This report outlines efforts made in 2010 to clean up water pollution in the Oakland Bay watershed.

**Executive Summary:**
Due to water pollution, the Washington State Department of Health downgraded Oakland Bay for shellfish harvest in 2006. Pollution sources included poorly-managed livestock manure, improperly maintained septic systems, and pet waste. In 2007, the Oakland Bay Clean Water District Advisory Committee finalized the Oakland Bay Action Plan. Since then, a variety of cleanup activities have taken place that were funded by many sources, including money spent by community residents, federal and state grants, and support from Mason County. The following progress report captures the accomplishments of this community effort in 2010.

Water quality sampling throughout Oakland Bay watershed helped to identify pollution sources and track improvements. Marine water quality for 2010 was fairly good, however not as good as in 2009, likely due to greater rainfall in 2010. Fortunately there were relatively low bacterial levels in locations that had been problematic in previous years. Sampling during this period also revealed three failing onsite septic systems. In all, 677 samples were taken in 2010 and the goal of sampling the entire marine shoreline in the Oakland Bay Clean Water District over the course of three years was met.

The presence of fecal coliform bacteria in water is an indication of sewage contamination and the bacteria are associated with the presence of other harmful pathogens. Most of Oakland Bay is conditionally approved for shellfish harvest throughout the year, meaning that if rainfall exceeds one inch in 24 hours, the risk of contamination is high and the bay is closed to shellfish harvest for five days. In 2010, Oakland Bay was closed for harvest for 55 days due to high rainfall events. Streams are a primary source of contamination for Oakland Bay. There have been no changes in number of streams listed as contaminated in the Oakland Bay watershed.

In 2010, DOE released the results of a full sediment investigation for Shelton Harbor and Oakland Bay. Supported by dedicated efforts from community members, local governments and agency staff, the overall health of Oakland Bay has improved since 2005. Let's continue to make it a safe place to play, live and work.

Learn more: [www.co.mason.wa.us/oakland_bay/](http://www.co.mason.wa.us/oakland_bay/)
that reported elevated levels of dioxins were found in some locations. They determined that human contact with sediments from Oakland Bay poses a very low health threat.

There are a number of programs designed to encourage stewardship of Oakland Bay. Proper maintenance of onsite septic systems helps protect water quality. While 2010 septic maintenance rates were down nine percent from 2009 rates, Oakland Bay residents continued to take advantage of low-interest septic loans and retrofit rebates. From 2006-2010, 500 area residents have attended free septic workshops, 164 from the Oakland Bay watershed. These workshops have helped people understand how to maintain their systems and identify problems. In 2010, the Mason Conservation District (MCD) worked with 16 local property owners to develop Conservation Plans. Additional stewardship programs include:

- The installation of five pet waste stations.
- The start of a manure exchange program connecting livestock farmers with gardeners who need manure.
- The development of the Farmer of the Year Award to provide an incentive for farmers to implement best management practices (BMPs).
- A compost and pasture workshop series.
- And installation of low impact development (LID) projects at several sites to be used as learning tools.

Conservation efforts by Capital Land Trust and other partners has resulted in the protection of more than 140 acres of prime habitat in the Oakland Bay watershed at the Twin Rivers Ranch. This will benefit wildlife and water quality.

Members of a Mason County Stormwater Task Force have been charged to advise the Commissioners in the development a comprehensive stormwater program. This proposed stormwater program would further the goals of the Oakland Bay implementation plan. The Task Force is presently developing their recommendations for an on-going program based on feedback they have received from the public. Proposed program elements include: water quality monitoring, public education and outreach, and development regulations.

While we saw improvements in some aspects of Oakland Bay’s health, other aspects showed little change. The message is clear: while we have done good work and have made progress, our work is not yet done and Oakland Bay still has much room for improvement.

### Oakland Bay Funding Sources

*Businesses contribute an undefined amount to the community water quality improvement efforts. Logging companies invest in logging road improvements, shellfish companies sponsor beach clean up days, beach walks and other educational events.

In addition to the yearly spending over $2,068,0254 was spend in 2010 on long term purchases such as sewer improvements or land acquisitions.
What is Fecal Coliform Bacteria and why is it an issue?

Fecal coliform bacteria are measured as an indicator of pollution. Large numbers of these bacteria are found in fecal matter (human, pet and livestock waste in particular) and are associated with the presence of other bacteria, viruses and pathogens that can be harmful for human health.

Mason Public Health conducts regular sampling of water quality in Oakland Bay and the fresh water streams that drain to the bay. The results of this sampling effort identify pollution sources and inform us of our progress in recovering healthy water quality in Oakland Bay. Marine water quality trends were very positive in 2010, with fairly low bacteria level in areas that have historically been troubled by pollution.

Water pollution standards are set using fecal coliform bacteria numbers because large amounts of the bacteria are found in fecal matter. High levels of these bacteria have been correlated with the presence of viruses and other pathogens that can affect human health. In 2010, the average fecal coliform levels were below the limit set by water quality pollution standards, although some streams did periodically have high results.

The Oakland Bay On-Site Marine Recovery Area Quality Assurance Project Plan (a monitoring program) sets a more stringent level for fecal coliform than the state requires. The project plan level triggers additional sampling and/or investigation when levels are exceeded.

The goal of sampling the entire marine shoreline in the Oakland Bay Clean Water District over three years was met. The first third was sampled in 2008, the second 3rd in 2009 and the final third in 2010. Each beach was sampled at least twice, and some areas five or more times. In 2010, 677 surface water samples were taken in the Oakland Bay area. In 2010, three shoreline septic system failures were found on Oakland Bay through sampling and sanitary survey.
In 2006, shellfish harvest in the upper portion of Oakland Bay was classified as restricted to shellfish harvest and Chapman Cove was threatened with a down grade. The threat to Chapman Cove was alleviated by 2008, and the upper end was upgraded in 2009. The upper end of Oakland Bay is now open for harvest in the fall, winter and spring and Chapman Cove was removed from the State Department of Health’s threatened list.

At the very north end of the bay, bacteria levels are higher in the summer than the winter. Shellfish harvest is not allowed there from June to September.

The upper end of Oakland Bay (Station 614) remains closed for shellfish harvesting during the summer.

Oakland Bay Shellfish Harvest Restrictions: Despite improvements in water quality, most of Oakland Bay remains conditionally approved for harvest throughout the year. This means when rainfall exceeds one inch in 24 hours, the bay is closed to shellfish harvest for five days. In 2010, Oakland Bay was closed to shellfish harvest for 55 days. In 2009, Oakland Bay was closed for harvest for 51 days.

Shelton Creek, Goldsborough Creek, Campbell Creek, portions of the upper end of Cranberry Creek, portions of the north end of Oakland Bay, and Shelton Harbor are on the federal 303(d) list of contaminated water bodies due to high levels of fecal coliform. The 303(d) listing status of these creeks has not changed in the last year.

<table>
<thead>
<tr>
<th>Stream Name</th>
<th>Average Fecal Coliform</th>
<th>Washington Water Quality Standards</th>
<th>Oakland Bay On-site Marine Recovery Area Quality Assurance Project Plan</th>
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<tbody>
<tr>
<td>Deer</td>
<td>13</td>
<td>Geometric mean ≤ 100 fecal coliform /100 mL water AND not more than 10% of samples &gt; 200 fecal coliform/100 mL water</td>
<td>Samples above 100 fecal coliform/100 mL water will receive confirmation sampling</td>
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<td>Shelton</td>
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</tbody>
</table>

The Washington State Departments of Ecology and Health have studied the dioxin levels in Oakland Bay shellfish and concluded there is no health risk from eating shellfish produced there.

Dioxins are chemicals produced when things are burned: industrial burning, natural forest fires, fireplaces, wood stoves, burn barrels (which are illegal in Washington) and sometimes during chemical or paper manufacturing. When released, dioxins move into the air or water, stick to soil and sediment particles and break down very, very slowly. They are toxic to humans and bioaccumulate in our system.

In early 2009, the Department of Ecology found elevated levels of dioxins in sediment throughout Shelton Harbor and Oakland Bay. Ecology issued a full sediment investigation report in 2010 which included the results of a study of the potential human health effects of eating Oakland Bay shellfish. They found that coming in contact with sediments from Oakland Bay poses a very low human health threat. Therefore, people do not need to limit the amount of shellfish they eat nor reduce their contact with sediments.

For more information on the sediment investigation, please visit: www.ecy.wa.gov/programs/tcp/sites_brochure/oaklandBay/oaklandBay_hp.htm
UPDATE: On-Site Septic System Maintenance Improvements

Your septic system’s health depends on you! Maintain your system according to schedule. Invest in the health of your family, your community and your property.

Why is septic system maintenance important?
Improperly maintained on-site septic systems can fail, causing untreated sewage to reach the surface, causing major health and economic problems for our community. The costs of repairing or replacing a damaged system are far more expensive than the costs of maintaining your system.

What’s happening with septic systems in the Oakland Bay Watershed?

Septic Maintenance: Mason County Public Health (MCPH) estimates that 25 systems are replaced or undergo major repairs each year—this adds up to roughly a $375,000 annual investment in our community. Throughout the watershed, regular pumping and maintenance costs about $115,000 a year! Many residents have retrofitted their systems with risers (which enables easier access for system checking and pumping) and this work is valued at $25,000. That’s a lot of community investment helping to keep Oakland Bay a healthy place to live, work and play.

Septic Maintenance Database: As of May 2011, MCPH records show that 54% of systems are maintained according to schedule in the Oakland Bay Clean Water District. This is down from last year when MCPH showed 63% of systems up to date with their maintenance in the Oakland Bay Clean Water District and slightly higher than the 2009 rate of 50%. While proper maintenance avoids greater future expense, in difficult economic circumstances, people may forgo regular maintenance of their septic system.

Enterprise Cascadia Low Interest Loans for Repairs: Enterprise Cascadia reports that two low interest loan repairs were completed in the Oakland Bay Clean Water District. The total of these repairs was in excess of $60,000. In 2009, three loans were made. (This was formerly known as the ShoreBank program.)

On-site Septic Retrofit Rebate Program: Since the start of the program, 84 residents in the Oakland Bay watershed have retrofitted their septic systems, taking advantage of a $200 rebate for costs incurred for installing risers or an effluent filters. Septic risers make the tank more accessible for maintenance because they offer access without having to dig up your yard. Adding an effluent filter is an easy retrofit that makes a big difference by ensuring the life of your drain field. Rebates are still available through Mason County Public Health. For more information about the retrofit rebate program, visit: http://www.co.mason.wa.us/oakland_bay/

Septic Maintenance Reminders & Outreach: 1095 reminders were mailed to residents whose records indicated maintenance was past due by the Mason County Public Health Department. This is up from last year since fewer households were up to date with their septic maintenance.

Ready to learn more?

Septic Workshops: MC Public Health and the WSU Mason County Extension Office provide septic maintenance workshops throughout the year. Participants receive a free maintenance manual and a coupon towards inspection or pumping service. Over 164 Oakland Bay watershed residents have attended these workshops between 2006-2010—don’t be left out! http://county.wsu.edu/mason

Enterprise Cascadia low interest septic loans – www.sbseptic.com
UPDATE: Stewardship Projects in Our Community.

Land management plans, pet waste stations, manure exchange program and low impact development projects provide options for landowners to improve their watershed.

Stewardship at home and out and about.

Local residents are taking big strides toward the restoration of Oakland Bay. With the help of the Mason Conservation District (MCD), landowners are preparing Conservation Plans, disposing of excess manure through the Manure Exchange Program, utilizing pet waste stations in the watershed, and learning new ways to manage stormwater through low impact development.

What's happening with landowners in the Oakland Bay Watershed?

Land Management Plans: Property owners in the Oakland Bay watershed frequently work with the MCD to develop "Conservation Plans." These plans are designed to help manage their property. In 2010, 16 Conservation Plans were developed (four Conservation Farm Plans and 12 Conservation Planting Plans.)

Pet Waste Stations: In 2010, the MCD installed five pet waste stations in the Oakland Bay watershed. These stations, installed at Oakland Bay Marina, Walker Park, Huff and Puff Trail, Mason Lake County Park and the Pear Orchard, provide bags so that dog owners can properly dispose of their dog’s waste.

Manure Exchange Program: This free program matches up farmers with excess manure with local gardeners who need manure as a soil amendment. In this way, manure that is unable to be managed on site can be put to good use by someone else. There are currently seven farms providing manure within Mason County. The program has been used by 16 residents to date.

Workshops: In the spring of 2010, 20 people participated in a three-part Compost & Pasture Workshop series. These workshops featured composting techniques, designs for compost structures and how to use the final product. Participants toured a working farm to see how these techniques are put into practice, improving pastures and protecting water quality.

Landowner Incentives: The MCD presented the 2010 Farmer of the Year Award to John and Sue Sampson of Flying Dog Farm. The Sampsons have implemented a wide variety of BMPs on their farm in the Oakland Bay watershed, from perimeter and cross fencing for their pastured livestock to removing a full salmon barrier along Deer Creek, opening up nine miles of salmon habitat!

Low impact development (LID): LID projects attempt to mimic nature by helping rainwater soak into the ground close to where it falls. In 2010, the MCD spearheaded several LID projects in the county. These include pervious concrete and rain garden installations at Turning Pointe and Pioneer Intermediate School and a rain garden at the Oakland Bay Marina. The interest in LID projects continues to grow in Mason County, providing an additional way to protect water quality throughout the Oakland Bay watershed.

Ready to Learn More?

Contact the Mason Conservation District for workshops, technical assistance & funding: (360) 427-9436 or www.masoncd.org/

Contact WSU Extension for information and upcoming workshops: (360) 427-9670 x 680 or http://county.wsu.edu/mason
Through the efforts of the Capital land trust and various partner organizations including private organizations and individuals as well as county, state and federal agencies, the 133 acre Twin Rivers Ranch and the ten acre Hilburn property were able to be permanently conserved.

The Twin Rivers Ranch spans the entire north end of Oakland Bay. Salmon-bearing Deer and Cranberry Creeks flow through the property and into Oakland Bay, twin estuaries that provide critical wildlife habitat. The purchase permanently conserves one mile of creek frontage on Deer and Cranberry Creeks and two-thirds of a mile of intact estuarine habitat; there are no bulkheads, docks or other shoreline modifications. Twin Rivers Ranch provides habitat for a myriad of different bird, forage fish and salmon species. The Ranch’s coastline and uplands contain 36 acres of native coniferous and hardwood forests as well as 66 acres of wetlands including estuarine habitat, salt marsh vegetation, tidal sloughs and adjacent tide flats.

The Hilburn property comprises nearly ten acres of prime riparian and aquatic habitat along Goldsborough Creek. The relatively undamaged habitat provides a migratory corridor between Puget Sound and spawning beds for coho and fall chum salmon, winter steelhead, both resident and anadromous cutthroat trout, and anadromous Pacific lamprey. Goldsborough Creek is particularly important for coho. It produces the majority of wild coho in the South Sound and contrary to everywhere else, their numbers there are increasing thanks to the removal of a dam adjacent to the Hilburn property in 2001.

The acquisition and protection of these two properties constitutes a significant contribution to the health of Oakland Bay.

UPDATE: Stormwater Task Force

The Oakland Bay implementation plan identifies the need to develop an integrated financial strategy. On-going funding is vital to maintaining progress momentum, and continuing the numerous tasks and action steps that will lead to improved water quality. Members of a Mason County Stormwater Task Force have been charged to advise the Commissioners in the development of an on-going stormwater program. Several elements of a stormwater program also further the goals of the Oakland Bay implementation plan.

In April 2010, The Board of County Commissioners appointed members to a County Stormwater Task Force and the group has met regularly since that time. A series of Open Houses and public meetings were held throughout the County to help Task Force members hear community perspectives on program needs and priorities, and gather feedback on funding options.

The Task Force is presently developing their recommendations for an on-going program which includes components from the Oakland Bay implementation plan including: water quality monitoring, public education and outreach, and development regulations. Funding recommendations are expected by year end, and the Board of County Commissioners may consider these recommendations in 2012.