Lake*A*Syst

HOMEOWNER'S GUIDE TO PROTECTING BIG PAYETTE LAKE

Overview

The Lake*A*Syst program conveys stewardship of Big Payette Lake to its residents and property owners. The program is designed for homeowners, landscapers, contractors, road builders and others who might have a hand in affecting the quality of our lake. It builds on our first successful program from the 1990s and can be a blueprint for handing a healthy lake to generations who come after us.

Lake*A*Syst can also help us build a better sense of community around our lake by sharing solutions, understanding good practices, and knowing who to call to answer questions or solve problems. The program factsheets cover five areas.

Factsheet 1: Preventing Contamination of Drinking Water Factsheet 2: Lawn and Garden	Factsheet 3: Roads and Driveways Factsheet 4: Landscape and Construction Factsheet 5: Stormwater Runoff

The Lake

Our lake is a beautiful playground, for sure. Of course, it's much more than that. It's at least 20,000 years old, and holds about 157 billion gallons of our drinking water. It's over 300 feet deep, spans 7.6 square miles, with a shoreline of over 22 miles. It takes almost two years for a drop of water flowing into the lake to pass through the outlet toward the Pacific Ocean. The entire watershed covers about 144 square miles of urban and residential land, forest, mountains and alpine lakes.

Following the factsheets on our website, https://www.bigpayettelake.org/lakeasyst , a “Resource” page is provided for more information. If you have further questions, please contact us at info@bigpayettelake.org or through our Facebook page at https://www.facebook.com/bigpayettelake
Or, just scan with your smartphone:

BPLWQC is a non-profit, 501.c.3 organization. We would welcome donations in support of our work, which can be sent to PO Box 8105, McCall, ID 83638

Lake*A*Syst

HOMEOWNER'S GUIDE TO PROTECTING BIG PAYETTE LAKE

FACTSHEET 1: PREVENTING CONTAMINATION OF DRINKING WATER

If you have the joy of living or recreating in the Big Payette Lake watershed you also have a special opportunity and responsibility to prevent pollutants from entering streams, groundwater and the lake. Payette Lake is the sole drinking water source for the city of McCall as well as for many homes around the lake. Currently the water quality is acceptable, but in recent years increasing human activities around the lake have contributed to deteriorating water quality. Recent conditions have alerted us to the urgent need for protecting our lake and preserving its many uses. It's time to take action.

Guidelines for taking action on your own property or as you are enjoying the lake have been created by the Lake Assessment System program (Lake*A*Syst) so that you too can be a steward of our lake. The program asks you to consider potential risks to water quality that could result from your activities. The following factsheet ("Preventing Contamination of Drinking Water") is the first in a five-part set of materials designed to assist property owners and the public in understanding what strategies we can use to protect and preserve water quality in the watershed. The sets cover these topics:

Factsheet 1: Preventing Contamination of Drinking Water	Factsheet 3: Roads and Driveways
Factsheet 2: Lawn and Garden	Factsheet 4: Landscape and Construction
	Factsheet 5: Stormwater Runoff

After you read the factsheet, you can digitally access a Homeowner Risk Assessment Sheet as well as an Action Checklist. These resources will help you identify any potential environmental risks related to Payette Lake and your drinking water, and guide you in taking appropriate action. You'll find these resources and more at the Big Payette Lake Water Quality Council website, www.bigpayettelake.org
Or, just scan with your smartphone:

Sponsored by: Big Payette Lake Water Quality Council, and the Idaho Rural Water Association

PREVENTING CONTAMINATION OF DRINKING WATER

The City of McCall draws 100% of its public drinking water supply for thousands of residents and visitors from Big Payette Lake. The City of McCall disinfects and treats the lake water, as do other small public water systems in the area.

Groundwater as well as surface water in the Payette Lake watershed provide drinking water to the greater community. (Groundwater is located underground, in aquifers or underground flows that supply wells; surface water, i.e. lakes and streams, occurs above ground.) Because of the dynamic interaction between these two drinking water sources, guarding against pollutants entering either ground or surface water is crucial to human health and the health of the lake. If *either* source becomes contaminated, *both* can become contaminated. At that point, clean-up of the contaminant becomes extremely difficult.

Both groundwater and surface water play important roles in supplying drinking water to the many households around Big Payette Lake. If your home is not supplied by a public water system (generally if you don't pay a water bill), it is your responsibility to ensure the water in your home is safe to drink. Drawing from the lake is considered hazardous by the Department of Environmental Quality (DEQ) unless state-of-the-art disinfection treatment systems are in place. Groundwater from deep wells is considered the safest source of drinking water in the Payette Lake watershed. Surface water presents a higher risk of bacterial contamination, as well harmful algae, gasoline, and other chemicals coming from recreational activities on the lake.

The most obvious concern about a potentially unsafe water supply is the health risk to your family and guests. Animal waste carried to Big Payette Lake via stormwater runoff is a potential source of bacteria, viruses, and parasites that can cause gastrointestinal problems or transmit contagious diseases. High nitrates from fertilizer can present a serious health risk to infants. Pesticides or rodenticides that are improperly used or disposed of can cause chronic health problems for humans and animals. All of these pollutants can get into the groundwater by leaching into the soil, and can pollute streams and the lake via uncontrolled runoff.

STRATEGIES FOR PROTECTING DRINKING WATER

Well Location *TAKE ACTION*

Location of your well is a crucial safety factor. The well should be located up-slope and as far as possible from potential sources of contamination. A well that is down-slope from a leaking fuel tank or a failing septic system runs a greater risk of contamination. Idaho Regulations require a well to be a minimum distance of 50 feet from surface waters.

Well Maintenance *TAKE ACTION*

- Test the water annually; make sure you test at least for nitrate and coliform bacteria.
- Maintain septic systems properly and pump septic tanks at least every 3 years.
- Avoid diverting stormwater and snowmelt to your well head.
- Minimize the use of fertilizer and pesticides, particularly in sandy soils or near shallow wells.
- Properly dispose of hazardous household products, and store chemicals as far from your well as possible.

Water Testing *TAKE ACTION*

Households around Big Payette Lake should have their private water supply from wells or surface water tested annually to confirm that it is safe for human consumption. Drinking water should be tested

at a commercial laboratory, such as the Idaho Bureau of Laboratories or Analytical Laboratories in Boise.

Signs of possible contamination:

Family or guests experience recurring or unexplained stomach illness.

Your neighbors find a particular contaminant in their water.

You note a change in water taste, odor, color, or clarity.

You have a spill or back siphon of chemicals or petroleum products near your well or on your property.

Water Source *TAKE ACTION*

- Read the Annual Drinking Water Quality Report published by the City of McCall. It provides a discussion and lab analysis of the water quality situation that municipal customers should understand. If any pollutants may exceed standards, ask what the risk might be and what can be done to improve the outlook. Be an active, informed consumer of domestic water.
- Idaho DEQ does not recommend using surface water as a drinking water supply without state-of-the-art disinfection treatment in place. Still, a significant number of homes and cabins take water from either Payette Lake or nearby streams for household use. Besides containing bacteria, surface waters can also contain *Giardia* and *Cryptosporidium*, single cell protozoa which are waterborne diseases that can cause severe intestinal disorders.
- If you are using surface water as a drinking source you should go through at least a two-step treatment process prior to consumption. The water should be fine-filtered to remove most of the *Giardia* and *Cryptosporidium* cysts.
- Water should then be disinfected to kill bacteria and viruses.
- Water can be disinfected by boiling, using chlorine, or with ultraviolet light.

Most of us take safe drinking water for granted. We assume the water coming out of the faucet is safe to drink. Unfortunately, this assumption is not always correct. You need to be vigilant about possible contamination of ground or surface water that could impact not only your family's health but that of your neighbors and of the lake itself.

Lake*A*Syst

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FACTSHEET 2: LAWN AND GARDEN

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Factsheet 1: Preventing Contamination of Drinking Water **Factsheet 2: Lawn and Garden**	Factsheet 3: Roads and Driveways Factsheet 4: Landscape and Construction Factsheet 5: Stormwater Runoff

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FOR ADDITIONAL INFORMATION:
Valley Soil and Water Conservation District, P.O. Box 580, Cascade 83611; (208)-382-3317
Central District Health Department, 703 N. 1st Street, McCall, 83638; (208)-634-7194
www.cdhd.idaho.gov.

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PREVENTING LAKE CONTAMINATION FROM LAWNS AND GARDENS

How Lawns and Gardens Can Affect Payette Lake

Homeowners commonly over-apply fertilizer, adding much more nitrogen and phosphorus to lawns and gardens than can actually be absorbed by plants and soil. Many residential lawns along Payette Lake go right up to the lake shore with no natural vegetation or beach space to serve as a buffer. Over-watering acts in tandem with over-fertilizing to add excess nutrients to the lake. Pesticides, herbicides and other chemicals on lawns and gardens can also leach into the lake by traveling through the soil and into the shallow water table along the shore. All of these actions can threaten recreational and drinking water uses in the lake.

Lawns and gardens near Payette Lake or any of its tributaries must be carefully planned and maintained to prevent contamination of surface water and groundwater. Native vegetation should always be considered as a quality alternative to cultivated lawns and gardens.

IMPROVING LAWN AND GARDEN MANAGEMENT

Before starting any landscaping activity, stop and think about potential risks to water quality in Payette Lake and its tributaries. Please stay aware of potential problems caused by pollution from lawn and garden chemicals and soil erosion. The conditions described below make it more likely that pollution is entering the lake from your property. When the following conditions are present, you need to take extra care.

If there are areas of exposed soil on your property, soil erosion is a risk. Coarse-textured soils such as sand or sandy loam increase erosion risk; areas of your property that slope toward surface water also increase that risk. Impermeable surfaces such as sidewalks and driveways may increase stormwater runoff to the lake. Lawns and gardens near the shore are more likely to contribute pollutants directly to the lake.

Risks from Pesticide and Herbicide Use on Lawns and Gardens

Pesticides and herbicides can harm or kill beneficial insects and earthworms in your lawn and garden. Humans, pets, and wildlife coming into contact with treated plants and soils can also be harmed. Pest resistance to applied chemicals increases over time, making pest control much more difficult in the future. Runoff from areas treated with herbicides or pesticides, during rainfall or from over-watering, can damage aquatic ecosystems and residential drinking water sources. Pesticides and herbicides can cause chronic health problems in humans.

TAKE ACTION

- Minimize use of pesticides and herbicides; follow label directions and instructions for use.
- Consider natural alternatives to pesticide/herbicide use; call the Valley County University of Idaho Extension for information (208-372-7190; uidaho.edu/valley).
- Identify whether the problem in the lawn or garden is being caused by an insect, fungus, disease, or other source.
- Determine whether the problem causes environmental harm or plant damage or is merely aesthetic.
- Have a diversity of plants in your gardens for a balanced ecosystem and natural pest control. (Mix up the flowers and vegetables, for example.)

- Rotate garden crops each year to reduce pest damage and minimize disease.
- Maximize conditions for healthy plant growth by choosing climate-appropriate plants with pest and disease resistance.
- Protect and attract beneficial insects by providing diverse garden habitat and by recognizing their larvae and eggs in order to not harm them.
- Use nontoxic biodegradable pesticides or herbicides.
- Do not apply chemical treatment in windy conditions or prior to irrigation or predicted rain.
- Do not pour surplus chemicals down a drain, on ground or in surface waters. Instead, hold toxic and hazardous materials for disposal during the Valley County hazardous material collection program each year, typically in August. Refer to https://www.co.valley.id.us/ or call 208-634-7712 for current information.

Risks from Fertilizer Use on Lawns and Gardens

Nitrates and phosphorus, the two main ingredients in most fertilizers, can contaminate surface water and groundwater when overapplied or when your landscape is overwatered. Nitrates and phosphorus can leach into groundwater wells used for drinking water (even concentrations of 10 parts per million are hazardous to pregnant women and can be fatal to infants.) Over-application of fertilizers can cause disease in lawns and can also promote weed growth. Nitrates and phosphorus that enter the lake from lawns and gardens cause excessive aquatic weed growth, which is particularly harmful to the lake's ecosystem and to water quality.

TAKE ACTION

- Landscape with native plants which do not require applications of fertilizer.
- Have your soil tested to determine how much fertilizer is needed. Use alternative forms of fertilizer, such as grass cuttings, compost, or composted manure.
- If chemical fertilizer is used, select slow-release (water insoluble) forms.
- Apply fertilizer according to label instructions and follow precautions; purchase only as much as needed and dispose of containers properly.
- Water your lawn and garden lightly after fertilizing, but do not allow excess water to run off.

Do not apply greater than 3 pounds of actual nitrogen per 1,000 square feet of lawn per year; make several applications over the growing season rather than one single application.

Never apply *any* fertilizer within 100 feet of Payette Lake or its tributaries.

Risks from Irrigating Lawns and Gardens

Use water wisely on lawns. Over-watering may cause pesticides, fertilizers and sediment to either runoff into surface waters or leach into groundwater, potentially contaminating drinking water sources.

TAKE ACTION

- Retaining native vegetation on your property is the recommended strategy; this will greatly reduce the need for irrigation.

- Plant lawns with drought-tolerant grass varieties; an excellent mixture for around Payette Lake is bluegrass, creeping red fescue, and perennial rye.
- Don't over-water. Over-watering can significantly contribute to the transport of unwanted nutrients and sediments into Payette Lake.
- Consider that established lawns only need 1-2 inches of water per week.
- Leaving grass clippings on the lawn provides natural fertilizer as well as shading the soil surface and retaining moisture, thus reducing the amount of watering needed.
- If your runoff from irrigation crosses impermeable surfaces and is not controlled, sediment and road chemicals may be transported into surface water.

Risks from Erosion

Surface waters can be contaminated by soil particles that are washed or blown into the water. In addition to pollution from sediment, phosphorus and other chemicals washed off of roadways, driveways, and lawns can be carried by soil particles into the lake and its tributaries.

TAKE ACTION

- Again, maintaining a vigorously growing riparian zone bordering any surface water of primarily native grasses, trees, and shrubs creates the best buffer for prevention of erosion
- Minimize areas of exposed soil by maintaining native vegetation or dense turf.
- Minimize impermeable surfaces such as roads, driveways, roofs and parking lots.

Construct a swale or an earth berm (a small mound of earth) near the lake shore to minimize the possibility of runoff entering the lake. The swale or berm should run parallel to the shore in order to block runoff effectively, and it should be solidly compacted so that it does not disintegrate during rainfall, snowmelt or irrigation. In winter, preserve ice ridges to serve the same function.

ADDITIONAL STRATEGIES FOR HOMEOWNERS TO PROTECT PAYETTE LAKE

The most efficient strategy for protecting surface water from contamination due to lawn and garden activities is to create or enhance a buffer zone of native trees, shrubs and grasses between the lake and your lawn. The most effective buffer zone is 50-100 feet wide. This single action will help preserve water quality by filtering rain, snow, and irrigation runoff, as well as by absorbing nutrients from shallow groundwater.

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HOMEOWNER'S GUIDE TO PROTECTING BIG PAYETTE LAKE

FACTSHEET 3: ACCESS ROADS AND DRIVEWAY RUNOFF

If you have the joy of living or recreating in the Big Payette Lake watershed you also have a special opportunity and responsibility to prevent pollutants from entering streams, groundwater and the lake. Payette Lake is the sole drinking water source for the city of McCall as well as for many homes around the lake. Currently the water quality is acceptable, but in recent years increasing human activities around the lake have contributed to deteriorating water quality. Recent conditions have alerted us to the urgent need for protecting our lake and preserving its many uses. It's time to take action.

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ACCESS ROADS AND DRIVEWAY RUNOFF

Public and private residential roads around Payette Lake are considered major sources of pollutants to the lake, because significant amounts of sediment and unwanted nutrients flow from these roads into the lake during storms and spring snowmelt.

Many roads in our watershed were originally built for short-term logging access and were never intended for permanent long-term residential and recreational use. Constructed of compacted native soils, these dirt road surfaces, if not properly managed, can become rutted after even one single storm. Water flowing down dirt roads carries suspended sediment. Ruts greatly increase the velocity of the flowing water and thus the amount of sediment carried by stormwater. When sediment-laden stormwater reaches the lake or a tributary to the lake, it negatively impacts water quality and important ecosystems. Excess sedimentation and its accompanying nutrients can kill aquatic bottom-life, disrupt native fish spawning and cause excessive algal growth. All these impacts are dangerous to the life of the lake, the drinking water supply, and human health.

The public roads around Payette Lake are maintained by the U.S. Forest Service, the Idaho State Department of Lands, and by the Valley County Road Department. Unfortunately, because there are so many public access roads and because funding is limited, many road maintenance needs are left unattended. Homeowners are responsible for maintaining their own driveways.

General Guidelines for Proper Road and Driveway Construction

In many cases, private roads built by a property owner with insufficient experience in road construction end up being ineffective in controlling erosion. The expertise of a road design engineer or contractor and an experienced heavy equipment operator are essential when installing water drainage structures into a road.

Note: Many of the following guidelines were written for people experienced in road construction so the terminology can make for challenging reading. However, having some understanding of the hows and whys of good practices can help make conversations with your contractor more productive; this understanding will also help you oversee the construction project more effectively. Following the strategies outlined below will result not only in more sustainable roads but also in more protection for your lake - the most valuable feature of your property. Some of these strategies are ones that any homeowner can take: for example, making decisions about placement of roads and construction debris, and performing regular maintenance which is a crucial factor in road health.

Strategies for Controlling Erosion and Preventing Ruts

Normally, plants and trees help hold the soil in place and prevent erosion especially on steep slopes. However, when existing vegetation is removed for road or building construction, the bare soil that is exposed can easily be washed into Payette Lake. Soil erosion can undermine buildings, reduce soil fertility and fill in road ditches as well as harm the lake.

With proper road construction, stormwater and spring runoff never have a chance to pick up speed and create ruts. Improper road construction, however, will encourage ruts to form, as will driving on dirt roads during spring thaw; ruts dramatically increase the amount of pollutants going into the lake.

TAKE ACTION

- Talk with your contractor. Even if using good strategies, property owners with insufficient knowledge and experience who choose to construct private roads may unintentionally cause damaging erosion. When designing, constructing or repairing roads, always hire a design engineer, contractor, and an experienced heavy-equipment operator.
- Make sure that your roads are placed as far away as possible from streams, surface waters and wetlands.
- Roads need to be constructed in a manner that prevents debris and excess materials from entering streams. Check that debris and excess materials such as fill or gravel are deposited outside of riparian areas.
- Drainage at staging areas should be managed by creating protective berms or by routing stormwater to a swale (a depression that follows the contour of the land.)
- Care should be taken to maintain trees and shrubs growing at the base of fill slopes.
- Mixing stumps and other vegetative debris into the road fill should always be avoided.
- Ensure that debris, overburden, and other waste materials produced by road construction and maintenance are placed in a secure location to avoid entry into streams. These waste areas should be included in soil stabilization planning for the road.

Strategies for Ditches

Ditches are constructed to carry stormwater runoff toward an adequate outlet, preventing erosion of the road surface. A good ditch needs to be shaped and lined using vegetative or structural material. Good ditches control flow and filter the water through vegetation or structures so that sediments and pollutants are removed before entering surface waters. In addition, a ditch must be designed so as not to become an erosion problem in and of itself.

TAKE ACTION

- Talk with your contractor. Locate ditches on the up-slope side of the road to prevent water from flowing onto the road from uphill.
- The ditch should be U-shaped along the bottom. If the ditch must be flat on the bottom, a minimum 2-foot width is required to help slow and disperse water.
- Make ditches between 1.5 and 2 feet deep and wide enough to handle all runoff and sediment sizes.
- Line ditches as soon as possible to prevent erosion and to maintain the ditch shape.
- All ditches should have an outlet other than a stream, river, or lake.
- Always clean ditches when they become clogged with sediment or debris to prevent overflows and washouts.
- Check ditches after major storms or spring runoff for obstructions, erosion, or bank collapse.

Strategies for Culverts

Use fish-friendly culverts where the road crosses a stream. Culvert installation should mimic the conditions in the stream that existed before installation. Trout and other species move upstream and downstream for spawning and feeding. Culverts can impede fish passage by creating the following conditions: excessive water velocity, a vertical barrier too high for fish to pass, inadequate depth of water, not enough space for fish to pass if the culvert is too small.

TAKE ACTION

- Talk with your contractor. To install a fish-friendly culvert, select a site where installation will not result in a sudden increase or decrease in the gradient (slope).
- Design culverts so that the velocity of water passing through the pipe is the same as that of the water before it enters the pipe.
- Check periodically to see that culverts have not become dislodged. Dislodged culverts may result in lower capacity, increased speed in the flow of the water, less water entering the culvert, and more channel scouring in the stream itself.
- Maintain culverts regularly to prevent erosion. Periodic inspection and maintenance will extend the life of culverts and of forest roads which can easily be washed out by a broken culvert. This vigilance can reduce the cost of road maintenance as well. Keep water bars and box culverts free of debris and sediment for optimum performance.
- Avoid using roads during wet periods if such use would be likely to damage drainage features.

BACKGROUND INFORMATION FOR HOMEOWNERS' DISCUSSIONS WITH CONTRACTORS ON EROSION CONTROL MEASURES

If you are planning a project that could potentially affect a stream, lake, or wetland, contact the Army Corps of Engineers, Idaho Dept of Water Resources or IDEQ. Permits may be required. Erosion control measures slow down runoff and direct it into vegetated drainage areas where the dirt is retained and the water is filtered back into the ground. If no such runoff control measures are in place, the water runs downhill unchecked. Water will pick up speed and scour away the soil, creating damaging ruts and erosion.

Cross drains (a ditch that moves water across the road) and relief culverts that remove excess water from the ditch should be constructed to prevent erosion. Construction and installation time should be minimized. Make sure that rip rap, vegetative matter, and downspouts are used to prevent erosions of fills. Drainage structures on uncompleted roads should be installed *before* fall or spring runoff.

A wooden open-top box culvert (a three-sided box-like frame of wood) should be installed flush with the road surface to carry runoff and roadside ditch flows to the down-slope side. This practice is an excellent substitute for pipe culverts on lightly used unpaved roads on steep grades.

Water bars (a cut and berm that is built at a downward angle across the roadway and diverts stormwater runoff from the road surface) should be installed for temporary or permanent drainage on light-use, low-maintenance unpaved roads. Water bars should be placed above grade changes to prevent water from flowing down steeper portions of roads or skid trails.

Use road crowning (middle of the road is higher than the sides) as a drainage measure to divert surface water off the entire road surface so that water does not pool in any single location.

Use rolling dips (inclines built into the road and following the natural contours of the land) as a runoff diversion on long inclines to keep stormwater from flowing directly down the road.

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FACTSHEET 4: LANDSCAPE PRACTICES AND NEW CONSTRUCTION

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LANDSCAPE PRACTICES AND NEW CONSTRUCTION

The Importance of Planning Ahead for Your Site

If you are planning new construction or landscaping on your property it is essential that you consider the effects your activity will have on the lake and watershed. Careful preliminary planning for your site can preserve natural vegetation, minimize disturbance and reduce runoff and erosion.

Soil erosion can undermine structures on your property, reduce your soil fertility, as well as clog road ditches. In addition, soil eroding into Payette Lake and local streams can cause excessive sedimentation, kill aquatic organisms and disrupt spawning habitat. The nutrient-laden sediment can also lead to algae blooms.

All these potential problems are harmful to the environment and to drinking water sources. Your thoughtful land use practices can prevent harmful pollutants from being washed into the lake. Careful planning is crucial as the soil around the lake is highly erodible and many slopes are steep. Making decisions *prior* to construction or landscaping is much more effective than trying to correct problems later. Planning ahead can avoid difficult and costly erosion problems.

STRATEGIES FOR RESPONSIBLE LANDSCAPING AND NEW CONSTRUCTION

The following actions can be taken to reduce your impact on the environment. Planning for these actions should be done prior to construction or landscaping.

Reducing water and runoff problems

TAKE ACTION

- Verify that your contractors are qualified and certified for activities in the Shoreline and River Environs Zone as required by local code.
- Time your construction work for dry periods (summer or early fall) when there will be low runoff and less erosion.
- Locate driveways, walks and edges of your yard and gardens to follow level contours and gentle slopes.
- Minimize impermeable surfaces such as roads, driveways, roofs and parking lots.
- Temporarily stabilize bare soil by using mulches of straw, hay, wood chips or wood fibers.
- Since long steep slopes have the greatest erosion potential, do not allow stormwater runoff to flow directly downhill. Cross-slope designs are always better than up-and-downhill designs.
- Consider putting small dams at intervals to slow runoff and trap sediment.
- Rainfall and snowmelt runoff should be directed to vegetated drainage areas.
- Protect natural drainage areas from filling with sediment by redirecting runoff.
- During new construction, use standardized sediment barriers, temporary berms of straw bales, earth dikes, or sandbags to control erosion.

Preserving existing native vegetation

Plants and trees help hold the soil and prevent erosion, especially on steep slopes. Any time existing vegetation is removed, the bare soil that is exposed can be washed into the lake.

TAKE ACTION

- Maintain a filter strip of natural vegetation along the shoreline of Payette Lake and its tributaries. The best buffer consists of mature woodland, undisturbed grass, and shrubs. This buffer strip is most effective at 50 - 100 feet wide.
- Minimize disturbance to plants and trees, identifying and clearly marking trees that need to be preserved.
- Protect trees from heavy equipment by installing a barrier fence at the dripline. (The dripline marks the edge of a tree's foliage where moisture from rainfall would drop.) Most of the tree's roots lie within the dripline and are vulnerable to damage from heavy equipment that can compact the soil.

Care during and after landscaping and new construction

TAKE ACTION

- Keep the site covered with organic mulch after any disturbance.
- Use hay or straw as mulch to cover disturbed areas after re-seeding.
- Establish a permanent vegetative cover by planting native trees and shrubs whenever possible. Native plants are well-adapted to the local climate and need minimal maintenance and watering. They buffer harsh winter winds as well as provide privacy and wildlife habitat.
- Minimize the use of pesticides and fertilizers and follow label directions carefully.

Use fire-wise landscaping to decrease environmental risk and protect your home from wildfire

TAKE ACTION

- Prune all trees up to 6-10 feet from the ground.
- Remove leaf litter. Dispose of cuttings and debris responsibly (don't burn or dump into surface waters or ditches.)
- Store firewood away from the house.
- Use fire-resistant building materials.
- Remove hanging branches that are in contact with your house and out-buildings.

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HOMEOWNER'S GUIDE TO PROTECTING BIG PAYETTE LAKE

FACTSHEET 5: PREVENTING CONTAMINATION FROM STORMWATER RUNOFF

If you have the joy of living or recreating in the Big Payette Lake watershed you also have a special opportunity and responsibility to prevent pollutants from entering streams, groundwater and the lake. Payette Lake is the sole drinking water source for the city of McCall as well as for many homes around the lake. Currently the water quality is acceptable, but in recent years increasing human activities around the lake have contributed to deteriorating water quality. Recent conditions have alerted us to the urgent need for protecting our lake and preserving its many uses. It's time to take action.

Guidelines for taking action on your own property or as you are enjoying the lake have been created by the Lake Assessment System program (Lake*A*Syst) so that you too can be a steward of our lake. The program asks you to consider potential risks to water quality that could result from your activities. The following factsheet ("Preventing Contamination of Drinking Water") is the first in a five-part set of materials designed to assist property owners and the public in understanding what strategies we can use to protect and preserve water quality in the watershed. The sets cover these topics:

Factsheet 1: Preventing Contamination of Drinking Water Factsheet 2: Lawn and Garden	Factsheet 3: Roads and Driveways Factsheet 4: Landscape and Construction **Factsheet 5: Stormwater Runoff**

After you read the factsheet, you can access additional information on the web. All of these resources will help you identify any potential environmental risks related to Payette Lake, and guide you in taking appropriate action. You will find these resources and more at the Big Payette Lake Water Quality Council website: www.bigpayettelake.org
Or, just scan with your smartphone:

Sponsored by: Big Payette Lake Water Quality Council, and the Idaho Rural Water Association

PREVENTING CONTAMINATION FROM STORMWATER RUNOFF

Stormwater runoff is created when rain or melting snow flows over impervious surfaces and does not soak into the ground. As more of the watershed is developed with impermeable surfaces such as roads, driveways, roofs and parking lots, less water can soak into the ground and is forced to “run off”.

Increased flow from runoff leads to erosion of bare ground and along roadways. Sediments are then transported into streams and Big Payette Lake along with pollutants that may be on the ground or on roadways. Increased sediment entering the Lake can impact water quality, currents, shoreline erosion, and aquatic habitats. High flows of water across impermeable surfaces can accelerate erosion further downhill.

Your property in and of itself may not be a significant source of pollution, but the cumulative effect of pollution from all the properties in the Big Payette Lake watershed accounts for 14% of the total phosphorus delivery into the lake, which is very significant. On individual properties around the lake, it is the responsibility of the homeowner to reduce environmental harm by properly managing contributions to stormwater runoff.

What’s important is not only reducing pollutants in runoff, but preventing and minimizing runoff in the first place.

IDENTIFYING PROBLEMS CAUSED BY RUNOFF

Problem	Possible Cause
The water near the shore is cloudy.	Excess sediment reaching the water.
Oily rainbow film on the water.	Possible petroleum contamination.
Algal blooms, green scum, or abundant plant growth in the water.	Excess nutrients such as nitrates or phosphorus entering the water.
Washouts, trenches, small piles of sediment, leaves or debris found at the bottom of slopes.	Excessive runoff across the property which may eventually reach the lake.

Runoff usually consists of combined water from roads, driveways, roofs and yards, and can include:

Nutrients such as phosphorus and nitrogen from fertilizers. Additions of phosphorus can accelerate algae growth which in turn impacts aquatic life in the lake.

Bacteria and viruses from human and animal wastes.

Organic chemicals such as pesticides and petroleum products.

Heavy metals such as lead, copper, zinc and cadmium.

Sediment, which can be a composite of silt, clay, organic material, sand and gravel. Residential stormwater runoff is the largest single contributor to sediment and phosphorus in the lake.

REDUCING POLLUTANTS IN RUNOFF

Hazardous Household Products

TAKE ACTION

- When possible use products that are nontoxic.
- Read and carefully follow use instructions on the product label.

- Store the minimum amount of hazardous products.
- Do not dispose of household hazardous waste in the trash, storm drains, streams, sink, toilet, or on the ground.
- Hazardous waste can be disposed of during household hazardous waste drives held annually by Valley County. See https://www.co.valley.id.us/departments/TransferSite for more information on dates and locations.

Vehicle Use and Engine Maintenance

Cars and boats contribute pollutants such as heavy metals, oil and grease and other hydrocarbons through exhaust, leaks, spills, corrosion, and wear and tear of parts. These pollutants can be carried into waters by runoff or deposited directly into the lake from boats and watercraft.

TAKE ACTION

Clean up oil stains; avoid outdoor spills of antifreeze, brake fluid, and other engine fluids.

Wash vehicles at a commercial car wash or on a lawn that's not directly adjacent to the lake.

Do not use cleaners that contain ammonia, chlorinated solvents, petroleum distillates, or lye. Buy and use only nontoxic, phosphate-free, biodegradable cleaners.

Do not wash cars and boats where runoff travels directly into stream or lake waters.

Animal Wastes

Animal droppings can be troublesome in two ways. First, pet and stock wastes contain nutrients that can promote the growth of algae in streams and the lake. Second, these wastes are a source of gastro-intestinal diseases and bacteria that are quite harmful to our health.

TAKE ACTION

- Always pick up after your pet! Especially within a short distance of the lake.

EROSION PREVENTION

If you are planning new construction, landscaping, or putting in a new driveway or road, you need to consider the effects of these activities on the watershed. Removing vegetation or clearing an area and exposing bare soil creates conditions where soil can easily be washed into nearby water bodies.

Excessive soil washing into nearby streams buries the small gravel that is used by spawning fish. This sediment also carries excess phosphorus into the lake, which encourages algae growth and disrupts the ecosystem.

TAKE ACTION

- Make every effort to preserve native vegetation.
- Cover bare earth with a layer of straw mulch, fabric or bark.
- Replant any bare areas immediately after new construction activities.
- If you have rain-spouts and gutters, check the flow to ensure that the rainwater spreads out evenly where the spout meets the ground.

Protecting the Riparian Zone of Streams and the Lake

The riparian zone is the moist soil area, adjacent to water bodies, where natural vegetation grows. Thick vegetation serves to reduce erosion and acts as a filter for pollutants traveling to the lake surface or a stream. Overhanging branches also provide shade and a source of insects and seeds for wildlife.

TAKE ACTION

- Retain a high percentage of native shrubs and trees along the shoreline and streambanks.
- Minimize disturbances to riparian vegetation.
- Replace non-natives with native plants.
- Preserve a 50 -100 foot buffer of vegetation (preferably native plants) between bare soil, lawns, or gardens and the lake.

PREVENTING AND MINIMIZING RUNOFF

Planning ahead is the first and most important step in preventing or minimizing erosion due to runoff. Walk your property during and following a heavy rain to identify drainage patterns and areas of erosion you might need to address.

TAKE ACTION

- Minimize pavement, compacted dirt, and covered areas that prevent water from soaking into the ground.
- Plant new vegetation and preserve existing trees and shrubs to stabilize the soil.
- Limit clearing and grading on slopes and keep access roads and paths to a minimum.
- Use existing natural drainage systems such as gulches or any low areas instead of digging new ditches.
- Design culverts and drainage structures to handle excessive amounts of runoff; assistance is available from the Valley County Soil and Water Conservation District (382-3317; valleyswcd.org)
- Monitor and maintain drainage-ways so they don't fill up with sediment and are able to carry stormwater as intended.
- Incorporate a good gravel base into your private roads and driveways instead of using only compacted dirt.
- Sweep paved parking areas and walkways instead of washing them down with a hose. This prevents sediment, de-icer/salt, and petroleum products from washing off in runoff. Cover stockpiles of salt and sand with a tarp or store them in a building.
- Use paving stones instead of solid concrete for walkways; this allows water to seep into the ground instead of running off.
- Avoid creating paths straight down a slope because this causes erosion. Compacted soil on footpaths also promotes excessive runoff. Naturally-vegetated pathways are always best.

- Control erosion during construction by using temporary methods such as: diversions to carry water away from the construction site to where it can be safely dispersed; earth dikes or straw bales to trap sediments before they enter surface water.
- Near lakes and streams use only clean fill (free from debris and dirt) such as rock, sand, or gravel.
- If you are building a new house or garage, and design considerations are flexible, position rooftops so they are perpendicular to the slope instead of parallel, to slow down runoff.

Lake*A*Syst

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LINKS AND RESOURCES

IDEQ

- Contacts for Website information – Anna Marron (Anna.Marron@deq.idaho.gov) and Cris Riggs (christine.riggs@deq.idaho.gov).
- Idaho DEQ main webpage - https://www.deq.idaho.gov/
- Idaho DEQ Water Quality Page - https://www.deq.idaho.gov/water-quality/
- Boise Regional Office - https://www.deq.idaho.gov/regional-offices/boise-regional-office/ (it is here you will find the contact information for the Water Quality Manager, who would be the main contact for LakeASyst questions).

US EPA

- The EPA has good information to offer regarding all things water, especially in the 'What You Can Do' sections.
- EPA's Water Topics site - https://www.epa.gov/environmental-topics/water-topics
- Source Water Protection Grant - https://www.epa.gov/sourcewaterprotection/source-water-protection-funding

City of McCall Codes / Contacts:

- McCall City Code Sections: 6-2-260, 6 -2- 265 regarding water waste and water conservation. This chapter speaks to Code for water hookups and utilities maintenance.

- MCC 2-2-020 regarding drainage, flood control, utilities and streets management. This code section requires all Land-Use (Planning/Zoning) applications to include a stormwater drainage plan for review by the Staff Engineer.

- MCC 9-3-08 regarding snow storage and drainage space. This section is the other half of the stormwater plan, as the majority of the runoff we encounter is spring snowmelt, we similarly require new development applications to account for retaining snow and the effects of its melting in large quantities each year.

- The Shoreline and River Environs Zone Any development on parcels within 150' of the bodies of water identified within the code section must undergo review by Planning and Zoning Staff according to the guidelines within those. It specifically prohibits new development within 50' of the high water mark of the lake or river.

Local Jurisdiction Contacts:

- Morgan Stroud: City of McCall – Staff Engineer
  mstroud@mccall.id.us
- Meredith Todd: City of McCall – Assistant Planner
  mtodd@mccall.id.us – 208-634-4168
- Sabrina Sims: City of McCall - Water Systems Manager
  ssims@mccall.id.us
  Annual Drinking Water Quality Report - https://www.mccall.id.us/water
- McCall Parks & Recreation – City Arborist
  https://www.mccall.id.us
  300 E Park St
  McCall, Idaho
  208-634-3006
- Dale Caza: Payette Lakes Sewer District – Manager
  dcaza@plrwsd.org

Idaho Department of Lands

555 Deinhard Lane
McCall, ID 83638
208-634-7125
Scott Corkill
scorkill@idl.idaho.gov

Idaho Rural Water Association

Adrianna Cardoso
Source Water Protection and Training Development Specialist
208-392-3576
www.idahoruralwater.com

University of Idaho Extension – Southern District

Melissa Hamilton – 208-382-7190 – mbhamilton@uidaho.edu
Any citizen is welcome to take the Idaho Water Stewards training (see link below).
The Master Gardener class and the Horticulture-related info teach Integrated Pest Management as the best practice for home landscapes. Below is the link to the gardens and landscapes page and some other natural insecticide publications. A Master Gardener course is offered every other year (in even years) and there are plant clinics throughout the summer to help property owners answer their landscape questions and reference research-based Extension publications.

Natural Insect Control
https://pubs.extension.wsu.edu/natural-insecticides

https://edis.ifas.ufl.edu/publication/IN197 (Florida publication, but it has a good overview and links to other resources).

Home and Gardening - U of I Extension
https://www.extension.uidaho.edu/homegard.aspx

Master Water Stewards
https://www.uidaho.edu/extension/idah2o