Water Resources

Introduction

The Porter Mount Management Project is located on the west side of the Flathead National Forest in the Island Unit Geographic Area. The mountains are lower in elevation and, for the most part, more gently sloped than those found in other parts of the Swan Lake Ranger District. The streams are also much smaller.

Elevations range from less than 3440 feet to about 6800 feet. Weather systems move predominantly from west to east. Precipitation in the area ranges from a low of about 18 inches to a high of just over 30 inches. The highest elevations are snow covered from late November to early spring. Snowmelt is the primary form of water input and storage and is the major influence on the area's runoff regime. Peak flows normally occur the first week in June, augmented by warm spring temperatures and rain, though an earlier smaller peak usually occurs in early to mid May. Intense summer storms have been know to dump over an inch or more in a short period of time.

Ashley Creek in the Smith Valley receives the runoff from the Porter Mount Area. It has been known to support hay fields for years, then be inundated by water like a large wetland during other years. This type of valley-wide lake was experienced as recently as in the winter of 1996-97 when most low lying areas were underwater for over a year (Project File Exhibit H-1). This comparison would indicate wide variations in annual flow and sediment regimes.

Analysis Area

Spatial Bounds

The Water Resources Analysis Areas for the Porter Mount Management Project includes the Mount Creek, Porter Creek, and Rogers Lake Watersheds (Please Refer to Map 3-3). These will be analyzed for effects from the proposed activities and cumulative effects. These areas have large amounts of land managed by entities other than the Forest Service. Two tributaries of Mount Creek (Tributary 5.4 and 5.5) will be considered individually because they flow primarily from NFS lands. Two small tributaries of Ashley Creek will not be discussed in detail because they are too small for appropriate use of normal analysis techniques and/or there are no projects planned within their bounds.

The analysis areas were chosen to analyze the Porter Mount Project because it is large enough to determine the direct, indirect, and cumulative effects on Water Resources. All of the area that drains into the Mount Creek, Porter Creek, and Rogers Lake drainages upstream and adjacent to the Porter Mount Project Area were considered to have the potential for cumulative effects. In general, a cumulative effects boundary is adequate when all upstream activities are included and the downstream effects of an action are not discernible at the downstream boundary. Smith Lake is expected to be the point at which effects are no longer discernible. The analysis areas are also considered appropriate because Porter and Mount Creeks flow into Smith Lake within a very short distance. This area is a broad shallow lake with wetlands that absorbs changes in water flow and sediment inputs.

Temporal Bounds

Water yield changes and recovery in watersheds has been linked to changes in vegetative cover with a direct correlation to curves that are used in growth and yield models developed here in Montana. Most of the models allocate most of the water yield "recovery" to the first 15 to 20 years. This is the period when there is a surge of growth of herbaceous plants and shrubs. The final stages of recovery

are linked to re-growth rates of conifers with total “recovery” limited to the areas left unoccupied by trees such as road beds. It is predicted that some habitats and climates may take from 80 to 100 years to return to pre-management water regimes.

Affected Environment

Historic Condition

The Porter Mount Project Area has been populated by humans for centuries. It has historically been used by Native Americans for hunting and gathering. Within more recent history the land has been developed for ranches and managed for commercial timber harvest. An in-depth description of the existing and historic condition of the geology, hydrology, and multiple facets of hydrology in the Island Unit can be found in the Island Unit Ecosystem Analysis at the Watershed Scale. Other overviews can be found in the Island Unit Fuels Reduction EA, the Wild Mount EA and the Haskill Mount EA.

Existing Condition

A. Water Quality

The Administrative Rules of Montana classify all waters in the Porter Mount Area as B-1. This means that the waters are suitable for drinking, culinary, and food preparation after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fish and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply. There are many registered water rights for Consumptive Use (households and stock watering) throughout the analysis area, especially at the lowest elevations. The primary Non-consumptive Use of stream water in the analysis area is for the propagation of cold-water fisheries and habitat for other aquatic life forms.

There is limited water quality data collected within the Porter Mount Analysis Area. Past Forest monitoring efforts did include Truman, Wild Bill, and Emmons Creeks directly to the east. Data was collected from the late 1970’s to the mid 1980’s. In general, the water quality in these streams was considered very good. The monitoring did document great variability between years and sites related to weather and differences between sites due to ground water influences.

Other studies have been done by cooperators related to the Flathead Basin Commission and the Ashley Creek Homeowners Association. Restoration efforts and habitat restoration projects have been ongoing by these groups for the past several years. Information can be viewed on the DVD “Healthy Lakes…through Living Shores” produced by the FBC.

B. Sediment Yield

Many factors affect the timing, rate of delivery, and amount of sediment routed to and through stream systems. Sediment routing and dilution are important environmental influences on aquatic habitat and difficult to quantify because there are so many variables in a natural stream system. Estimating potential changes from changes in vegetation such as fire or land management, are exacerbated by variation in weather patterns, such cloudbursts, and even climate variations such as drought or record snowfall.

Human caused disturbances in close proximity to streams can have a great affect on sediment delivery to streams, especially in the valley bottom of Mount Creek where the stream channel has been straightened through areas of fine textured soils. Land management activities such as urbanization, road construction, or associated projects (i.e., land clearing and timber harvest), can accelerate sediment production above what would be expected to occur with natural disturbance patterns.

Roads that have been built near streams on sensitive landtypes have the highest potential of contributing sediment to streams. This is exemplified by the County Roads located along Mount Creek and to Rogers Lake. Intense rainfall, snowmelt, increasing traffic, and undersized culverts at stream crossings can cause channel changes when culverts are overwhelmed during high flow periods.

A limited road/stream interaction survey was completed in 2007 to evaluate the current condition of the roads and stream crossings (Project File Exhibit K-2). The Forest's Road Inventory and GIS layer was used to assess the potential impacts of roads on streams and used in the WATSED Model to help determine existing sediment. These results will also be used for alternative comparisons of road improvements on designated haul routes and road reclamation for the alternatives. The following table gives the predicted changes in sediment yields, above what is predicted to naturally occur, due to past timber harvest and road building activities. It also indicates total miles of system roads occurring within each Watershed and Tributary.

TABLE 3-28
PREDICTED EXISTING SEDIMENT YIELDS AND ROAD INFORMATION

Watershed	2007 Miles of Road (Existing Condition)	2007 % Sediment Increase over "baseline"
Mount (All)	219	137
Mount Tributary 5.4	24	375
Mount Tributary 5.5	9	93
Porter	24	138
Rogers Grayling Tributary	9	126
Rogers Lake Watershed	30	367

In the summer of 2007, a number of road/stream crossings were visited, primarily on NFS lands. The primary focus of these field visits was to validate modeled results and to find if there were physical conditions in the stream channels that would suggest there was historic damage or an ongoing situation that needed attention. These changes are an important factor when predicting a stream's ability to withstand increases in water or sediment without undergoing major changes in channel size or form. This physical condition is important because the current shape of a stream channel is a reflection of the amount of water it is receiving. When water volume increases, its erosive force can scour stream banks to make room for more water. Eroded material is in the form of fine suspended sediment, rock or gravel, which is then deposited as bars downstream.

These site visits were done instead of the traditional Pfankuck surveys since there were no historic surveys for comparison. Site visits were conducted by the District Hydrologist. These documents and photos of the can be found in the Project File (Exhibit K-8). In general, the stream channels of the tributaries of Mount Creek were in stable condition, with no obvious channel changes. Most channel bottom materials were absent of sediment deposits and, in many cases, moss covered. The one exception was the tributary that crosses FDR #10501 that flows from an area of other ownership. Most of the trees in this area were recently removed, and it is in the process of being subdivided. This tributary is experiencing active erosion indicated by banks of over one foot in depth and bedload depositions above and below the road.

Water Yield

The most recent version of the USDA Forest Service Region One WATSED model (hereafter referred to as WATSED) was used to estimate the current water yield levels generated from past timber harvests, road building, and conversion of forested land to farm land. Timber harvest and road building on all land ownerships within the analysis areas was also analyzed. As with all models, WATSED was used to simplify extremely complex physical systems. The somewhat limited database used to develop the runoff curves is from local sources, such as the USGS stream monitoring system, along with historic flow data collected on the Flathead National Forest.

The WATSED Model was developed to predict changes of sediment and water yield. It is not intended to predict exact quantities of sediment, annual water yield, or peak flows. Values calculated by the model are most meaningful when used as a tool to evaluate existing conditions, and compare alternatives given other field data, and best professional judgment. The following table gives the expected conditions for the watersheds in the Porter Mount Analysis Area based on the best available data. Past timber harvest and road building on State and private lands was identified through aerial photo interpretation, correspondence, and the use of personal knowledge of the area. Modeled predictions of the photo interpretation results were ground checked in key locations across the Porter Mount Analysis Area. Some of the physical attributes of State lands, such as land and road location, have been tracked by the GIS database.

TABLE 3-29**
WATSED CALCULATIONS FOR THE PORTER MOUNT ANALYSIS AREA EXISTING CONDITION*

Watershed	Watershed Acres	Cumulative Treated Acres 2007**	2007 Percent Water Yield Increase	2007 Percent Peak Flow Increase
Mount (All)	31,178	21,255	15	18
Mount Tributary 5.4	2308	408	11	12
Mount Tributary 5.5	1880	257	7	9
Porter	3776	559	7	7
Rogers Grayling Tributary	1217	1027	15	14
Rogers Lake Watershed	3987	1407	N/A***	N/A***

* This data has been updated to reflect current conditions as of August 2007.
** This is an estimate of how much of each watershed has had some type of land management activity. The predicted annual water yield and change in peak runoff period is a combination of runoff from vegetation manipulation and recovery from activities where appropriate, slope distribution, aspect, and precipitation zones.
*** These values are not relevant because peak flow and water yield relate to stream channels, not a contained lake basin.

Modeling output suggests that existing flows are within acceptable levels for the geomorphology of the streams and the land forms from which they flow, with the Mount Creek Watershed and the Grayling Tributary of Rogers Lake being sustained at the higher end. These values represent the annual water yield considering all existing land management activities on all ownerships within all catchments with the best available information.

Model Use as Analysis Tools - Water yield values have been updated for the Porter Mount Analysis Area to reflect activities on all ownerships, as the most recent data is available. These values are most valuable when compared to the existing channel conditions and documented impacts on the ground.

Computer-based watershed response models commonly used in the Forest Service's Northern Region are designed to address the cumulative effects of timber harvest, road construction, and major fires. They do not attempt to analyze the effects of grazing, mining activities or individual

episodic storm events. This modeled information is most useful to objectively compare relative differences among alternatives, rather than to predict precise sediment and water yields that are likely to occur upon project implementation. It should also be noted that the Flathead National Forest does not have defined water yield limits in the Forest Plan or any other official guidelines. Calculations of water yield are used in relation to current research in similar geologic types and water regimes.

Environmental Consequences

Water quality, water yield changes shifts in peak flows, increases in suspended sediment, and changes in channel morphology will all be addressed under the heading of water quality. Water quality is a reflection of those components, and it is the primary concern related to the support of the beneficial uses of these waters, i.e., cold-water fish and associated aquatic life.

The first components of water quality analyzed for the Alternative A – No Action and the Proposed Action are water yield and run-off timing. Research has found timber harvest and associated road building can have a measurable influence on peak flows and total water yields, although the magnitude and timing varies greatly (Tobin-Scheer 1993). Water yields can also be elevated for many years after fire or insects kill a major portion of the vegetation (Potts et al 1989).

Forest canopy changes can increase water yields and peak flows by altering a variety of hydrologic processes. Reducing the forest canopy decreases the amount of snow that is intercepted by branches, thereby increasing the amount of snow that falls onto the ground, soaks into the soil, and adds to the groundwater. Reducing the forest canopy also reduces the amount of water that is evapotranspired by the vegetation. It should be noted that a study of the relationship between logging and changes in stream flow on the Kootenai National Forest, to the immediate west of the Porter Mount Analysis Area, showed that the primary influence on the magnitude of peak flows was climate, or fluctuation in weather pattern (MacDonald 1997). This is due to the maritime influence on the weather patterns on the Kootenai, and the regular occurrence of rain on snow events. These events are not as common of an occurrence in the Island Unit, but intense cloud bursts can occur at almost any time of the year. These cloud bursts, like those documented in Glacier National Park in November 2006 can have dramatic, long lasting effects on stream channels.

The amount of total water yield and peak flow increase a stream channel can handle, without a change in physical characteristic, is dependent on:

- The surrounding geology and soils,
- Existing stream channel conditions,
- Harvest history within the watershed, particularly within riparian areas, and
- Road connectivity to streams. Road density can have a large potential to affect streams if they do not have proper cross drains, thereby interrupting side hill water flow. Changes in stream flows are caused by not only forest management, but fire and extreme climatic events as well.

Increases in the magnitude of peak flows are of concern because they can adversely affect water quality and the other aquatic resources, such as fish habitat, through stream bank erosion and increased sediment transport capacity. Roads and skid trails that do not meet State Best Management Practice (BMP) guidelines can also increase both total water yield and peak flows by keeping water on the surface due to compaction. Since water flows faster on the hardened surfaces than through the subsurface soil surface, it increases runoff efficiency.

Alternative A –No Action
Direct and Indirect Effects

Alternative A would result in no increase in water yield or peak flows. In some cases, the water yields and peak flow increase would be lower under Alternative A than under the existing 2007 water yields and peak flows. This is due to recovery from past disturbances and because no additional harvest taking place between the existing condition model run in 2007 and the alternative model run in 2009. 2009 would be the earliest any harvest would take place in the analysis area. This alternative is expected to maintain beneficial uses at current levels. Because there would be no harvest activity, there would be no risk of additional erosion on harvested areas. With Alternative A, water yields, peak flows and sediment increases caused by past activities would slowly decrease over time.

Some elevated levels of sediment would continue to be at risk of being routed to streams from existing road systems and skid trails (Project File Exhibit K-10).There is a potential for negative effects to water quality with Alternative A because of the negative effects of the current roads that have not been used for haul routes in recent years. With Alternative A, there would be no money generated from timber sales to pay for work needed on these roads to bring them up to current BMP standards. The existing condition of drainage patterns on road these roads would remain somewhat inadequate and continue to elevate the risk of effects to water quality and channel morphology from runoff through roadside ditches. While trees would continue to grow and help the area recover hydrologically, runoff carried by roadside ditches would never totally recover so long as the roads disrupt hillslope hydrology.

Under Alternative A, no forest management actions would occur in the Porter Mount Area at this time. Under Alternative A, there would be no treatments to reduce the risk of spread of insect and disease infestations and reduce the amount of forest fuel buildup, especially near other public and private lands. With no fuel reduction activities, the size, intensity, and spread of wildfires may increase, with potential effects to water quality as described below.

By not reducing fuel levels, there is a risk that a severe wildfire could lead to temporary, negative effects to water quality by increasing overland flow and fine sediment. As more and more stands fill in with dense, shade tolerant tree species, the risk of elevated flows and sediment levels would also increase. Based on the information in the Fire and Fuels Section of this EA and in the research referenced in the bibliography, it appears that existing ladder fuels and fuel loading in the project area has increased over historic conditions, at least partially due to the effective fire suppression that has occurred since since the 1940's. Under Alternative A, the fuel and vegetation analysis in this chapter indicate that larger, more intense fires are now more likely and, with no action, the risk of such fires would likely increase. Due to increased fuel loadings, such fires would remove a higher percentage of the vegetation than would have historically been the case when more frequent low intensity fires occurred. To the degree such fires occur, they would likely have direct effects of: increasing water yield, likely changing the timing of run-off, increasing suspended sediment after such events, and possible effects on channel morphology in proportion to their size and dependent on their location with the watershed.

The general health of the areas to be treated would also not be improved. Areas that were harvested in the past grow most vigorously when they do not have to compete for water or nutrients. In areas not treated, the competition for water and nutrients would remain resulting in growth rates being reduced. This in turn slows the hydrologic recovery.

Invasive plants / noxious weed populations would not be treated at this time except for limited cases. Weeds along water courses have been found at an increasing rate, replacing deeply rooted native plants that historically helped stabilize stream banks. As a result, there could be an increase in sediment through channel erosion where deeply rooted native plants are replaced by weeds. Non-native plants also do not act as an effective buffer to moderate overland flow or sediment transport.

Under Alternative A, the Ecosystem Burn would also not occur. This burn proposed totals 128 acres. Burns of this size have never been found to have a direct impact on water quality or the rate of water runoff because sufficient buffers are left in tact. This burn also covers a relatively small portion of a watershed's headwater vegetation. It is possible that if the burn was implemented, there would be a direct effect with a short-term increase in nutrients, and depending on the size and intensity of the fire, a relatively short-term increase in water yield; but to date, none has been documented in other locations.

Alternative A - No Action
Cumulative Effects

Past timber sales and associated activities have modified some conditions within the Porter Mount Analysis Area. In addition, some of the past actions such as stream crossings have been a source of sediment delivery to channels. Findings of this assessment conclude that activities considered (in addition to the proposed actions) could have some cumulative effects to the Water Resource. Vegetation and private land development including the construction of roads, clearing of vegetation, construction of residences, and installation of improvements can create a variety of changes to the landscape. Depending on the magnitude, type, and location of developments and the amount of private land on othe landscape, these activities can have varied effects. Vegetation management and land development on private land may contribute to peak flow increases in the analysis area and increase sediment delivery to channels from vegetation clearing, ground disturbance, and road construction. As identified earlier, most of all the private lands occur in the lower portions of the watersheds. Since vegetation and road activities are regulated by State laws, it is expected that the impacts would occur at levels that would not cause water quality or aquatic habitat changes or affect the support of beneficial uses. In some cases, there could be an overall improvement to water quality if more roads are surfaced and re-engineered to reduce direct inputs of sediment and water to streams.

Alternatives B and C
Direct and Indirect Effects

The management practices listed in Chapter 2 for the Alternative B - Proposed Action were used to estimate potential effects for the Water Resources. Potential effects of vegetation change on water yield for the Alternative B is compared to the existing condition, or Alternative A – No Action using the WATSED Model. Only Alternative B was modeled because it involves the most forest management activities, and would represent the most impact. Alternative B, which treats the most acres of the action alternatives, has very limited impacts and would maintain and protect beneficial uses. Alternative C which treats 97 less acres than Alternative B would have somewhat less impact than Alternative B proportionate to the acres treated, but given the small changes predicted under Alternative B, the modeled differences for water yield and peak flow (See Table 3-30) would round to be statistically nearly the same as for Alternative B. Alternative B would involve **61.46 miles** of BMP improvement to existing roads and Alternative C would include **63.20 miles** of BMP improvement to existing roads.

As previously stated, the WATSED model uses the "baseline" condition as a fully forested or closed canopy condition within the watershed to compare the "natural condition" to the existing condition and potential changes from the proposed activities. It is acknowledged that this is only an assumption used for modeling purposes; because in fact, this condition would not truly represent the historic conditions in this part of the Island Unit since there are areas of exposed bedrock and cliffs. Nevertheless, these predictions are still useful in assessing potential change to the runoff regime in the watershed used to characterize the analysis area.

TABLE 3-30**
WATERSHEDS – ALTERNATIVE B (PROPOSED ACTION) COMPARISON

Watershed	Watershed Acres	2007 Percent Water Yield Increase	2007 Percent Peak Flow Increase	Proposed Action Water Yield Increase	Proposed Action Peak Flow Increase
Mount (All)	31,178	15	18	15	18
Mount Tributary 5.4	2308	11	12	13	15
Mount Tributary 5.5	1880	7	9	7	9
Porter	3776	7	7	12	12
Rogers Grayling Tributary	1217	15	14	15	14
Roger Lake	3987	NA	NA	NA	NA

Alternative B creates a range of changes in forest cover in different tributaries. The largest predicted change is in the Porter Watershed, increasing from 7 to 12 percent in both water yield and peak flows. The physical changes in the stream channel are difficult to predict. Given the stabile conditions of the stream channels, and the large rock on this landtype, it is most likely that there would be no discernable physical change to the stream or its carrying capacity. It is also unlikely that there would be a discernable effect downstream, particularly because the stream changes gradient and energy potential when it reaches the valley floor. The model indicates that the other streams in the Porter Mount Area have little or no change in water yield characteristic from Alternative B. In most other cases, the proposed management activities would slightly delay the ongoing hydrologic recovery by a year or two. Therefore, no change in stream stability is predicted to occur as a direct or indirect result of Alternative B. Beneficial uses would be maintained with the action alternatives.

There is little change in sediment for both alternatives because all appropriate BMP's would be included; **61.46 miles** in Alternative B and **63.20 miles** in Alternative C. In addition, each harvest unit in each alternative has been individually planned and would have site-specific BMPs (Appendix B) and Design Criteria (Table 2-13) applied in order to minimize sediment production. No activities would be implemented in riparian areas adjacent to streams and wet areas, which is consistent with INFISH guidelines.

If stream crossings are replaced, effects are expected to be short term, with a long-term improvement, as the risk of culvert failure would be postponed several decades. Even with dewatering and sediment traps, some sediment would reach the stream for a very short period (such as a few hours). Stream stability would benefit in the long term by reducing the risk of channel erosion from stream crossing failure. Where an existing stream crossing does not fit the current channel form, a different design or larger pipes would slow the water velocity through smaller crossings during peak run-off, thereby reducing channel scour and lowering sedimentation from channel erosion.

Alternatives B and C
Cumulative Effects

The Cumulative Effects Worksheet (Project File Exhibit K-4) considers and describes proposed activities in addition to the past, current, and reasonably foreseeable activities listed in Tables 3-1 and 3-2. Those activities that cumulatively contribute indiscernible effects on Water Resources are not included in this section but are discussed in the Water Resource Cumulative Effects Worksheet. Those activities that cumulatively affect Water Resources are discussed below.

Databases, informational systems, and/or aerial photo interpretations were used to track all past actions. This information was modeled with the WATSED model where activities were quantifiable.

Cumulatively, all past actions formed the existing conditions for the Water Resource within the Porter Mount Analysis Area. Baseline information was estimated for the key watersheds based on area precipitation, landtypes, and watershed area from information acquired from the Forest GIS system, with the assumption that the historic condition of most areas were in a fully forested condition. The modeled results were adjusted based on field visits and available on-the-ground surveys.

Effects of current and future activities, including proposed activities proposed by Porter Mount Project were used to consider potential cumulative effects in the analysis area. Projects for other land ownerships were gleaned from available decision notices and a review of databases.

Past timber sales and associated activities have modified some conditions within the Porter Mount Analysis Area. In addition, some of the past actions such as stream crossings have been a source of sediment delivery to channels. Findings of this assessment conclude that activities considered (in addition to the proposed actions) could have some cumulative effects to the Water Resource. Vegetation and private land development including the construction of roads, clearing of vegetation, construction of residences, and installation of improvements can create a variety of changes to the landscape. Depending on the magnitude, type, and location of developments and the amount of private land on othe landscape, these activities can have varied effects. Vegetation management and land development on private land may contribute to peak flow increases in the analysis area and increase sediment delivery to channels from vegetation clearing, ground disturbance, and road construction. As identified earlier, most of all the private lands occur in the lower portions of the watersheds. Since vegetation and road activities are regulated by State laws, it is expected that the impacts would occur at levels that would not cause water quality or aquatic habitat changes or affect the support of beneficial uses. However, it is not possible to predict those changes due to the small proportion of NFS lands and the unknown future of the rest of the area. In some cases, there could be an overall improvement to water quality if more roads are surfaced and re-engineered to reduce direct inputs of sediment and water to streams. It could further be improved if private land forest roads built before the passage of the Montana Streamside Management Zone regulations were improved to meet current regulations.

Regulatory Framework and Consistency

Regulatory Framework

The Federal Water Pollution Control Act, the EPA’s Anti-degradation Policy, Montana Water Quality Standards, Montana State Best Management Practices, and the Streamside Management Zone Act control watershed management in the Porter Mount Analysis Area. These are described in detail in below.

Federal agency compliance with pollution control is addressed through Section 313 of the Clean Water Act, Executive Order 12580 (01/23/87), National Non-point Source Policy (12/12/84), USDA Non-point Source Water Quality Policy (12/05/86) and the EPA in their guidance "Non-point Source Controls and Water Quality Standards" (08/19/87). In order to comply with State and local non-point pollution controls, the Forest Service would apply BMPs to all possible non-point sources that may be due to management activities addressed in this EA. Best Management Practices are the primary mechanism to achieve water quality standards (EPA 1987).

Best Management Practices include, but are not limited to structural and nonstructural controls, operations, and maintenance procedures. Best Management Practices can be applied before, during, and after pollution producing activities to reduce or eliminate introduction of pollutants into receiving waters. Usually, BMPs are applied as a system rather than a single practice. Best Management Practices are selected by site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility. The Forest Plan emphasizes the application of BMPs "to protect or improve the quality of the water source" (p. II-40).

Wetlands are protected under Executive Order 11990. This Order directs Federal agencies to "minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." Effects on the maintenance of natural systems, flora, fauna, habitat diversity, and hydrologic utility are to be considered when evaluating a proposed project that could potentially affect a wetland.

The Clean Water Act exempts most types of silvicultural activities from the 404-permit process. Associated timber roads are exempt from the permit process only if they are constructed and maintained with the use of BMPs listed in 40 CFR 323.4(a), as well as those approved in the Montana Non-point Source Management Program (1986). The Montana Streamside Management Zone (SMZ) Act (1992) directs wetlands adjacent to stream channels to be included within SMZ boundaries.

Regulatory Consistency

To comply with the State of Montana water quality standards, the Forest Service must ensure that all (each individual) activities will result in full protection of the designated beneficial uses. All alternatives for the Porter Mount Management Project are designed to meet the requirements of the State Water Quality Standards. This would be done through application of BMPs in timber harvest areas and roads associated with timber removal.

The State of Montana SMZ Act of 1992 requires a minimum of 50 to 100-foot wide buffer on each stream adjacent to harvest activities. These buffers are to be expanded to include wetlands and in many cases would be wider to comply with INFISH. The SMZ Act prohibits seven forestry activities inside the streamside zones, unless alternative practices have been approved by the Montana DNRC Service Forester. All prescriptions for harvest would meet the guidelines for SMZs without needing alternative practices. These practices are primarily stand tending activities such as thinning.

The Montana Stream Protection Act requires a 124 permit to be issued for all construction, modification, operation, or maintenance of any structure that affects the shape, form, or function of a stream channel below the bank full level. The Act was passed into law to protect and preserve fish and wildlife resources in their natural state. Examples of activities that may be implemented through the Porter Mount Project that require a 124 permit include culvert replacements and temporary road construction. The permits would be approved by the Montana Department of Fish, Wildlife, and Parks prior to implementation. All alternatives would meet the standards of all applicable laws.