Puget Sound Action Team
Volume 17, No. 4
Fall 2002

Sound WAVES

Rethinking wastewater management:

On-sites may upstage community sewage systems

Nature calls. You pull, and the door spring creaks. Reluctantly, you enter, do what is necessary, and leave quickly. The discomfort, the odor; it's so uncivilized. For most of our region, it has been at least a generation since this was a regular experience. Flush it and forget it is now our attitude. But can we afford to be so cavalier?

"Wastewater management is a big challenge and a big business," said Terry Hull, on-site sewage systems program lead for the Puget Sound Action Team. "Those living where a community sewer exists can flush and forget. Someone, somewhere, at the end of the pipe is maintaining a treatment system designed to process the waste and clean the water to a level that protects our health."

However, about 30 percent of Puget Sound's residents living in nearly a half million homes have on-site sewage systems—and there is no one at the end of the pipe. They are responsible for maintaining their own system's performance.

A simpler system, a simpler time

Historically, the simplicity of the common on-site sewage system—a septic tank and gravity-fed leach field—minimized the need for maintenance. They were most often used in sparsely developed, rural settings where sewers were too costly. Proper construction and reasonable care in operation were sufficient to ensure a long life for a basic sewage system. Maintenance was limited to occasional pumping of the septic tank—an easy responsibility for the homeowner.

Action Team photo

Poorly operating septic systems often result in costly repairs and, sometimes, complete overhauls, which was the case with a South Sound homeowner's system shown above. Technological advances have made on-site systems safer, but regular maintenance is critical to their success.

As mid-20th century residential development spread outward from cities to create suburbia, sewers and on-site sewage systems converged. Centralized sewer systems, once thought to be the ultimate solution to wastewater management, proved to be expensive, interfered with watershed hydrology, and produced pollution at outfalls in streams and bays.

Federal report promotes on-site systems

In a 1997 report to the U.S. Congress, the U.S. Environmental Protection Agency documented the advantages of on-site sewage systems over sewers. This landmark report caused on-site sewage systems experts to take a new look at how these systems could be made to work effectively in populated suburban areas.

The experts' goals were to maintain the cost advantage of on-sites, while improving their ability to treat wastewater and spread it over smaller sites without causing public health or environmental problems. Success would allow on-site sewage systems to become a permanent part of community infrastructures.

Fortunately, two decades of research have brought forth an array of new products that more effectively treat wastewater.

*See **Rethinking on-sites,** page 2*

Puget Sound Action Team
(800) 54-SOUND • (360) 407-7300
http://www.wa.gov/puget_sound
e-mail: tdroscher@psat.wa.gov

Inside This Issue

Grant will help assess data needs of local health departments

To help local health agencies cope with the mounting volume of records for on-site systems and to make more effective use of the records, the Puget Sound Action Team and the Washington Department of Health are working to identify local health agency data management capabilities and needs, thanks to a federal grant.

Receiving, organizing, storing and retrieving on-site sewage system data is an important management function. Thousands of homes in every Puget Sound county have permits to install an on-site sewage system. County or state health agencies issue permits for hundreds more each year.

"Systems often outlast owners; they fail and need repair, which generates questions about system locations and conditions," said Terry Hull, on-site systems program lead for the Action Team.

Some jurisdictions require reporting of periodic maintenance. All systems must be pumped periodically, with the information reported to the local health department.

Agency records run the gamut from simple card files and overflowing file cabinets to sophisticated computer databases. The database project grant will help the Action Team and the Department of Health to:

- Survey local data management processes.
- Assess the hardware and software needs of each agency to create electronic records.
- Determine how local records can be combined to identify regional on-site system management needs.

Development of electronic databases will allow local health agencies to access individual records more quickly, to improve day-to-day services to citizens, evaluate the performance of system designs and components, and track the use of on-site systems to be used in coordination with land use and community sewer planning.

The Department of Ecology administers the grant funds under Section 319 of the federal Clean Water Act.

An advisory group will meet this fall to develop survey questions and organize a workshop for data managers next spring. A report will be published following the workshop. For more information, contact **Terry Hull** at (360) 407-6314 or thull@psat.wa.gov.

Federal manual provides guidance to on-site system professionals

The U.S. Environmental Protection Agency's (EPA) new ***On-site Wastewater Treatment Systems*** (OWTS) manual is now available. This manual updates and greatly expands upon its predecessor, the ***Design Manual for On-site Wastewater Treatment and Disposal Systems,*** originally published in 1980. This is a must-have reference for private and public on-site system professionals.

"The new manual reflects EPA's growing commitment to on-site systems as a long-term alternative to large centralized treatment systems, especially in areas with low-density development," said Rod Frederick with the EPA.

In addition to providing detailed descriptions of conventional and alternative on-site wastewater treatment processes, the manual introduces the concept of performance-based siting, design, and management. The performance concept considers the use of on-site systems from a broader perspective, taking into account the capabilities of various system components and their collective ability to protect public health and the environment beyond the site of a single system. You may view the manual on EPA's web site at: http://www.epa.gov/ORD/NRMRL/Pubs/625R00008/625R00008.htm

• To order copies of the 300-plus page manual, contact EPA's National Center for Environmental Publications, ncepimal@one.net, or (800) 490-9198. For questions about the manual, contact Rod Frederick at Frederick.rod@epa.gov.

Rethinking on-sites

Continued from front page

"As always, there is a catch," Hull said. "The new systems, while meeting cost, treatment, and dispersal objectives, are more complicated and more subject to breakdowns than traditional systems. Safe and effective use of these systems depends upon regular, more intensive maintenance."

For most homeowners, this will mean turning over their system to a maintenance expert—just as many of us have relinquished our auto tune-ups to the mechanic and a diagnostic computer.

Beyond regular maintenance, making on-site systems a part of community infrastructure requires stronger management.

Since 1987, the ***Puget Sound Water Quality Management Plan*** has provided a framework for developing effective management of on-site sewage systems. State and local on-site sewage programs, as well as the industry and its trade association, have focused on achieving the following:

- Effective state and local regulations and regulatory programs.
- Regular system maintenance and owner education.
- A well-trained cadre of on-site system professionals.
- Efficient use of new on-site sewage treatment techniques and equipment.

Much progress has been made since 1987, but increased regional growth requires new effort. The region needs to build a management program that does the following:

- Keeps track of where on-site systems are located and how well they are working.
- Integrates on-site program planning with land use and community sewer facilities planning.
- Maintains regulatory controls that ensure proper system siting, design, construction and operation.
- Funds on-going operations and system repairs.

• For more information about the Puget Sound Action Team's on-site sewage system program, contact Terry Hull at (360) 407-6314 or thull@psat.wa.gov.

News From Around Puget Sound

Snohomish County

The Stillaguamish watershed committee, Snohomish County, the Puget Sound Action Team and Washington Sea Grant sponsored a workshop in June for homeowners to learn how to keep their on-site septic systems in top running order. Teri King, water quality specialist with Washington Sea Grant, presented information on system care and maintenance, as well as tips for gardeners on how to landscape systems. The landscaping tips included a list of recommended grasses and ground covers to enhance the function of the drain field and make maintenance of the system easy. King has reached many Puget Sound residents with a publication entitled, ***Septic Scents, Cents, and Sense: 3 Supreme Insights into the Fearless Flush,*** and other materials. The 40 homeowners who attended the workshop took home ideas on septic maintenance that will help them extend the life of their system, protect water quality and more attractively landscape their septic fields. **Sea Grant publications** about on-site septic systems can be found at www.wsg.washington.edu.

Mason County

Mason County commissioners recently approved a new and unique partnership to address water resource protection issues. The county's health department and conservation district are teaming up to provide new services, while enhancing existing ones. Funding for this new partnership will come from a special conservation district assessment on parcels in the unincorporated areas of the county. Fees collected will provide a stable source of dedicated funding and ensure that technical assistance is available equally throughout the county's many watersheds. Currently, assistance depends upon the availability of grant funding that differs throughout the county. The assessment will help provide technical assistance for farm and livestock operations, aid efforts to support shellfish protection, assist landowners with low interest loans and provide public education programs. Contact: **Mike Madsen,** Mason County Conservation District, (360) 427-9436 or mgmadsen@hotmail.com.

Clallam County

Shellfish closures in Dungeness Bay are following an all too familiar pattern found elsewhere in Puget Sound. Since 1997, high levels of the fecal coliform bacteria at marine stations resulted in a series of closures in the bay. Health and environmental workers measure fecal coliform bacteria to determine how much bacterial pollution is in a waterway. Today, the entire bay is threatened with closure because of too many bacteria in the water. To combat this trend, Clallam County first established a Clean Water Protection District, covering the entire Dungeness Valley. This was followed by two recently completed studies, one by the Department of Ecology and the other by the Jamestown S'Klallam Tribe, which indicate that the lower Dungeness River and one of its tributaries are potential sources of fecal coliform contamination in the bay. Today, the county, the tribe and others are targeting their outreach and education efforts towards owners of more than 50 potentially failing septic systems in the lower part of the watershed. These efforts, along with financial incentives designed to encourage inspection and correction of identified problems, hold the greatest promise to turn these trends around. Contact **Val Wilson,** (360) 417-2543 or vwilson@co.clallam.wa.us.

Photo by Teri King

Bird-bath and septic-friendly plants disguise a septic tank access cover and drain field. Participants in a Snohomish County on-site workshop learned alternative ways to landscape septic fields.

Pierce County

The Tacoma-Pierce County Health Department will present a revised on-site sewage operation and maintenance (O&M) program to its Board of Health in early November. The new program would categorize systems as low risk, moderate risk or high risk of failure. Low risk systems, such as gravity or pressure systems serving single family dwellings, would be required to register with the health department, but an O&M permit would not be needed. The health department would provide the owners of low risk systems with educational materials and routine reminders to maintain their systems. Moderate risk systems would need O&M permits that must be renewed every three years. Examples of moderate risk systems include systems serving duplexes, medical, dental or veterinary facilities. High risk systems would require permits that must be renewed annually. High risk includes systems serving schools and day care facilities, mobile home and RV parks, as well as experimental systems. Registration or permitting will be required when a new system is installed, repaired or altered; property containing a system is sold; if the use of the property changes from a residential to a non-residential use; and, in the case of remodel or replacement of the structures served by the system. Contact **Jim Hoyle** at (253) 798-2859 or jhoyle@tpchd.org.

Skagit County

Struggling populations of Puget Sound bottomfish have a new friend in the Skagit Marine Resources Committee (MRC). The group, which identified bottomfish recovery as one of its top priorities, recently developed a proposal to establish eight "no-fishing areas" to protect the fish. Puget Sound is home to 80 species of bottomfish. Similar to salmon, bottomfish populations are in trouble. Overharvesting and pollution are among the factors believed to have contributed to the decline in salmon and bottomfish. The Skagit MRC investigated a number of potential "no fishing" sites and ultimately selected eight for inclusion in the proposal. All eight sites contain healthy, rocky reef habitat and were once good fishing areas for bottomfish. Citizens are now reviewing and providing comments on the proposal. Then, the MRC will give it to the Washington Department of Fish and Wildlife and area treaty tribes, who together will make a decision about establishing the areas as marine reserves for "no fishing." Contact **Paul Dinnel,** (360) 293-2188 or padinnel@aol.com.

Puget Sound Action Team Local Liaisons:

Island County:
Harriet Beale
(360) 407-7307

Thurston and **Mason counties:**
Stuart Glasoe
(360) 407-7319

Snohomish, Skagit and **Whatcom counties:**
Hilary Culverwell
(206) 721-4377

San Juan County:
Ginny Broadhurst
(360) 738-6122

Clallam, Kitsap and **Jefferson counties:**
John Cambalik
(360) 582-0575

Pierce and **King counties:**
Kathy Taylor
(253) 333-4920

North Bay septic overhaul cleans up local waters

This past summer, the Washington Department of Health upgraded the shellfish classification of 1,100 acres in North Bay in Mason County allowing for unrestricted, year-round harvest of shellfish. It's another notable pollution-control success story that deserves attention and provides a number of important lessons for other shoreline areas around the Sound.

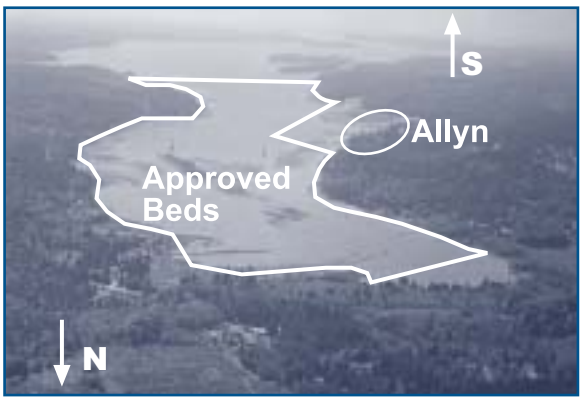

Photo courtesy of Department of Ecology

An area once closed to shellfish harvesting is now open thanks to a decade of effort by agencies and local citizens.

Septic failures set stage for solutions

The story began 11 years ago when the Department of Health issued a downgrade for the shellfish beds, moving them from an "approved" to "prohibited" classification because of on-site sewage systems that were failing in the unincorporated shoreline town of Allyn.

In an unusual move, shellfish growers sued waterfront property owners, which quickly led to the repair of many systems and an upgrade classification the following year of a large portion of the bay from "prohibited" to "conditionally approved." While this was significant, the groups and individuals involved recognized that a more permanent solution was needed.

In 1993, Mason County signed a consent order with the Washington Department of Ecology agreeing to improve sewage management in North Bay and other areas of the county. The agreement helped set the stage for solving Allyn's sewage problems.

In 1994, the state approved a wastewater facilities plan for a wastewater treatment plant that would apply reclaimed (treated wastewater) to land. The system began operation in 2001 and is designed to serve 1,400 residences. Grants and loans from the Department of Ecology and U.S. Department of Agriculture Rural Development program paid for most of the approximately $22-million project. Average monthly rates to repay the loan and operate and maintain the system are approximately $48.50 for residential connections and $15 for vacant lots.

"A lot of people worked really hard on this project," said Kim Lincoln, water resources program lead for Mason County Health Services. "It almost didn't happen so many times along the way."

Some pollution sources remain a mystery

The good news is tempered slightly by the fact that portions of the bay adjacent to Allyn are still classified as prohibited and conditionally approved because of high levels of bacteria.

"It's a mystery why parts of the bay haven't improved and another area has actually gotten worse," said Lincoln. "We are currently focusing on the area near Allyn in an effort to identify the pollution sources."

"The North Bay upgrade once again reinforces the critical need for good sewage management around the Sound, whether it's individual on-site systems, small community systems or municipal treatment plants," said Stuart Glasoe, shellfish program lead for the Action Team.

"The solutions are rarely easy or inexpensive," Glasoe added. "But they are feasible and essential for protecting public health, environmental quality and property values."

Crafting a sewage solution in Similk Beach

Photo courtesy of Skagit Co. Health Department

View of Similk Beach.

Once home to a handful of summer cabins, Similk Beach in Skagit County now has 85 residences, some year-round, some seasonal. The combination of growth, small lots, poor soils and inadequate drainage has resulted in sewage discharges into the bay.

In 2000, the state Department of Health downgraded shellfish harvesting in a portion of Similk Bay, putting a spotlight on the need to find a solution. The Skagit County Health Department and members of the Similk Beach community led the project. Key achievements to date include the following:

- In November 2000, county voters passed a ballot measure authorizing the Skagit County Public Utility District to assist with sewage problems and, if needed, provide sewer service in rural parts of the county.
- In 2001, county commissioners set up a citizen advisory committee representing a variety of interests to help determine the number of buildable lots in Similk Beach. The committee identified a maximum of 117 lots, meaning that any community sewage system would be designed to serve between 85 and 117 residences.
- In June, 2002, the county passed an amendment to the comprehensive plan designating Similk Beach as a "limited area of more intensive rural development" (LAMIRD). The LAMIRD allows for the extension or provision of urban services, such as sewer services, in designated rural areas.

Next steps for the project include forming a local utility district and implementing a cost-effective treatment solution, most likely some type of community sewage system.

"The project has already involved a lot of analysis and coordination, and we still have a ways to go, but we're confident it's all going to pay off in the end," said Corinne Story, environmental health director for the Skagit County Health Department.

Living Machine® will treat YMCA camp's waste

By Bob Gratias, YMCA Camp Seymour

YMCA Camp Seymour in Pierce County is an outdoor center serving the Puget Sound community through year-round environmental education programs, traditional summer camping and retreats for families and schools and other not-for-profit organizations. Located in southern Puget Sound for nearly a century, the camp's 150 acres borders approximately a half mile of saltwater shoreline on Glen Cove. The camp includes beautiful old growth and second-growth forested areas.

YMCA Camp Seymour is working to minimize its harm to the natural environment. As a residential facility serving more than 11,000 people annually, waste disposal issues pose significant environmental challenges for the camp. Presently, most sewage at the camp is treated in a conventional septic system with a drain field remotely located from the shoreline, while some buildings have separate, independent systems.

From waste to worms

By the end of this year, these systems will be replaced with the Living Machine®, a sewage treatment facility that will treat the wastewater to a level that will allow the treated wastewater to be reused in irrigating an adjoining play field and in flushing toilets throughout the camp. The most visible part of the treatment facility is located in a greenhouse, where a series of tanks with plants and other living organisms treat the wastewater.

The final treatment will be done in a constructed wetland just outside the greenhouse. This area will use native plants in a graded soil, sand and gravel medium. Part of the treated wastewater will also pass through a demonstration pond with native aquatic flora and fauna.

The greenhouse will include a vermiculture system, using worms to break down kitchen waste and prunings from the greenhouse plants. The castings from the worms will be used as a soil amendment for a garden area on the south side of the greenhouse and for other landscaping purposes.

Waste treatment provides lessons in sustainability

This visible demonstration of functional and sustainable systems will provide a living classroom of alternative ways to process waste. The camp's environmental education program will incorporate these concepts of sustainability into its curriculum. As a result, school children, parents and teachers who visit the camp will learn first-hand how sustainable systems can work cooperatively with nature and produce useful end products.

The Living Machine® is just one phase of Camp Seymour's recently completed comprehensive master plan that focuses on program expansion, as well as property and facility improvements. The plan emphasizes stewardship of the natural resources and related environmental education opportunities.

• For more information, contact, Bob Gratias, facilities manager at YMCA Camp Seymour, (253) 884-3392 or bgratias@ymcatacoma.org

The Living Machine® at work on Bainbridge Island

Action Team photos

The Living Machine® system is already at work on Bainbridge Island. **IslandWood**—formerly known as the Puget Sound Environmental Learning Center—chose constructed wetlands in combination with the Living Machine® system shown in these photos to allow wastewater to be treated and reused for toilet flushing and landscape irrigation. Arrangement of typical sewage treatment devices in combination with constructed ecosystem features allows visitors to observe the treatment process. Seeing this system at work fosters a better understanding of the importance of good engineering, the use of natural systems and maintenance in developing sustainable community infrastructure.

Editor's Note: The Living Machine® is just one example of the promising new alternative technologies being used or developed to treat wastewater.

Puget Sound's Health

The Puget Sound Ambient Monitoring Program (PSAMP) is a coordinated effort among state, federal and local agencies to measure the health of Puget Sound's waters and resources. The program complements monitoring by local governments and citizen volunteers.

Door-to-door surveys help correct problems with surface water pollution in Kitsap County

Contributed by Stuart Whitford, *water quality program manager, Kitsap County Health District*

Failing on-site sewage systems (OSS) and poor animal waste management practices are the major nonpoint sources (diffuse sources of pollution coming from multiple causes) of fecal coliform bacteria pollution for Kitsap County's surface waters. These same sources of fecal coliform pollution are also partially responsible for nutrient pollution in several Kitsap County lakes, including both Long and Kitsap lakes.

According to the Kitsap County Health District's ***2000-2001 Water Quality Monitoring Report,*** fecal coliform pollution is responsible for the listing of 20 Kitsap county water bodies on the Washington State list of waters with some pollution problems. It has also caused the Washington Department of Health to restrict or prohibit commercial shellfish harvest in many areas along the Kitsap County shoreline, including Burley Lagoon, Dyes Inlet, Liberty Bay and Yukon Harbor.

To address fecal coliform pollution of surface waters, the Kitsap County Surface and Storm Water Management Program (SSWM) funds ongoing monitoring to get trend information about fresh and marine waters. This information helps locate problem areas or areas with contamination. The county also funds a Pollution Identification and Correction (PIC) Team to identify and correct the sources of pollution. In summary, a PIC project is a door-to-door survey of properties in a predefined project area. PIC projects have two fundamental goals:

- **Identify and correct** failing OSS and poor animal waste management practices.
- **Prevent** OSS from failing and poor animal waste management practices through public education.

Photo by Shawn Ultican

Leslie Banigan, an environmental health specialist with Kitsap County, collects water samples for fecal coliform analysis as part of a shoreline survey in the Yukon Harbor area.

Since 1996, the PIC Team conducted seven major PIC projects. The team completed 1,811 property surveys, corrected 159 failing systems, and, in partnership with the conservation district, succeeded in reducing fecal coliform pollution on 12 farms in the county.

"PIC projects have been very successful in cleaning up surface waters with fecal coliform pollution," said Stuart Whitford, water quality program manager for the Health District. "The recipe for success continues to be improvements in public outreach, solid procedures for identifying sources of fecal coliform, thorough training of staff, stable and consistent funding sources—all with the goal of helping people fix the problems we've identified."

Some recent successes include:

- Commercial shellfish beds re-opened along Cedar Cove in Port Gamble Bay.
- The upgrade of commercial shellfish beds in Burley Lagoon and reduced fecal coliform concentrations in Burley and Purdy creeks. In May 2001, the Health District requested that the Department of Ecology remove Purdy Creek from the list of waters with some pollution problems.
- Reduced concentrations of fecal coliform in Dogfish Creek. The ultimate goal is to have the Department of Ecology remove Dogfish Creek from the list as well.

The Health District plans to initiate a PIC project along Kitsap Lake and Chico Bay this fall and in the Yukon Harbor watershed next fall.

• For questions regarding the Kitsap County Health District's Water Quality Program visit their web site (http://www.wa.gov/kitsaphealth/index.html) or contact: Stuart Whitford, Kitsap County, at (360) 337-5673 or whitfs@health.co.kitsap.wa.us.

2002 Puget Sound Update released

The Puget Sound Action Team has published its eighth report summarizing the latest monitoring results from the Puget Sound Ambient Monitoring Program (PSAMP). The *2002 Puget Sound Update* covers the core monitoring components of PSAMP as well as results from related efforts conducted by researchers in the Puget Sound region. PSAMP is a coordinated, multi-agency monitoring program that has the unique capability of developing a broad, interdisciplinary understanding of Puget Sound. The core components include the monitoring of water quality (in open marine water, nearshore marine water near shellfish growing areas, and freshwater), nearshore marine habitat, marine sediment contaminants, as well as the contaminant levels and abundances of fish, marine birds and marine mammals.

• The report is available online from the Puget Sound Action Team at: http://www.wa.gov/puget_sound. To order a print version, call (800) 54-SOUND or send an e-mail to gwilliams@psat.wa.gov.

Alternative wastewater systems: Boon or bane

Why should an on-site sewage system for a single home cost $15,000 or more? Is wastewater testing necessary? How can owners be assured their already expensive system won't need to be upgraded at an additional cost?

Regulators and industry professionals across the country are wrestling with these and related questions. The answers will forever change the way on-site sewage systems are used. The reason: alternative systems.

On-site system experts generally define alternative systems as any type of system that comprises more than the basic septic tank and gravity-fed drainage field. Substituting or adding to this conventional system with any innovative construction technique or device subjects the system, its designer, installer and owner to special alternative system rules and, usually, additional costs.

Why use an alternative system?

Essentially, an alternative system is designed to meet site limitations that require either a higher level of treatment or disposal of treated wastewater in a smaller-than-normal space. Such needs often occur when an existing system is failing. In addition, an alternative system may allow the development of parcels that have restrictive soil or slope conditions. Alternative systems provide a means for using, or continuing to use, sites that otherwise would need access to a community sewer system.

Alternative systems use innovative pre-treatment devices or processes that more efficiently disperse treated wastewater in the soil. Pre-treatment devices include equipment and filters designed to more thoroughly break down organic wastes, disinfection apparatus to kill harmful bacteria, and chemical removal equipment. State-of-the-art dispersal devices distribute wastewater more effectively into the drain field or provide enhanced soil for final treatment and disposal.

Maintenance is key to success

"Each of these new methods involves elements that are more maintenance intensive than the conventional septic tank and drain field," said Terry Hull, on-sites program lead for the Puget Sound Action Team. "At best, failure to provide needed maintenance ensures shorter system life. At the worst, short-term system failure and environmental contamination could result."

The dilemma of innovation

Nearly all alternative system components with mechanical functions are product tested. Industry experts measure their effectiveness against performance standards applied under optimal operating conditions. In normal use, many of these devices do not equal their tested performance levels; without periodic maintenance, none will perform as intended.

"Herein lies the dilemma," said Hull, who posed the following questions:

- Who will be responsible for assuring the proper operation of alternative systems and the associated costs?
- How do we best encourage and support homeowners to help prevent a community health and environmental problem?
- Should we create local utilities to ensure proper maintenance and conduct the necessary monitoring to guarantee system performance?
- Should we abandon the technological advances made during the past two decades and restrict development to sites that can be fitted with conventional systems?

At the national level, government officials are advocating the creation of responsible management entities in every community to ensure the proper use of on-site sewage systems. At the state level, members of the Department of Health's Rule Development Committee, a group with broad representation, are developing changes to the Washington Administrative Code to help guide the future use of on-site systems.

Whether the use of new on-site technologies leads to a cleaner or more degraded environment will depend on how well they are managed.

• For more information on the work of the Rule Development Committee visit: www.doh.wa.gov/ehp/ts/WW/RDC.htm.

Group leads septic industry in new directions

The Washington On-site Sewage Association (WOSSA), formed in 1990, encompasses all disciplines of the on-sites industry—from regulation, design, installation, operations and maintenance, to monitoring and maintenance and pumping. WOSSA continues to expand its efforts to promote improvement in the on-site wastewater profession.

In association with the Washington Department of Health, Puget Sound Action Team, and Washington State University, WOSSA established the Northwest On-Site Training Center (NWOTC) on the grounds at the WSU Extension Campus in Puyallup. Classes offered at the center cover a wide range of topics including "Principles of Designing," "Exploring and Understanding Soil" and "Matching Systems to Site Conditions." Staff members at NWOTC are currently developing new courses in ethical standards of practice, quality management and operational best practices.

WOSSA is cooperating with state and local health agencies and others on a variety of initiatives to test new technologies and promote better system monitoring and maintenance. At one local demonstration site—**Burnett,** in rural Pierce County—the organization led efforts to solve a community problem.

Burnett is a small unincorporated community of 50 homes and the location of a U.S Environmental Protection Agency National On-site Demonstration Project. As an alternative to costly community sewer systems, WOSSA, its cooperating companies, and homeowners installed 15 systems using various innovative technologies to determine their effectiveness on difficult sites and to evaluate their maintenance needs. Funding for the project came from the U.S. Environmental Protection Agency with cooperation from state and local health officials. System maintenance and monitoring of this project is ongoing and will provide valuable information for future on-site applications.

• For more information about WOSSA, contact John Thomas, executive director, at (253) 297-2837 or johnthomas49@msn.com. To find out more about WOSSA and its activities, visit the web site at: http://www.wossa.org.

Puget Sound Action Team
P.O. Box 40900
Olympia, WA 98504-0900

Return Service Requested

PRSRT STD
U.S. POSTAGE PAID
WASHINGTON STATE
DEPT OF PRINTING

Get current with water quality issues—electronically!

▶ Join the **Puget Sound Water Quality INFORMATION Listserv** to get and keep current on events, updates, timely information and *Sound Waves*.

▶ Join the **Puget Sound Water Quality NEWS Listserv** for news releases issued Sound-wide.

Sign up for either or both of these listservs on the Puget Sound Action Team's web site at: **www.wa.gov/puget_sound**.

Sound Waves is produced quarterly by the Puget Sound Action Team.

If you would like this document in an alternate format, call (360) 407-7300, (800) 54_SOUND, or the TDD number: (800) 833-6388.

Editor/Designer: Toni Weyman Droscher (tdroscher@psat.wa.gov)

Editorial Assistant: Stephanie Lidren

Sound Waves is run on an alcohol-free press using vegetable-based inks.

The Puget Sound Action Team works with organizations to protect and restore Puget Sound. The Action Team includes representatives from some state agencies and some tribal, federal and local governments. A Council of business, environmental organization, and local and tribal government representatives and the legislature advises the Action Team.

Acting Chair: **Scott Redman**

Puget Sound Council Members

Agriculture
Jerry Van der Veen, dairy farmer

Business
Kirk Anderson,
Fisher Communications, Inc.

Environmental Community
Tom Putnam,
Puget Soundkeeper Alliance

Shellfish Industry
Bill Dewey, Taylor Shellfish Co. Inc.

Cities
Jackie Aitchison,
Poulsbo City Council

Counties
Rhea Miller, San Juan County Board of Commissioners

Tribes
Fran Wilshusen, Northwest Indian Fisheries Commission

State Senate
Tracey Eide (D-Federal Way)
Pam Roach (R-Auburn)

State House of Representatives
Phil Rockefeller (D-Kitsap)
Mark Schoesler (R-Ritzville)

Action Team Members

U.S. Fish & Wildlife Service
Ken Berg, Manager

Department of Community, Trade and Economic Development
Martha Choe, Director

Department of Ecology
Tom Fitzsimmons, Director

U.S. Environmental Protection Agency
Ron Kreizenbeck, Deputy Regional Administrator

Interagency Committee for Outdoor Recreation
Laura Eckert Johnson, Director

Department of Fish & Wildlife
Jeffrey Koenings, Director

National Marine Fisheries Service
Bob Lohn, Regional Administrator

Department of Agriculture
Valoria Loveland, Director

Department of Transportation
Doug MacDonald, Secretary

Department of Natural Resources
Francea McNair, Aquatics Steward

Conservation Commission
Steve Meyer, Executive Director

State Parks & Recreation Commission
Rex Derr, Director

Department of Health
Mary Selecky, Secretary

Tulalip Tribes
Daryl Williams, Director, Department of the Environment

County Government
Dan McShane, Whatcom County

City
Position to be filled