Tomales Bay mid-winter, drawing marine bird and mammal (harbor seals, California sea lion) predators. The web of estuarine life is being woven—watch!
Bringing Back the Tides. The culmination of the second phase came with removal of the small berm that had been left during levee excavation to maintain dry working conditions during construction. With removal of this temporary berm came the daily inflow of tidal waters, which moved through the newly created and realigned Tomasini Slough, Fish Hatchery Creek, and tributaries, overtopping banks and spreading across the former pasture areas. These areas immediately became subject to use by waterfowl and shorebirds, present here as part of the region’s fall–winter migration phenomena, as well as by aquatic fish and mammal species such as threespine stickleback, arrow goby, and river otter. In the summer of 2009, these waterways and the surrounding marshplains may end up supporting species such as leopard sharks and bat rays.

The Value to Wildlife of All Kinds. A surprise event in July 2008 showed the rapid response of animals to a changing wetland environment. During a levee breach at the time of an extreme high tide, more than 20 leopard sharks and several bat rays moved in during the flood tide, only to become stranded when the remaining levees caused water to pond rather than drain back into Lagunitas Creek. Point Reyes National Seashore mounted an extensive rescue operation over the holiday weekend, and staff were able to save slightly more than 40 percent of the sharks that became stranded during the low tide. While sad in one way, the incident does show the need for upstream estuarine areas by species that also inhabit the outer estuary of Tomales Bay and nearshore waters of the Pacific Ocean.

Access points for viewing the wetlands:

A  Lagunitas Creek spur trail — Green Bridge County Park, Hwy One just south of Point Reyes Station
B  Whitehouse Pool — Sir Francis Drake Blvd (“Levee Road”) near milepost 25.10
C  Olema Marsh trail — off Bear Valley Rd near the Limantour Rd junction
D  Tomales Bay Trail — off Hwy One about 1 mile north of Point Reyes Station
E  West Pasture (North Levee) overlook — Sir Francis Drake Blvd just N of Drakes View Dr
F  Limantour Road viewpoint — 2.1 miles from Bear Valley Rd junction

How to get involved

The local community and general public are invited to participate in community planting days on the Giacomini Wetland Restoration area. In addition, Point Reyes National Seashore Association (PRNSA) and the Point Reyes National Seashore will be inviting local schools to bring groups of students to participate in planting.

Help start this historic wetland’s natural plant succession! For information about participating, contact Lorraine Parsons:
phone 415-464-5193 or email Lorraine_Parsons@nps.gov.

> www.nps.gov/pore/parkmgmt/planning_giacomini_wrp.htm
of native grasses such as meadow barley and wildrye has also increased in remaining grassland areas. The grasslands attracted large numbers of song sparrows and savannah sparrows, as well as voles and other rodents. Drawn to the concentration of prey (in the form of voles) were abundant white-tailed kites, northern harriers and, hunting by dusk, barn owls.

The Final Touches—Revegetation. Areas influenced by tides should rapidly convert to brackish marsh and, over the short term, to several distinct saltmarsh habitats. Areas that occur above elevations influenced by tides, or areas where native plant species are not expected to colonize easily on their own, will be the target of extensive revegetation efforts this winter. Riparian areas along Lagunitas Creek and Tomasini Creek, and high-tide refugia habitat for rails, will be planted with container plants that were grown off-site using seed and other materials collected on-site at the Giacomini Ranch and Olema Marsh.

Restoration Underway Even Before Breaches. Storm-induced levee breaches that temporarily allowed influx of tides, combined with the ending of summertime irrigation, had already begun the process of converting the densely vegetated grasslands of the East and West Pasture to brackish marsh—and even to saltmarsh in some areas. The density of native grasses such as meadow barley and wildrye has also increased in remaining grassland areas. The grasslands attracted large numbers of song sparrows and savannah sparrows, as well as voles and other rodents. Drawn to the concentration of prey (in the form of voles) were abundant white-tailed kites, northern harriers and, hunting by dusk, barn owls.

Improving the Health of Tomales Bay. Further lowering of the area where the south levee was removed (in 2007) will increase the volume of flood flows that will overtop the banks of Lagunitas Creek and spread across the 550 acres of the former Giacomini Ranch. Increased hydrologic connectivity during storm events will reduce flooding of adjacent private residences and substantially increase the ability of the Giacomini lands to filter sediment, nutrients and pathogens from Lagunitas Creek, Olema Creek and Bear Valley Creek waters and to reduce downstream loading of these pollutants. More than two-thirds of the freshwater inflow (and potential pollutant source) to Tomales Bay flows through the Giacomini Ranch and Olema Marsh.
Tourists driving along the east shore of Tomales Bay in July 2008 might have encountered a bizarre parade in Marshall: festive citizens waving plungers, some carting a giant toilet bowl and, ceremonially marching at the head of the procession, County Supervisor Steve Kinsey; Phil Smith, who heads Marin County Environmental Health Services; and Paul Elmore, president of the East Shore Planning Group (espg).

The event celebrated the completion of the first phase of the East Shore Wastewater Improvement Project. Effluent from septic tanks at 35 homes and businesses along Tomales Bay now goes to a new community septic field away from the bay, rather than into 35 individual shoreside septic fields.

Ten years ago, homeowners on the east shore of Tomales Bay were under the gun. At least 171 people had been infected with the Norwalk virus after eating Tomales Bay oysters, and many blamed the septic systems along the bay. While the actual cause was never determined, the event provided an impetus—and an opportunity—to improve the water quality of Tomales Bay.

Years of hard work by the County, espg and local residents resulted in a $1.8 million project covering 38 Marshall properties from Hog Island Oysters to the Marshall Boatworks. Key elements were:

- A partnership between espg and the County, which obtained grant funding from the U.S. Environmental Protection Agency and the State Water Resources Control Board.
- A voluntary survey of existing systems, where residents were assured of anonymity and no threat of immediate enforcement as a result of the survey.
- A careful plan to legalize the upgraded systems, but not induce growth—which was a concern of locals and environmentalists alike.
- Arrangements with the Barinaga Ranch and malt to permit acquisition of a suitable parcel for the septic field.
- An “opt-out” provision that allowed homeowners to choose to maintain their existing systems (with County inspections) and avoid the $19,200 assessment. (Only three of the 38 property owners elected to do so, but having the option made the process more comfortable.)
- Extremely low-interest financing of the assessments, secured by the County.
- Perhaps most importantly, a neighborhood organization with a mission to inform and communicate (without itself taking positions) as the plan developed.

More to Follow

Said County Supervisor Kinsey at the dedication ceremony, “This is a model for how we want to work with other challenged areas within our watershed.” And in fact other Tomales Bay watershed communities, including a Woodacre neighborhood (see next page), are actively planning for similar systems.

Phase two of the Tomales Bay East Shore Project, already at the feasibility stage and with grant funding also to be sought, will extend the network to cover approximately 20 more connections south of the Marshall Boatworks, past Tony’s Seafood Restaurant.
San Geronimo Valley is home to suburban-scale development that serves 4,000 people. The area also has remarkable natural resources, but the density of homes on the valley floor does affect the San Geronimo watershed. One of the biggest impacts on our streams is failing septic systems, a problem long known anecdotally but never studied because of fears of enforcement by the County of Marin. The community of Woodacre has the highest number of homes in San Geronimo Valley, and their greatest density is on the valley floor—the “Flats”—where there are about 200 homes close to coho-salmon-bearing Woodacre Creek.

Under the sponsorship of the Tomales Bay Watershed Council (supported by a Proposition 50 planning grant), Woodacre leaders met in January 2007 to discuss the problems of failing septic systems. They then formed the Woodacre Flats Wastewater Group, or wfwg (“woofwag”) and have been meeting monthly, often with technical experts and county staff. Having also held three large community meetings to date, wfwg has begun overcoming residents’ fears and offering hope of a solution.

Studies conducted in the winter of 2007–08 have verified what the community already knew—that there are serious problems with septic systems in Woodacre. A free, anonymous inspection program shows a high failure rate for these systems and a number of problems in common, such as high groundwater, aging systems and poor soils. Tomales Bay Watershed Council has carried out water quality monitoring, pinpointing some source areas, and the results show high levels of fecal coliform, nutrients and detergents in streams immediately adjacent to and downstream of the Flats.

Having recommended the East Shore model (see page 9) to the Woodacre community, wfwg now is pursuing a project with three phases: feasibility study; design and environmental review (EIR); and construction. Many residents have endorsed this approach and also a search for state and federal grants to fund a large part of the costs. With this encouragement, and Tomales Bay Watershed Council to serve as fiscal agent, wfwg is now moving forward with feasibility studies.

Benefits of this project include responsible environmental stewardship, improved public health, homeowners able to improve and legalize their homes—in other words, streams, fish and people all reaping potential rewards!
The Future of Coho—Headwater Streams

by Paola Bouley, SPAWN Conservation Program Director

The Lagunitas Creek watershed represents one of California’s last remaining strongholds for wild coho salmon, supporting 10–30% of their surviving population in Central California today. Just over half of the 103-square-mile watershed is protected as public open space and parks. But with 50% of the salmon’s historic habitat in this watershed already locked behind dams, possibly the most important spawning and rearing habitat remaining for these fish occurs along privately owned reaches in a small, nine-square-mile subwatershed nestled in the undammed headwaters area called the San Geronimo Valley.

Beyond a doubt, the San Geronimo Valley is not only a critical spawning area but also an important nursery ground for coho salmon. Each year, upwards of 40% of the coho that make their way under the Green Bridge (in Point Reyes Station) on Lagunitas Creek forge upstream to leap through the Inkwells on San Geronimo Creek and spawn in the Valley. And 30% of the coho young (or fry) rear in the Valley for their first year-and-a-half of life, until they begin their seaward migration.

The San Geronimo Valley is also one of West Marin’s largest semi-rural residential areas with some 3,500 to 4,000 residents living on 1,500 parcels, as well as two equestrian centers, an 18-hole golf course, water supply facilities and a number of commercial sites. Thirty-eight percent of these privately owned parcels are within 100 feet of a coho-bearing stream, and two-thirds of these streamside parcels are already co-habited by humans. Clearly, landowners throughout the Valley—but especially along the stream corridors—have the potential to be a strong ecological and hydrological force: how they choose to manage habitat in their backyards will be of huge consequence to the future of coho salmon.

The Salmon Protection and Watershed Network (SPAWN) focuses energy to help educate, motivate and activate the community to steward this precious resource into the future. SPAWN is also able to provide resources for restoration on private lands, from the ridgelines to the streambed.

"Last winter, while I was standing along Lagunitas Creek during a rain storm, listening for the slap of a salmon’s fin, another aquatic creature caught my ear—a crisp voice, full of trills and flutes. It was John Muir’s celebrated “water ouzel”—more commonly known as the American dipper. North America’s only aquatic songbird, the dipper occurs in our watershed, within walking distance of our backyards. This thrush-sized gray bird is remarkably adapted to living near and in the stream currents: it can submerge and walk underwater to feed on various invertebrates. While dippers can flourish in our streams during both strong winter flows or placid summer flows, they always require clear and cold waters and clean gravelbeds... very much like the coho that share these same waters."—Paola Bouley

Chicken Ranch Beach & Third Valley Creek Restoration

Tomales Bay Watershed Council has begun its first restoration project—Third Valley Creek and Chicken Ranch Beach in Inverness. We have successfully raised more than $130,000 for this exciting project. The overall goals are to create a self-sustaining riparian and wetland system at Chicken Ranch Beach (County of Marin) and on adjacent public and private lands. The design will likely include a blend of habitats, including riparian stream corridor, seasonal/perennial freshwater marsh, and possibly tidal/saltwater marsh. Phase one, planning, is already under way: we have completed detailed elevation surveys and, over the course of the next year, will work with Kamman Hydrology & Engineering (also part of the Giacomini Wetland restoration). We look forward to involving the community! Stay tuned for future updates and an upcoming community fundraiser in January 2009.—Neysa King, Watershed Coordinator
Support the Council ♦ Get Involved

♦ General meetings of the Tomales Bay Watershed Council are held on the third Tuesday of each month and are open to the public.

♦ Find out more about the Council’s mission, current activities and programs online at www.tomalesbaywatershed.org

♦ Financial donations to the Tomales Bay Watershed Council Foundation are tax-deductible and support the implementation of the Council’s programs and projects, helping to realize the goals of the Watershed Stewardship Plan. To learn how your contribution can make a difference, contact Watershed Coordinator, Neysa King at 415-868-9081.

State of the Bay Conference

In 2009, TBWC will host the 6th State of the Bay conference. Focused on water quality, the event will feature presentations and discussions of current projects, research, and community involvement in the watershed. Date and location will be announced soon. If you are interested in participating, please contact Rob Carson at 415-868-9081 or robcarson@tomalesbaywatershed.org

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An estuary is a basin that collects water within its rim of surrounding hills—from streams, surface flow, groundwater. It is also part of a much larger basin—the ocean. Waters move between the entire Tomales Bay watershed and the great currents of the Pacific Ocean. Here, even the smallest act of local stewardship is an act of global consequence.