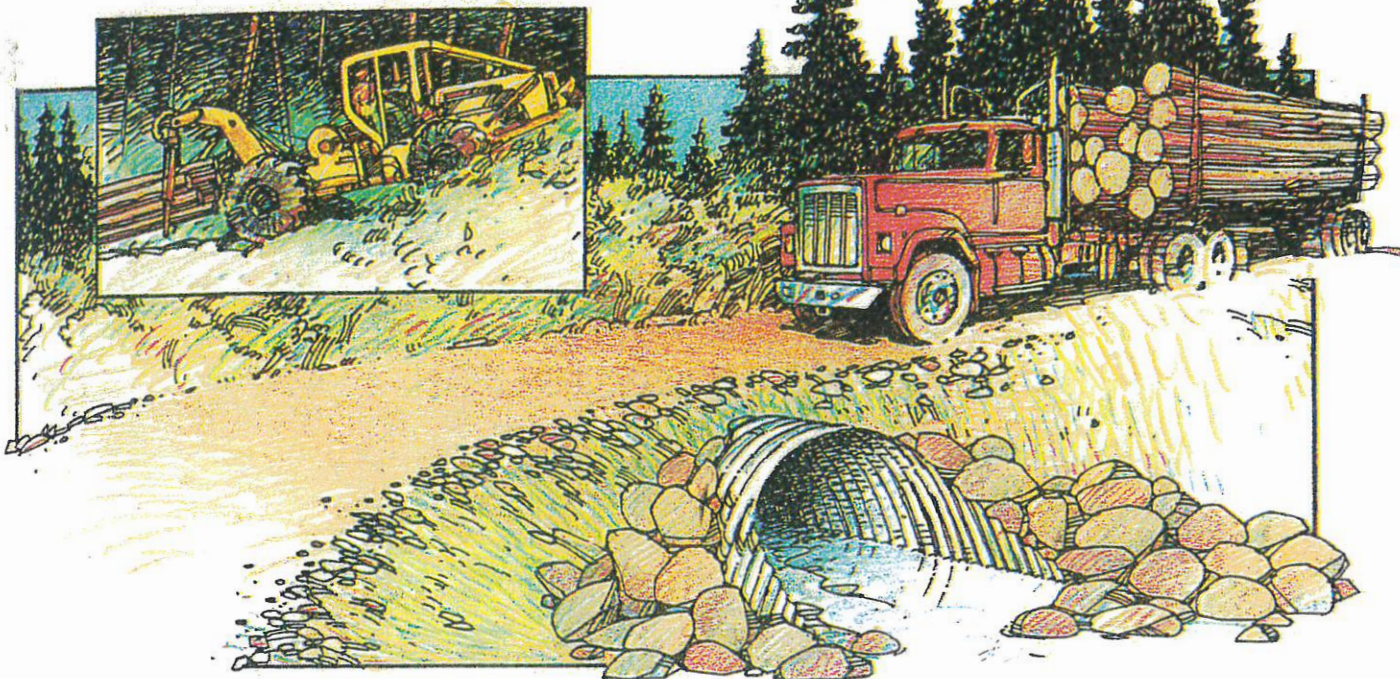


Forestry BMP's



Best Management Practices: Water Quality

BMP Checklist

Have you considered how BMP's apply to your forest activities?

The following questions may help you.

YES NO*

- Have you planned forest road locations?
- Is road drainage adequate?
- Will erosion-control devices be constructed by trained operators?
- Have precautions been taken to prevent sidecast soil or stumps from entering streams?
- Will you seed your roads with grass to reduce erosion?
- Have you arranged to maintain your roads regularly?
- Do your landings have good drainage and prevent sediment from entering stream?
- Are SMZ's of proper size?

YES NO*

- Have streamside trees been left to benefit the stream in the future?
- Will streambanks remain undisturbed?
- Will equipment operation be avoided in SMZ's?
- Have you taken precautions to keep slash out of streams?
- Do you provide for skid trail drainage?
- Does your dozer have a brush blade for slash treatment?
- Is dozer operation limited to suitable slopes, sites and seasons?
- Have you obtained your 310 Permit for stream crossings?

*Answering **NO** may indicate a need to contact a forestry professional.

Forestry BMP's

Prepared by:

BOB LOGAN, Forestry and Natural Resources
Montana State University Extension Service
MARK LENNON, Service Forestry
Department of State Lands, Forestry Division

In cooperation with:

Montana Department of Fish, Wildlife and Parks
Montana Environmental Information Center
Montana Logging Association
Montana Tree Farm System
Montana Water Quality Bureau
Montana Wood Products Association

For more information: Contact the Montana Department of State Lands Field Office in your area or office indicated below:

Forestry **BMP's**

Best Management Practices (BMP's) are minimum accepted standards for road building, timber harvesting and other forest operations. These guidelines are designed to keep our streams and lakes clean. This brochure describes some highlights of BMP's.

A Streamside Management Zone (SMZ) can be thought of as the "green zone" alongside a stream, lake, reservoir, or spring. It stays green long into the summer because of its spongy, water-holding soils and dense vegetation, which act as filters to keep sediment out of the stream. The minimum width of the green zone is 25 feet beyond the high-water mark. It should be wider when steep slopes, erodible soils, or wetlands are adjacent to the stream. Timber harvesting and other forest practices in the SMZ can result in erosion which has a direct effect on water quality and fisheries. That's why the green zone requires careful attention. However, it is not a "keep out" zone.

Why Are SMZ's So Important? SMZ's act as a sponge. They collect and hold soil water, allowing it to gradually leak out into the stream during dry summer months. Their thick vegetation acts as a filter alongside the stream, catching and holding soil sediment, keeping it out of the stream. So SMZ's have a direct effect on both the amount of water and the quality of water available for fish, wildlife and human use. Harvesting and road building in and around SMZ's can destroy the sponge, ruin the filter and result in deterioration of water quality.

How Can SMZ's Be Protected?

- Clearly mark SMZ boundaries for operators ahead of any logging activity.
- Locate roads away from SMZ.
- Minimize equipment operation in the SMZ, especially slash piling.
- Logging on frozen or snow-covered (12" depth) ground minimizes SMZ damage.
- Tree roots help hold the SMZ sponge intact. Do not disturb unmerchantable conifers and hardwood bank trees.
- High stumps in the SMZ may help keep debris from rolling off slopes and into streams.
- Keep petroleum and other hazardous products out of the SMZ.



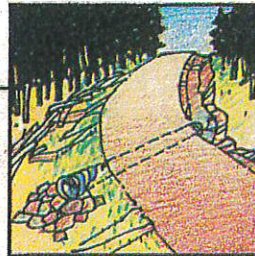
BMP's minimize erosion

through good road building practices and by encouraging the maintenance of healthy SMZ's. Locate roads well outside the SMZ, a safe distance from streams, and minimize stream crossings. Cross SMZ's and streams at right angles. Before installing a stream crossing, be sure to obtain a 310 Permit from your local Conservation District Office. Healthy SMZ's trap sediment, provide shade for streams, protect and stabilize floodplains, and provide wildlife habitat and forage. Therefore, they require special attention.

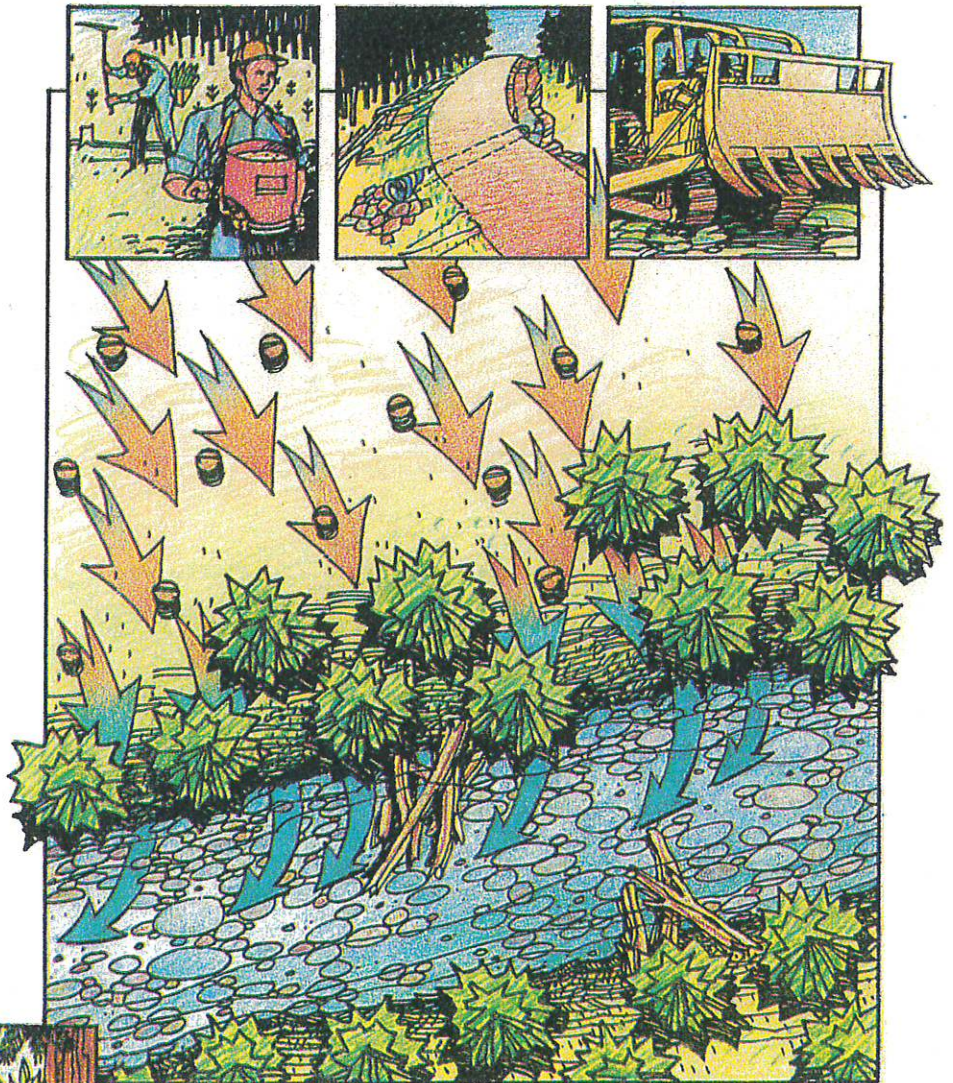
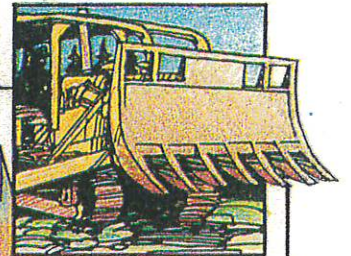
Grass seeding can stabilize roadsides, and prompt reforestation reduces erosion.



Reduce erosion with ditches, water bars and culverts that empty onto an apron of rock.



Use brush blades and work when soils are dry or frozen to minimize compaction and erosion.



Downstream benefits:

Fisheries, domestic water supplies and downstream flood plains benefit from good upstream forest practices. Healthy SMZ's keep fish-spawning gravels clean and free of sediment. Overhanging vegetation provides food and maintains water temperatures suitable for a variety of aquatic animals. Streambank trees are necessary for bank stabilization and eventually provide a source of large, woody material to form pools and hiding cover for fish.

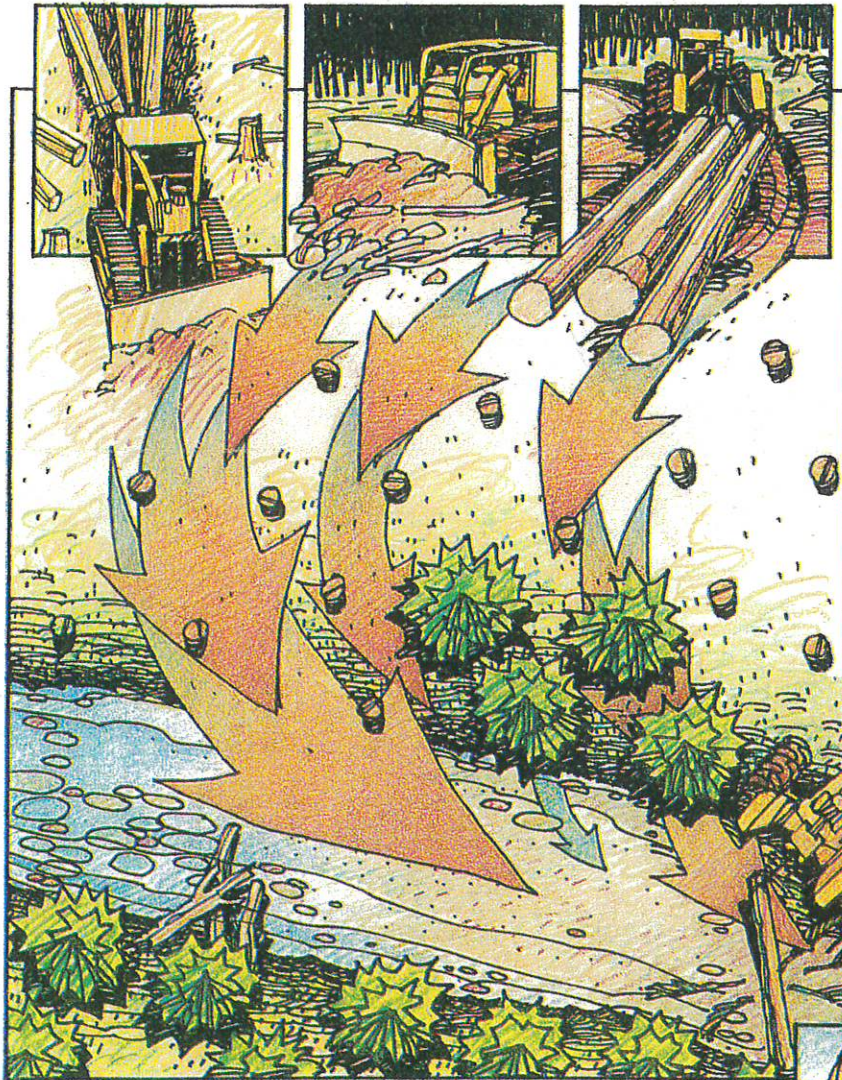
Poor logging practices cause excessive erosion.

Tearing up the topsoil on the forest floor destroys its filtering action and compacting the soil means surface water is not absorbed. When surface water is allowed to flow into roads and trails, they become man-made streams that increase in speed and volume as they flow downstream tearing away the soil, destroying your roads, overloading streams with sediment and destroying streambanks downstream.

Avoid skidding straight downhill for any distance. Install water bars to divert water off skid trails. Keep blade up.

Do not allow sidecast soil, stumps, etc. to be deposited where they might enter a stream.

Do not operate tractors under excessively wet soil conditions.



Best Management Practices

Good planning avoids unnecessary roads, insures healthy SMZ's, uses appropriate logging methods, diverts water off roads and trails and minimizes impacts of sediment. Often one road can serve several ownerships and reduce costs. Use logging methods that best fit the topography, soil type and season. Avoid tractor skidding on steep (greater than 40%) or unstable slopes to minimize soil disturbance.

Cost-cutting measures that cause excessive soil erosion and damage to streams often result in greater costs in lost time and money over the long-term.

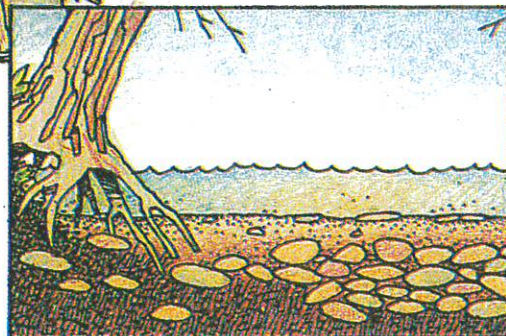
Ask for advice when identifying your SMZ, selecting a harvest method, planning roads, locating erodible soils, or mechanically piling slash.

Advice is available from publications and from professionals knowledgeable about all the forestry BMP's. This brochure includes only a sampling of BMP topics. Department of State Lands foresters are available along with forestry consultants and industry foresters.

BMP's will change over time as revisions improve water quality protection. Your cooperation is needed to make their adoption successful.

Avoid operating equipment in streams or on banks to prevent stream sediment.

Slash left to decompose in the stream uses up oxygen needed for aquatic life.



Downstream costs:

Allowing excessive runoff and sediment into streams can increase filtering costs for drinking water, interfere with irrigation systems and increase flood potential. Fish eggs laid in gravels become buried in sediment and suffocate. Removing shade from the SMZ can raise stream temperatures which in turn impacts fish and other aquatic life. Serious damage to an SMZ also affects all wildlife relying on stream and wetland habitats.

Viewpoints on BMP's

"If you thought the 1989 BMP legislation was voluntary, you're right! But that doesn't mean you can take it or leave it. The State Legislature is giving the Montana forest industry a chance to improve without mandatory rules. Let's take advantage of the chance."

BILL CRISMORE
Montana Logging Association, President

"Well-planned forest roads with culverts, drainage dips and waterbars make good sense for private woodland owners. Sure they cost money, but they pay off in the long run. Good roads reduce maintenance costs, result in less wear on our equipment, less down time from wet weather and keep our streams clean."

DON and MARY NAEGELI
1983 Western Region Tree Farmers of the Year
Trout Creek, Montana

"We're interested in all aspects of Montana's environment, especially improvements in water quality. We applaud the logging associations' education programs and their efforts to apply BMP's on the ground. You can bet we will be watching for evidence of improved forest practices. The success of a voluntary BMP program would be a credit to everyone associated with forestry."

JIM JENSEN
Montana Environmental Information Center

Best Management Practices

The 1989 Montana legislature passed House Bill 678. Its intent is to give Best Management Practices (BMP) information to private forest owners and operators to help protect water quality in Montana.

House Bill 678 requires private forest owners and operators to tell the Department of State Lands (DSL) their plans before they begin operations on a timber sale.

If you're an owner or operator, this means that before you harvest trees, build or reconstruct roads, prepare a site for regeneration, reforest, or treat logging slash, you have to let DSL know what you're planning to do.

■ There are two methods for notifying DSL. Operators need to submit an individual notice for each timber sale. Owners may submit either an individual notice or an operating plan. When you request a slash agreement from the DSL, you automatically provide the individual notice.

■ If you're going to harvest on several sites, then the owner can give DSL an operating plan for three, six or 12 months instead of letting DSL know separately for each operation. With operating plans, you must notify DSL at least 15 days before you begin work on any of the sites.

When notifying DSL, provide the exact location of the site, the date you expect to begin work on the site, its slope(s), location of streams or wetlands on the site, the type of harvesting method you're going to use, where you plan to build or reconstruct roads, and your knowledge of the soil conditions or soil-related problems on the site.

■ The law then requires DSL to review your plan and either pass along general BMP information or visit the site to give the owner and operator site-specific BMP recommendations. DSL tries to visit the most watershed-sensitive sites. The purpose of the visit is to look over the site and review the proposed timber sales, discuss

how your practices might affect the watershed, and then recommend BMP's that would work best on that site.

■ This pamphlet is an introduction to that BMP information. Along with the BMP information, DSL will provide information on Conservation Districts 310 Permits and other information that it believes would help the operator and owners with their forest practices.

■ Within 5 working days of receiving your individual notice for a timber sale the DSL will mail the owner and operator a receipt-of-notice letter to let them know if a visit to the site is requested. For an operating plan the DSL must notify you of a request to visit at least 10 days before your estimated starting date of forest practices on the affected timber sale.

■ DSL has to set up the visit within 10 days of sending a request to visit, at a time the owner, operator and DSL agree on. DSL needs to finish its BMP review, either in-office or out on a visit, before it issues a slash agreement. Representatives of the Department of Health and Environmental Sciences, the Department of Fish, Wildlife, and Parks and the local Conservation District may also participate in the on-site visit.

■ If weather or road conditions prohibit visiting the site, DSL will schedule the visit within 10 days of being able to reach the site. **If you change your proposed forest practices in a way that substantially alters the potential watershed disturbance, you need to submit a revised notification to DSL.**

It is not mandatory that you implement BMP's under this law. However, Montana has existing water quality laws that you must follow. Examples of these laws include the Natural Streambed and Land Preservation Act (requires 310 Permit) and the Montana Water Quality Act. DSL will provide information about these laws. Violation of these laws is punishable by fines.

For more information: call your local Department of State Lands field office.