Big Thompson Watershed News

The Quarterly Newsletter of the Big Thompson Watershed Forum

Summer 2003 **Volume 4, Issue 2**

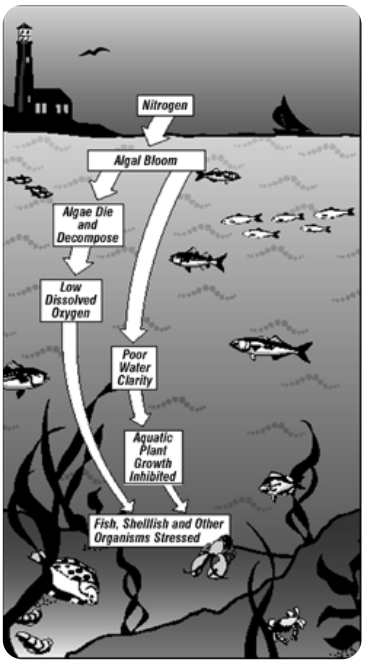
Nutrient Pollution: Too Much of a Good Thing

This article was adapted from a publication by the Ecological Society of America. View the complete original publication at http://www.esa.org/education/edupdfs/hypoxia.pdf.

In 1996, the US Environmental Protection Agency reported to Congress that 40% of rivers and 51% of lakes are impaired by excess nutrients. Throughout the world, large areas of coastal waters are becoming so polluted that they lack sufficient oxygen, one of the basic building blocks of life. Although low oxygen can be a natural condition, the intensity of the situation in recent decades is due to human activities.

Why are Nutrients a Problem?

Like their terrestrial relatives, aquatic plants and algae need nutrients such as nitrogen, phosphorus, silica, and magnesium to grow, but an overabundance of these nutrients can overstimulate growth. Like unsupervised children - and some parents! - left alone with a bag of Halloween candy, algae will consume all the nutrients they can get. Instead of getting a stomachache, overfed algae reproduce rapidly, resulting in an algal bloom. This overload of algae then dies or is eaten by microscopic critters called zooplankton. The dead algae eventually sink, either as dead algae or as fecal material.



The impact of nutrients on ecosystems. Figure by EPA.

Bacteria break down the sunken organic material in a natural process that consumes oxygen. Normally, oxygen is replenished by mixing and diffusion of water, but an excess of dead algae can result in depletion of oxygen, a condition known as hypoxia. In general, water that is slow-moving, poorly-mixed, and has abundant nutrients is more likely to become hypoxic.

Low oxygen levels present an obvious problem for fish and other oxygen-breathing aquatic organisms. Mobile animals, such as adult fish, can often survive hypoxia by moving to oxygenated waters, if available, but less mobile animals are often killed by hypoxic episodes.

Through this chain of events, excess nutrients can result in a severe reduction of the amount of animal life in hypoxic zones. The chain continues: fish-eating birds and mammals, such as herons or otters, cannot live where there are no fish. Hypoxic areas may also be more susceptible to over-fishing, pest outbreaks, storm damage, or other stresses. Chemical reactions between hypoxic water and bottom sediments can release pollutants stored in the sediments, further fueling the hypoxic conditions or otherwise polluting the ecosystem.

Fish kills and other die-offs aren't the only problems caused by nutrient pollution. Over-nutrified waters can smell bad, be murky, and cause drinking water to taste bad. The increase in algae and turbidity force water treatment plants to add extra chlorine to produce drinkable water, which then leads to increased levels of cancer-causing chlorination by-products. Removing these by-products is expensive, and some treatment plants might not be able to handle an excess load.

Nutrients themselves can also be toxic. Ammonia - a form of nitrogen - is toxic to fish, so water treatment plants now convert ammonia to nitrate. Nitrates are less toxic, but still produce algal blooms. Nitrate levels above 10 mg/l in drinking water can also cause "blue baby syndrome," a potentially fatal condition for infants.

What Causes Nutrient Pollution?

"Nutrient pollution" usually refers to nitrogen and phosphorus, the two nutrients that typically limit algal growth. Nutrients naturally make their way into waters by erosion of geologic formations and recycling of decaying organic material. Overabundant nutrients come from point sources such as wastewater treatment plant discharges, and from nonpoint sources such as agricultural activities, urban runoff, groundwater, and atmospheric deposition. By their nature, point sources are easier to control and monitor than nonpoint sources. A 1999 report by the US Geological Survey (USGS) stated that about 90 percent of nitrogen and 75 percent of phosphorus in water nationwide originates from nonpoint sources; the remaining percentages are from point sources.

Strange as it sounds, water pollution can come from "thin air" - more than 3 million tons of nitrogen are deposited in the United States each year from the atmosphere, derived either from natural chemical reactions or from the combustion of fossil fuels. A 1999 USGS study found that almost half of the nitrogen deposited in the South Platte River near Denver was from atmospheric deposition; the rest of the nitrogen was attributed to approximately equal parts fertilizer, manure, and point sources.

ABOUT US...

The Big Thompson Watershed Forum is an association of private citizens and representatives of government, organizations, and businesses. We are united with the common goal of protecting water quality throughout the Big Thompson Watershed. We strive to accurately assess conditions in the Big Thompson Watershed and to facilitate informed, cooperative water quality protection.

The Forum is sponsored by the North Front Range Water Quality Planning Association and maintains a strong partnership with the Thompson R2-J School District. The Forum is a Colorado nonprofit corporation.

A Message from the Coordinator:

The Watershed Approach to Nutrient Reduction

by Rob Buirgy

Rob Buirgy

Over the past six years of working with Big Thompson communities through the Forum, we have concluded that reducing or eliminating nutrient pollution is our highest priority campaign. In this issue, we explore the causes and effects of nutrient pollution, as well as Colorado's plans for regulating nutrients.

I believe that the watershed approach, as we practice in the Forum, is our best hope for controlling the nutrient loads threatening the quality of our waters. Upstream nutrient sources must be reduced, but one look at the complexity of our hydrologic system and the number of folks involved in land management can be overwhelming. No one individual, agency, or municipality has the resources or the stamina to accomplish change at this scale.

With impacts from major wildfires and drought, decreased funding for water quality protection, and the uncertainty in many families' economic futures, implementing the proactive changes necessary for this campaign will be difficult. Regulatory controls won't be in place for at least ten years, and when they do arrive, the costs of litigation will limit their effectiveness. In addition to these sociological drawbacks, waters in ditches and other man-made conveyance structures are exempt from Colorado water quality regulations. Our best tools for change are education and voluntary best management practices – hence the Forum's commitment to education, local involvement and nurturing a sense of ownership by every potentially affected interest.

As the Ecological Society of America points out in their recent report on "Nonpoint Pollution of Surface Waters with Phosphorus and Nitrogen" (www.esa.org/sbi/issue3.pdf), the roots of nutrient pollution are well understood scientifically. This report also emphasizes that "The most important barriers to control of nonpoint nutrient pollution appear to be social, political, and institutional." This awareness is part of the fundamental vision of the Forum – that we can sustain a non-regulatory coalition that overcomes these barriers and achieves lasting water quality protection for the Big Thompson watershed.

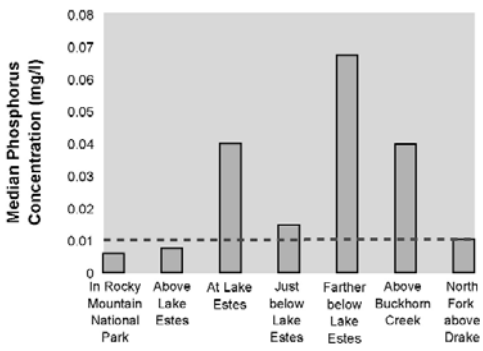
Nutrient loading begins in our farthest tributaries and increases all the way to the South Platte River. Monitoring and managing these waters requires organization at the watershed scale – a manageable number of water bodies to monitor, realistic land area to coordinate best management practices, and a good match between availability of funds and the cost of improvements. The Forum provides this watershed-level organization. The information collected by our monitoring programs is providing clues to where we can have the greatest effect. We are developing educational programs to bring this knowledge to our community and projects to hold back erosion and reduce nutrient sources.

This issue of our newsletter provides a primer on nutrient pollution - I hope it encourages you to become a part of the solution by supporting the Forum, and I hope to see you at our annual River Revival on September 20th!

The Value of Monitoring Water Quality

The Big Thompson Watershed Forum monitors water quality, including nutrient concentrations, throughout the watershed. For example, the graph to the left shows the concentration of phosphorus at a few of our sampling sites along the Big Thompson River. These and other data will be useful in developing nutrient criteria, and in assessing compliance with criteria once they are established (see p. 3). Complementary data collected on water from the Colorado-Big Thompson canal system will be invaluable in assessing the impacts of events like the Grand Ditch breach (see p. 5). We also use our data to identify problem areas and work with stakeholders to fix problems before regulatory action becomes necessary.

Total Phosphorus Concentrations in the Big Thompson River



The dashed line on the graph represents the EPA recommended criterion (see p. 3) for phosphorus in this stretch of the Big Thompson.

Nutrient Pollution: the Regulatory Response

By Barb Maynard

Formal, national recognition of the nutrient pollution problem began with a 1996 EPA report that nutrients are a leading cause of water quality impairments in the United States. The process of turning that recognition into a national, scientifically sound strategy for action is still continuing across the country.

The Federal Response

The EPA followed their 1996 report with the 1998 publication of a National Strategy for the Development of Regional Nutrient Criteria. This report said that states must consider nutrient levels in assessing water body health and in making management decisions.

Essential to the strategy is the idea that regulating nitrogen and phosphorus will limit problems with algae overabundance. This assumption begs the question of "How much nitrogen and phosphorus is too much?" To address that question, the EPA pledged to develop recommended numerical nutrient criteria for different regions of the country, taking into account the geographic variability in appropriate nutrient loads. The decision to use a regional approach diverged from EPA guidance on other pollutants, and acknowledged that natural nutrient levels vary from place to place, and therefore, nutrient criteria should vary accordingly.

In 2001 the EPA published recommended nutrient criteria and asked that states and tribes develop plans outlining how and when they intend to incorporate nutrient criteria into their water quality standards. By the end of 2004, the EPA plans to evaluate the progress of each state or tribe in working toward adopting nutrient criteria.

Colorado's Approach

Under the Clean Water Act, the EPA sets guidelines and oversees action on water quality, but individual states and tribes are responsible for the actual implementation. Therefore, states and tribes are not required to use EPA's recommended nutrient criteria, but they must demonstrate that any criteria used are scientifically valid. In Colorado the Water Quality Control Commission (WQCC), together with their staff, the Water Quality Control Division (WQCD), is responsible for regulating water quality. In response to the EPA action on nutrients, the WQCD convened a Nutrient Criteria Workgroup representing municipalities, consulting firms, law firms, environmental groups, and state and federal agencies to develop the state's Nutrient Criteria Development Plan.

The Colorado plan, submitted to the EPA in September 2002, takes several departures from the EPA recommendations. First, Colorado plans to develop its own nutrient criteria, rather than adopting EPA's numbers.

"We (the Workgroup) felt like the numbers weren't applicable to Colorado," said Joni Nuttle, who is spearheading the nutrient criteria effort for lakes and reservoirs for the WQCD. "They were pretty low… For instance, plains reservoirs are going to have higher nutrients based on their geology and hydrology... We didn't feel that the numbers were realistic."

Colorado was not alone in this reaction – other western states also plan to develop their own nutrient criteria.

Developing nutrient criteria is a substantial undertaking, beginning with gathering the available data. One concern expressed about the EPA numbers is that EPA did not have all of the available data at their disposal. Many groups across the state, such as the Forum, collect water quality data, but all of this information is not yet stored in one centralized location.

"The first step is to find out what data really is out there," Nuttle said. With help from a recent EPA grant, the state will work with a contractor to contact water groups, gather data, assess the data reliability and determine additional data needs. Once that is done, the process of boiling that information down into nutrient criteria will begin. The goal is to address stakeholder concerns by tying criteria to designated uses, but how this will be done is not yet laid out.

Amongst western states, both Colorado and Montana have EPA-approved Nutrient Criteria Development Plans. "Montana's plan is a good deal more aggressive and standards for lakes are probably coming within a year," said Kathryn Hernandez, EPA Regional Nutrients Coordinator. "North Dakota, Utah, Wyoming and South Dakota do not have plans in yet, but North Dakota and Utah have numeric criteria already in their standards."

While Colorado's nutrient criteria development plan has met with EPA approval, progress on implementing the plan has fallen behind schedule. The original schedule proposed that the existing data would be gathered and evaluated, data gaps identified, and new data collection begun by June 2003. The shortfall is at least partially due to resource constraints.

"Right now we're dealing with a lot of issues," Nuttle said. "We have many priority issues, but limited resources. It continues to be a priority for the state."

Development of nutrient criteria for rivers and streams is further behind than the work on lakes and reservoirs, at least in part because of personnel changes and budget constraints, but a new staff person is now in place to move things along.

What Protects Waters in the Meantime?

Moving from the recognition of the nutrient problem to regulatory action will take years. In the meantime, nutrient levels are largely unregulated in Colorado, with few exceptions.

"We do have some site specific nutrient criteria standards in place already on five lakes and reservoirs in the state," Nuttle said. Standards were developed at these sites because they were known to have serious nutrient problems affecting their uses.

Site specific standards for unregulated pollutants like nutrients can be adopted under the antidegradation provisions of the Clean Water Act. Proof of degradation is difficult, however, and depends on the vigilance of citizens, water organizations, and governmental officials working together.

Read Colorado's Nutrient Criteria Development Plan online: http://www.is.ch2m.com/cwqf/Workgroups/Nutrient_Criteria/NutrientCriteria.htm

River Life *A focus on the organisms that live in and around Colorado's waters.*

Silk-skilled and Resourceful, Caddisflies are the Artisans of the Aquatic World

by Jeremy Monroe and Bob Zuellig

Jeremy Monroe and Bob Zuellig are aquatic ecologists in the stream ecology and ecotoxicology laboratories at Colorado State University.

Caddisflies, also known as the order Trichoptera, are distributed throughout Colorado's streams and spend their larval and pupal stages underwater before emerging as winged adults. Synchronized caddisfly emergences are often spectacular, and the dense insect swarms provide food for a host of predators, such as fish, birds, bats, and spiders. As aquatic larvae, caddisflies fill a wide variety of streambed niches, including algae grazers, predators, leaf eaters, and even filterers of drifting particles. Most of the nearly 180 known species in Colorado prefer the waters of mountain streams, seeps and ponds; however, many are found in plains streams and standing water.

The diversity of caddisflies is largely a result of how they have used a single adaptation to engineer a variety of different lifestyles. Through glands, caddisfly larvae produce silk. This deceptively simple material is adhesive and can be spun into strands. With an onboard tool shed, caddisflies pick through streambed particles like a carpenter in a lumberyard. Some caddisflies use sand, gravel, and vegetative material to build portable cases to protect their fleshy abdomens and help pump water over their abdominal gills. Like mountaineers, these mobile larvae also use silk as anchoring and rappelling gear to prevent being swept away in strong streambed currents. Another, more sedentary, group of caddisflies builds shelters that feature ports through which resident larvae graze algae or remove food particles from filtering nets. The various structures that caddisflies construct are often so distinctive that they are used to help determine the builder's identity.

Photos, clockwise from top left: An adult Hydropsychid caddis; this grazing caddis from the family Glossosomatidae is protected by a tortoise-like case made of sand grains; filtering caddis larvae from the Brachycentrid family sport tube-like woody cases.

Larimer County Master Gardener Ginny Davis uses a soil moisture probe to show students how too much water can be as hard on plants as too little.

A Wealth of Water Wisdom

Third-graders from across the Fort Collins area learned all about water at the 12th Annual Fort Collins Children's Water Festival on May 20th. The Northern Colorado Water Conservancy District hosted the event on the CSU campus.

Presentations and hands-on demonstrations ran the gamut of water issues, including the inner workings of a fire hydrant, everyday actions that pollute stormwater, how siphons work, water safety, and the living critters that occupy – and clean – our water.

Children making Water Conservation bumper stickers shared some unique insights, including: "Save water, drink milk" and "Salven el agua, animales lo necesitan." (Save water, animals need it.).

Students put their knowledge of water facts to the test with a competition chaired by the Water Wizard. See how well you do on this sample of the Water Wizard's best stumpers. Answers are below – so don't peek!

1. What four major rivers originate in Colorado?
2. In Colorado, what proportion of water is used by farmers, and what portion is used by cities?
3. What percentage of your body weight is made up of water?
4. In times of drought in Colorado, who gets the scarce water in rivers: farmers or cities?
5. True or False. Stormwater is treated at wastewater treatment plants before flowing into rivers.

Look for updates in future newsletters on an upcoming Loveland Children's Water Festival.

Answers: 1. Colorado, Arkansas, South Platte, and Rio Grande. 2. 90% agriculture, 10% cities. 3. 65% 4. Whoever has the most senior water rights. 5. False.

Mark Your Calendars!

The 2nd Annual Thompson River Revival will be held September 20, 2003 in Loveland's Centennial Park. The celebration will include a river clean-up, informational booths, fun activities for the kids, and a picnic lunch.

Contact Janeen Simon at 613-6974 if you would like to volunteer or if your organization would like to present an educational booth or sponsor the Revival. This is a great opportunity for a fun and educational family outing.

Approximately 200 volunteers at the 2002 River Revival cleaned up 2400 pounds of trash from the banks of the Big Thompson River.

Sarah Clements

H_2Organizations: *Look to this new column for information about watershed groups throughout Colorado.*

Keeping Watch over Grand County's Water Quality

By Sarah Clements

Sarah was the TLWA Water Resources Technical Advisor for four years and is now the Grand County Water Quality Information and Monitoring Network Coordinator.

The Three Lakes Watershed Association (TLWA), located in Grand Lake, serves the Forum's sister-watershed. As part of the Colorado-Big Thompson (CBT) Project, the Three Lakes (Grand Lake, Shadow Mountain Reservoir, and Lake Granby) are hydrologically connected to the Front Range via the Alva B. Adams Tunnel. The CBT project creates a unique bond between the Forum, TLWA, and the newly formed Grand County Water Quality Information and Monitoring Network (QWIMN). The TLWA, formed in 1999 by merging three groups, is an all-volunteer, citizen-based watershed association of 180 people. The main purposes of the TLWA are community quality of life, water quality assessment, protection, and education, and fostering a spirit of cooperation among the governmental entities and communities in the Three Lakes area. Water quality projects include three EPA grants for stormwater monitoring, the Shadow Mountain Reservoir delta restoration, and the Three Lakes Clean Lakes Assessment, an EPA-funded study prompted by increased aquatic weeds and decreased water clarity.

The Forum and the TLWA are both part of over 50 entities participating in QWIMN, a countywide information and monitoring network in Grand County. QWIMN's mission is to coordinate and consolidate water quality monitoring, including associated costs, in the county. A centralized Grand County water quality database is being developed as well as a watershed approach to monitoring and data assessment. Participation from the Town of Grand Lake, the Forum, TLWA, Northern Colorado Water Conservancy District, US Forest Service, National Park Service, and US Bureau of Reclamation are vital to maintaining high quality water within the Three Lakes watershed.

While drought was our largest collective problem last year, the failure of the Grand Ditch on May 30th in Rocky Mountain National Park may be the greatest water quality issue facing the Three Lakes watershed this year. The Grand Ditch, which first diverted water in 1892, is owned by the Water Supply and Storage Company in Fort Collins. The ditch diverts an average of 20,000 acre-feet of water annually from the Never Summer Range in Rocky Mountain National Park to Long Draw Reservoir and the Cache la Poudre River. When the ditch failed in May, torrents of water poured down the bank into the Little Yellowstone area of the Kawuneeche Valley, destroying trees and filling the valley with water and sediment. Flooding throughout the valley washed out beaver dams, several foot-bridges, culverts, and irrigation ditches. Sandbagging and emergency berms were built around several homes adjacent to the river. Tons of sediment and debris flowed into Shadow Mountain Reservoir, where a plume of sediment filling the south end of the lake could be seen for several days.

Road and mountainside washed away by the Grand Ditch breach. The ditch runs to the left of the road shown in the photo. Photo courtesy of James Sanborn, Rocky Mountain National Park.

Full impacts of the breach to resources, water quality, wildlife, and recreation throughout the area and in Shadow Mountain Reservoir are still being determined. The additional load of nutrients from the sediment is expected to cause larger than normal algae blooms this summer, exacerbating an existing problem and adding urgency to the need for practical solutions to the sediment and nutrient problem in Shadow Mountain Reservoir.

Large-scale events such as the Grand Ditch breach can result in water quality impacts lasting months to years. Data from both sides of the Divide gathered by the Forum's monitoring program, in partnership with an EPA study, will be used to further assess the impact of the Grand Ditch breach, and will ensure a sound scientific watershed response.

Monitoring water quality in the Three Lakes watershed alerts us to potential problems so we can work together to solve them. Collaboration between the Forum, TLWA, QWIMN, and the many government and private entities involved will benefit water quality in the Three Lakes watershed and the CBT system.

Hypoxia on a Large Scale: the Gulf of Mexico

The largest hypoxic zone in the United States forms every spring and summer in the Gulf of Mexico just west of the mouth of the Mississippi River. This hypoxic zone, shown in the map at right, has ranged in size from 16,000-20,000 square kilometers since 1993. In 1999, the zone was the biggest ever measured at 20,000 square kilometers, or roughly the size of the state of New Jersey. For several years before the 1993 Mississippi River Floods it was approximately half of this size. Researchers now agree that the hypoxic zone is the result of the huge loads of nutrients that pour out of the Mississippi and Atchafalaya Rivers every year combined with mixing patterns in the Gulf that separate surface waters from bottom waters. These conditions are optimal for the development of a hypoxic zone.

Together, the cities, suburbs, and farms in the Mississippi River watershed, made up of the smaller watersheds shown in the map, contribute an estimated 90% of the nutrient flow into the Gulf of Mexico. The Big Thompson watershed is a long way from the Gulf, but as part of the MIssouri watershed, contaminants that make their way into the water stream here can be carried all the way to the Gulf, making us part of the Mississippi River watershed as well.

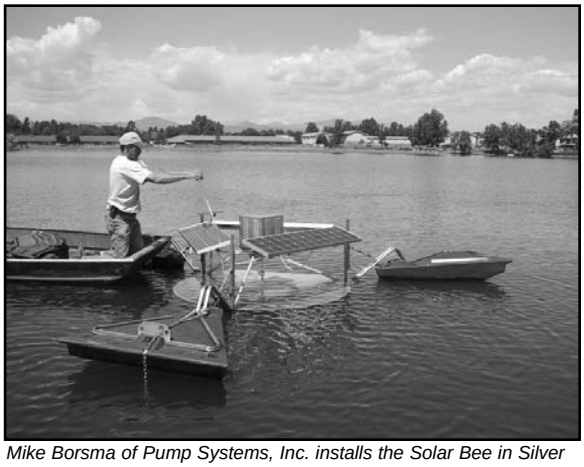
Text adapted from the Ecological Society of America. Map courtesy of EPA.

Solar Solution to Nutrient Pollution

by Barb Maynard

Residents of Silver Lake in Loveland are taking action against the effects of excess nutrients. On June 12, they installed a solar-powered water circulator, known as a Solar Bee, in the lake. By pumping water – up to 10,000 gallons per minute – from the bottom of the lake to the surface, the Solar Bee should alleviate problems with algal blooms and fish kills.

Silver Lake is a classic case of nutrient pollution. Over the years, residents have experienced the algal blooms, fish kills, and foul odors that often accompany excess nutrient loads and the resultant hypoxia. Stormwater inputs, lawn runoff and geese probably all contribute to the problem. In the absence of a practical strategy to reduce nutrient inputs, the Solar Bee should help to alleviate the symptoms by moving oxygen-poor water to the surface to become oxygenated. Keeping the lower depths of the lake oxygenated will not only be good for fish, but it will also prevent the release of smelly hydrogen sulfide, said limnologist Chris Knud-Hansen.



Mike Borsma of Pump Systems, Inc. installs the Solar Bee in Silver Lake.

In addition to alleviating algal blooms and fish kills, the Solar Bee should prevent high concentrations of E. coli from forming, by both diluting the bacteria to safe concentrations throughout the lake and bringing the bacteria to the water surface where UV light from the sun can kill them.

Continued water quality monitoring will provide a comparison of conditions before and after installation of the Solar Bee.

The design of the Solar Bee is unique because it uses solar power for the pump and efficient laminar flow, instead of turbulent flow used by water aerators, said company representative Harvey Hibl. The Solar Bee cost approximately $25,000, with annual operating and maintenance costs of about $5. Locally, Solar Bees are also in use at Platte River Power Authority's Rawhide Energy Station, north of Fort Collins.

For more information about the Solar Bee, see www.solarbee.com.

Thompson School District is Conserving Water

The Thompson School District is doing its part for water conservation, by implementing plans designed to save approximately 16 million gallons annually.

Scott Weber, Resource Conservation Manager for the district, stressed that the district recognizes the need to protect Colorado's valuable water resources. "We need to do what we can to conserve water and to be good neighbors in our community," he noted. "Protecting valuable water resources is very important to the district."

Updating indoor facilities will save the school district about 7 million gallons of water this year. Between August 2002 and January 2003, the district:

- Replaced 450 toilets with low-volume models.
- Retrofitted about 450 urinals.
- Added aerators to faucets in bathrooms and classrooms.
- Installed equipment to re-circulate water used to cool compressors.
- Replaced dishwashers with more efficient models.

In addition, the school district will save another 9.8 million gallons, or approximately 20%, of irrigation water in 2003, as promised through an agreement with the City of Loveland. A 20% reduction fits with Phase I of the City's plan to meet water supply needs. If the City decides that drought conditions require it to go to Phase II, then the school district will step up to a 40% reduction in water use for irrigation. The district will meet these goals by:

- Upgrading irrigation equipment.
- Installing additional meters to reduce over-irrigation errors.
- Implementing time restrictions on irrigation zones.

Conserving water not only helps the City to meet their water supply needs, but also helps the school district financially. "Saving water reduces the money spent on water as well as on sewer charges," Weber said.

What Can You Do to Prevent Nutrient Pollution?

The choices we make as consumers and citizens have a profound effect on water quality. To minimize your contribution to nutrient pollution, you can:

- Minimize use of fertilizers and manage them properly. Excess fertilizer washes off lawns and farms into nearby waters. Consider using organic fertilizers, which are less prone to runoff.
- Wash your car at car washes where the waste enters the public water treatment system, rather than in your driveway.
- Reduce electricity use and drive less. Power generation, either in an electrical power plant or in a car, generates nitrogen oxides (NOx), which are transformed into nitrates in the air and deposited throughout the country.
- Preserve land adjoining rivers and streams. This land, often called a riparian buffer, can play a vital role in preventing nutrients that wash off fields and streets from reaching the rivers and coasts. Preserving wetlands also helps keep nutrients out of rivers, estuaries and coastal waters.
- Maintain septic systems properly.

How Efficient is your Sprinkler System?

The City of Loveland Water and Power Department is offering free water use audits to help city residents and greenbelt managers get the most from their sprinkler systems. The audit takes about one hour and includes visually inspecting the sprinkler system, measuring the uniformity of water application, determining the precipitation rate from the sprinkler system, assessing the soil type and root depth, measuring water pressure, and recommending an appropriate watering schedule.

Call 962-3003 to schedule an audit. The program is tentatively available through August 31.

Forum board member Dave Cole was enthusiastic about the audit: "We learned several important things about our system's efficiency that we never learned over the 25 years of annual usage. The survey will certainly result in some water savings and more efficient use of the water we do use."

The City of Fort Collins has a similar program for owners of single family homes and homeowner's associations in the city. For more information, see www.fcgov.com/water/sprinkler-audit.php.

Spring Cleaning, River Style

2003 was the Forum's first year to participate in National River Cleanup Week, an annual event sponsored by America Outdoors. All told, 25 volunteers cleaned up about 400 pounds of trash and debris from the shores of Silver Lake and the Big Thompson River. The City of Loveland collected the trash for disposal. Pictured are volunteers from Silver Lake with their impressive haul (from left to right, Geary Senter, Kayo Henry, Paul Tungesvick & Robert Link). Photo by Geary Senter.

BTWF Membership Form

Name: _____
Street Address: _____
City, State, Zip Code: _____
Home Phone: _____ Work Phone: _____
Fax: _____ E-mail: _____
Membership Type: Private Organization (Please complete next 2 lines.)
Organization: _____
Your Title: _____

Clip and mail this form to the address on the back of the newsletter, or join on-line at www.btwatershed.org. Thanks!

Donations

Please consider donating to the Big Thompson Watershed Forum today. We rely entirely on voluntary contributions for our operating funds. Only with your help can we continue to protect water quality. Your donation is completely tax deductible. Make your check payable to the Big Thompson Watershed Forum and mail it to us at the address on the back of the newsletter. For more information, contact Janeen Simon, jsimon@btwatershed.org, (970) 613-6974. In-kind contributions and volunteer services are also greatly appreciated. Thank you!

Does your employer have a Donation Matching Program?

Water Currents: *Brief updates on legislative and regulatory actions with direct implications for water quality.*

• Fort Collins City Council passed Ordinance No. 083, which overrules any homeowner covenants that require turf landscaping or prohibit xeriscaping.
• The Colorado State Legislature passed and Gov. Owens signed Senate Bill 236, which asks voters in November to approve up to $2 billion in revenue bonds for water storage facilities. Additionally, SB236 raises the cap on the cost of water projects that require legislative approval from $100 million to $500 million, and requires the governor to approve at least one large water project by 2005.

In federal action:

• Bills have been introduced into both houses of Congress (HR962 & S473) to reinstate Clean Water Act protections for small streams, ponds and wetlands that appear to be disconnected from major rivers and lakes.
• The EPA postponed by 2 years requirements for oil and gas sites to obtain new federal stormwater permits. Other construction sites that disturb 1 to 5 acres must comply with the new requirements. San Juan Citizens' Alliance and High Country Citizens' Alliance, with the help of the Oil and Gas Accountability Project, are participating in a Colorado Water Quality Control Commission rulemaking hearing to try to prevent the delay from taking effect in Colorado.
• Both houses of Congress are considering legislation (Bills HR1856, S937, and S247) that would expand research efforts aimed at curbing algal blooms and hypoxia that cause "dead zones" and other biological problems in the nation's coastal areas and the Great Lakes.

Big Thompson Watershed Forum

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THE FUTURE OF WATER QUALITY IS IN OUR HANDS

Join the Forum Today!

The Big Thompson Watershed Forum protects source water for people in the cities of Estes Park, Fort Collins, Greeley, Loveland, and many other Front Range communities. We need you! Your participation broadens our representation and enriches your knowledge and ability to protect water quality. And...membership is free!

To join, visit our web site, call, or complete the form on page 7 inside.

Wet's Happening:
Calendar of Upcoming Events

July 17, August 21, and September 18: BTWF BOARD MEETINGS: 11:30 a.m. to 2:30 p.m., Loveland Water & Power Board Room, 200 N. Wilson Ave., Loveland.

August 4: 4TH ANNUAL JIM CREEK FEST: 11 a.m. to 4 p.m. Sponsored by the James Creek Watershed Initiative. Jamestown Town Square, Jamestown, CO.

September 11 & 12: COLORADO WATERSHED ASSEMBLY ANNUAL MEETING: Glenwood Springs. See www.coloradowater.org for more information.

September 20: 2nd ANNUAL THOMPSON RIVER REVIVAL: Centennial Park, Loveland. See p. 4 or call Janeen Simon at 613-6974 for more information.

In This Issue: