

## Conformance with Nonpoint Source Program Plan and Policy

### Introduction

The Nonpoint Source Program Plan (NPS Plan) and the Policy for Implementation and Enforcement of the Nonpoint Source Program (NPS Policy) set forth certain criteria that the U.S. Department of Agriculture, Forest Service (USFS) Water Quality Management Handbook (WQMH) and the Waiver are designed to satisfy. This document summarizes the relationship between these criteria and the USFS WQMH and the Waiver.

### NPS Plan

The NPS Plan was collaboratively developed by the State Water Resources Control Board (State Water Board) and the California Coastal Commission in accordance with USEPA regulations implementing the Coast Zone Act Reauthorization Amendments (CZARA)<sup>1</sup>. Pursuant to U.S. Environmental Agency (USEPA) Guidance, the NPS Plan identifies a number of measures for managing NPS pollution. These “management measures” (MMs) are primarily performance standards, stating what is to be achieved, but not prescribing exactly how it is to be achieved. USEPA Guidance requires that each affected state determine what modifications of the general MMs and what more prescriptive “management practices” (MPs) would be most appropriate for its situations, as well as providing guidance regarding what such MPs might be. The companion volume *California Management Measures for Polluted Runoff*, describes the MMs adopted by the State for each of several categories of NPS activities on non-federal lands<sup>2</sup>. These have been approved by USEPA, which holds the State accountable for implementing them.

Table 1 sets forth the MMs that the State Water Board and USFS have agreed are relevant to NPS activities on NFS lands. It shows which USFS best management practices (BMPs) are related to each MM and its components and/or elements. There is not a one-to-one correspondence between the two sources. Please note the following:

- Neither USEPA nor the State have MMs for mining or recreation, so there is nothing to which the USFS BMPs for those activities can be compared.
- Many MMs for silviculture address matters that USFS has placed into other BMP categories, i.e., roads, vegetation manipulation, and fire suppression and fuels management.
- Among USFS timber management BMPs, there are several that address matters for which there is no corresponding silvicultural MM.

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<sup>1</sup> Although CZARA applies only to the Coastal Zone, the State agencies decided to extend its application beyond the Coastal Zone, so that the State would have only one set of statewide NPS requirements.

<sup>2</sup> These NPS documents can be found at: [http://www.swrcb.ca.gov/water\\_issues/programs/nps/protecting.shtml](http://www.swrcb.ca.gov/water_issues/programs/nps/protecting.shtml).

The State Water Board's NPS Policy was promulgated in response to State legislation requiring it to specify how NPS pollution was to be regulated<sup>3</sup>. The NPS Policy recognizes that third parties (e.g., other agencies and some voluntary associations) have programs, expertise and resources that are valuable supplements to the authorities and capabilities of the Water Boards. It therefore encourages development and implementation of third party NPS control programs, while also establishing five "key elements" necessary to ensure that such a program will be implemented and be effective in controlling NPS pollution.

The following paragraphs summarize the key elements and the ways that the USFS WQMH and Waiver comply with them.

***Key Element 1. An NPS pollution control program's ultimate purpose shall be explicitly stated. Implementation programs must, at a minimum, address NPS pollution control in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.***

The updated USFS WQMH sets forth the following program objectives:

1. To ensure that the quality and beneficial uses of water are maintained where they are in good condition, consistent with the Federal and State anti-degradation/non-degradation policies, and the principles of conservation biology.
2. To protect the quality and beneficial uses of water from further degradation in water bodies that are trending toward impairment, as defined by Clean Water Act Section 303 (d).
3. To make substantial progress toward eventual delisting of water body segments listed pursuant to Clean Water Act Section 303(d).
4. To remediate legacy sources of pollution.
5. To ensure compliance with Federal and State water-quality objectives and legal requirements in the most efficient manner.
6. To enhance Forest Service performance as a water-quality management agency, and increase and improve its responsibility, transparency and accountability in its relationships with the Water Boards and the public.

***Key Element 2. An NPS pollution control program shall include a description of the management practices and other program elements expected to be implemented, the process to be used to select or develop MPs, and the process to ensure and verify proper implementation.***

The updated USFS WQMH sets forth suites of BMPs to be used to address discharges from the following NPS activities:

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<sup>3</sup> The NPS Policy can be found at: [http://www.swrcb.ca.gov/water\\_issues/programs/nps/docs/oalfinalcopy052604.pdf](http://www.swrcb.ca.gov/water_issues/programs/nps/docs/oalfinalcopy052604.pdf).

- Timber management
- Roads
- Mining
- Recreation
- Vegetation manipulation
- Fire suppression and fuels management
- Watershed recovery
- Range management

Each suite of BMPs (more than 90 in total) includes the following: its own objective(s); an explanation of the practice, including criteria and standards; a description of how it is to be implemented, and the pertinent USFS references. The statewide BMPs are general to allow flexibility to deal with the State's many differing forest environments.

The WQMH and Waiver also describe the following:

- The nested hierarchy of national laws, regulations, programs, manuals and handbooks, multi-regional and multi-forest guidance, individual Forest Land and Resource Management Plans that are the context within which the statewide BMPs are interpreted and applied.
- The administrative processes by which site- and project-specific prescriptions are developed to implement the statewide BMPs.
- The administrative processes to ensure that these are incorporated into the contracts and other documents that provide the immediate direction to those actually carrying out the project.
- The administrative processes to verify proper implementation.
- The several types of monitoring to be used to determine effectiveness in meeting water quality objectives, both short term and long term and at different geographic scales.

In addition, the WQMH and Waiver set forth the approaches to be used to remediate legacy sources of pollution and to contribute to restoration of 303(d)-listed waters.

**Key Element 3. *Where a Water Board determines it is necessary to allow time to achieve water quality requirements, the NPS control implementation program shall include a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements.***

The Waiver sets forth priorities and short-term schedules for:

- Completing watershed assessment and watershed management plans on NFS lands.
- Completing projects to remediate legacy problem sites or to contribute to restoration of impaired beneficial uses of water.
- Completing certain monitoring projects.
- Completing further amendment or creation of BMPs.

Longer term schedules may be subject to budget and staffing constraints that neither the Water Board nor USFS can anticipate.

**Key Element 4. *NPS control programs shall include sufficient feedback mechanisms so that the affected Water Board(s), dischargers, and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs or other actions are required.***

The updated USFS WQMH sets forth a stakeholder-responsive adaptive management strategy that addresses both: 1) short-term project-specific feedback (i.e., project site inspections) to facilitate more timely corrective actions and 2) longer-term feedback (i.e., monitoring and research results and other information) to inform iterative refinement of the WQMH and its BMPs.

In addition, the Waiver requires regular reporting from USFS on both an annual and longer-period basis. The reporting includes status reports, monitoring results, new findings, problems and recommendations. Meetings are required on at least an annual basis between the national forests and affected Regional Water Boards, as well as between the State Water Board and the USFS regional office.

**Key Element 5. *Each Water Board shall make clear, in advance, the potential consequences for failure to achieve a NPS control implementation program's stated purposes.***

The WQMH sets forth several self-imposed internal USFS consequences for failure to achieve stated purposes. In addition, the Waiver allows the Water Boards or USFS to deny or terminate Waiver coverage for failure to adequately comply with water quality requirements by: 1) individual projects or activities, 2) classes of projects/activities; and/or 3) projects/activities implemented by specific national forests. Activities not covered by the Waiver could only proceed if regulated through a WDR. The Waiver states that violations of the Waiver are also subject to enforcement to the extent allowed by law and in the same manner as enforcement of WDRs, and Water Boards can administer enforcement remedies (including civil liability) pursuant to the California Water Code.

Table 1. – California’s NPS Program Management Measures and the USFS BMPs that Implement Them.

**Silvicultural Management Measures**

Management Measure 2A Preharvest Planning				
Component I. Perform advance planning for forest harvesting that includes the following elements where appropriate:				
Agency	Authority	Programs	Implementation Location	Notes
Element (1): Identify (a) the area to be harvested including location of waterbodies and sensitive areas such as wetlands, threatened or endangered aquatic species habitat areas, or high-erosion-hazard areas (landslide-prone areas) within the harvest unit, and (b) the hydrologic unit where the project is located and name the waterbodies the project is tributary to.				
U.S. Dept. of Agriculture Forest Service (USFS)	WQMH BMP 1.1 - Timber Sale Planning Process	Timber, Fuels	Statewide-National Forest System (NFS) lands	
	WQMH BMP 1.2 - Timber Harvest Unit Design	Same as above	Same as above	
	WQMH BMP 1.3 - Determining Surface Erosion Hazard for Timber Harvest Unit Design	Same as above	Same as above	
	WQMH BMP 1.4 - Using Sale Area Maps and/or Project Area Maps for Designating Water Quality Protection Needs	Same as above	Same as above	
	WQMH BMP 1.6 - Protection of Unstable Lands	Same as above	Same as above	
	WQMH BMP 1.7 - Prescribing the Size and Shape of Regeneration Harvest Units	Timber	Same as above	
	WQMH BMP 1.8 - Streamside Management Zone Designation	All programs	Same as above	
	WQMH BMP 1.9 - Determining Tractor Loggable Ground	Timber, Fuels	Same as above	
	WQMH BMP 1.18 Meadow Protection during Timber Harvesting	Same as above	Same as above	
	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
	WQMH BMP 7.1 - Protection of Wetlands	Same as above	Same as above	
Element (2): Time the activity for the season or moisture conditions to avoid degradation of water quality and prevent impacts to beneficial uses. Avoid any activities that cause soil disturbance or discharge from road surfaces during wet weather except for emergency maintenance work.				
USFS	WQMH BMP 1.5 - Limiting the Operating Period of Timber Sales Activities	Timber, Fuels	Same as above	
	WQMH BMP 5.6 – Soil Moisture Limitations for Tractor Operations	All programs	Same as above	
Element (3): Consider potential water quality impacts and erosion and sedimentation control in the selection of silviculture and regeneration systems, especially for harvesting and site preparation.				
USFS	Same as Element (1) above, plus	Same as above	Same as above	
	WQMH BMP 1.13 - Erosion Prevention and Control Measures During Timber Sale Operations	Timber, Fuels	Same as above	
	WQMH BMP 1.22 - Slash Treatment in Sensitive Areas	Same as above	Same as above	
Element (4): Reduce the risk of occurrence of landslides and severe erosion by identifying high.erosion-hazard areas and avoiding timber operations where they may exacerbate risk.				
USFS	WQMH BMP 1.3 - Determination of Surface Erosion Hazard for Timber Harvest Unit Design	Same as above	Same as above	
	WQMH BMP 1.6 - Protecting Unstable Lands	All programs	Same as above	
Element (5): Consider cumulative effects from timber operations or roads to any known existing water quality impairments or problems in watersheds.				
USFS	WQMH BMP 7.8 - Cumulative Off-site Watershed Effects	Same as above	Same as above	

**Management Measure 2A Preharvest Planning**

**Component 2. Perform advance planning for forest road systems that includes the following elements where appropriate:**

Agency	Authority	Program	Implementation Location	Notes
Element (1): Locate and design road systems to minimize potential sediment generation and delivery to surface waters. Key components are: (a) locate roads, landings, and skid trails to avoid steep grades and steep or unstable hillslope areas, and to decrease the number of stream crossings; (b) avoid to the extent practicable locating new roads and landings in SMAs; and (c) determine road usage and select the appropriate road standard.				
USFS	WQMH BMP 1.6 - Protection of Unstable Lands	All programs	NFS lands	
	WQMH BMP 1.8 - Streamside Management Zone Designation	Same as above	Same as above	
	WQMH BMP 1.9 - Determining Tractor-loggable Ground	Timber, Fuels	Same as above	
	WQMH BMP 1.10 - Tractor Skidding Design	Same as above	Same as above	
	WQMH BMP 1.11 - Suspended Log Yarding in Timber Harvesting	Same as above	Same as above	
	WQMH BMP 1.12 - Log Landing Location	Same as above	Same as above	
	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
	WQMH BMP 2.1 - Travel Management Planning and Analysis	Engineering	Same as above	
	WQMH BMP 2.2 - General Guidelines for the Location and Design of Roads	Same as above	Same as above	
	WQMH BMP 2.8 - Stream Crossings	Same as above	Same as above	
	WQMH BMP 5.2 – Slope Limitations Mechanical Equipment Operations	All programs	Same as above	
Element (2): Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are: (a) size, design and site crossing structures to prevent failure and minimize diversion potential; (b) for fish-bearing streams, design crossings to facilitate fish passage.				
USFS	WQMH BMP 2.2 - General Guidelines for the Location and Design of Roads	Engineering	Same as above	
	WQMH BMP 2.8 - Stream Crossings	Same as above	Same as above	
Element (3): Ensure that the design of road prism and the road surface drainage is appropriate to the terrain and that road surface design is consistent with the road drainage structures.				
USFS	WQMH BMP 2.2 - General Guidelines for the Location and Design of Roads	Same as above	Same as above	
Element (4): Use suitable materials for surface roads planned for all-weather use to support truck traffic.				
USFS	WQMH BMP 2.3 - Road Construction and Reconstruction	Same as above	Same as above	
Element (5): Design road systems to avoid high erosion or landslide hazard areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.				
USFS	WQMH BMP 1.3 - Determining Surface Erosion Hazard for Timber Harvest Unit Design	Same as above	Same as above	
	WQMH BMP 1.6 - Protecting Unstable Lands	Same as above	Same as above	
	WQMH BMP 2.2 - General Guidelines for the Location and Design of Roads	Same as above	Same as above	
	WQMH BMP 2.13 - Erosion Control Plans	All programs	Same as above	
<b>Management Measure 2B Streamside Management Areas (SMAs)</b>				
Component 1. Establish and maintain a streamside management area along surface waters that is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the waterbody, to provide bank stability, and to withstand wind damage.				
USFS	WQMH BMP 1.8 - Streamside Management Zone Designation	Same as above	Same as above	
	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	Same as above	Same as above	
Component 2. Manage the SMA including flood-prone areas in such a way as to protect against soil disturbance in the SMA and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting.				
USFS	Same Component (1) above, plus	Same as above	Same as above	
	WQMH BMP 7.2 – Conduct Floodplain Hazard Analysis and Evaluation	Same as above	Same as above	

Agency	Authority	Program	Implementation Location	Notes
Component 3. Manage the SMA canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic species habitat.				
USFS	NWFP Aquatic Conservation Strategy Objective 8	All programs	Same as above	
USFS	SNFPA Riparian Conservation Objective 3	Same as above	Same as above	
<b>Management Measure 2C: Road Construction/Reconstruction</b>				
Component (1): Follow preharvest planning (as described under Management Measure A) when constructing or reconstructing the roadway.				
USFS	WQMH BMP 2.3 - Road Construction and Reconstruction	Engineering	Statewide- NFS lands	
Component (2): Follow designs planned under Management Measure A for road surfacing and shaping..				
USFS	Same as Component (1) above	Same as above	Same as above	
Component (3): Install road drainage structures according to designs planned under Management Measure A and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.				
USFS	Same as Component (1) above	Same as above	Same as above	
Component (4): Guard against the production of sediment when installing stream crossings.				
USFS	Same as Component (1) above, plus:	Same as above	Same as above	
	WQMH BMP 2.8 - Stream Crossings	Same as above	Same as above	
Component (5): Protect surface waters from slash and debris material from roadway clearing.				
USFS	WQMH BMP 2.2 - General Guidelines for the Location and Design of Roads	Same as above	Same as above	
	WQMH BMP 2.3 - Road Construction and Reconstruction	Same as above	Same as above	
	WQMH BMP 2.13 - Erosion Control Plan	All programs	Same as above	
Component (6): Use straw bales, silt fences, mulching, or other favorable practices on disturbed soils on cuts, fill, etc.				
USFS	WQMH BMP 2.13 - Erosion Control Plan	Same as above	Same as above	
Component (7): Avoid constructing new roads in SMAs to the extent practicable.				
USFS	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	Same as above	Same as above	
	WQMH BMP 2.1 - General Guidelines for the Location and Design of Roads	Engineering	Same as above	
<b>Management Measure 2D Road Management</b>				
Component (1): Avoid using roads for timber hauling or heavy traffic during wet or thaw periods on roads not designed and constructed for these conditions.				
USFS	WQMH BMP 2.4 - Road Maintenance and Operations	Same as above	Statewide –NFS lands	
Component (2): Evaluate the future needs for a road and close roads that will not be needed. Leave closed roads and drainage channels in a stable condition to withstand storms.				
	WQMH BMP 2.1 – Travel Management Planning and Analysis	Same as above	Same as above	
USFS	WQMH BMP 2.6 - Road Storage	Same as above	Same as above	
	WQMH BMP 2.7 - Road Decommissioning	Engineering, Watershed	Same as above	

Agency	Authority	Programs	Implementation Location	Notes
<b>Component (3): Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.</b>				
USFS	Same as above, plus:	Engineering, Watershed	Statewide- NFS lands	
	WQMH BMP 2.8 - Stream Crossings	Engineering	Same as above	
<b>Component (4): Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.</b>				
USFS	Same as Component (3) above	Same as above	Same as above	
<b>Component (5): Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills where necessary to maintain structural integrity.</b>				
USFS	WQMH BMP 2.4 - Road Maintenance and Operations	Same as above	Same as above	
<b>Component (6): Conduct maintenance activities, such as dust abatement, so that contaminants or pollutants are not introduced into surface waters.</b>				
USFS	Same as Component (5) above	Same as above	Same as above	
<b>Component (7): Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the drainage structures become obstructed.</b>				
USFS	Same as Component (5) above	Same as above	Same as above	
<b>Management Measure 2E Timber Harvesting</b>				
<b>The timber harvesting management measure consists of implementing the following:</b>				
<b>Component 1. General</b>				
<b>Element (1): Timber harvesting operations with skid trails or cable yarding follow layouts determined under Management Measure 2A.</b>				
USFS	WQMH BMP 1.10 – Tractor Skidding Design	Timber	Same as above	
	WQMH BMP 1.11 - Suspended Log Yarding in Timber Harvesting	Same as above	Same as above	
<b>Element (2): Install landing drainage structures to minimize erosion and prevent sedimentation.</b>				
USFS	WQMH BMP 1.16 - Log Landing Erosion Control	Same as above	Same as above	
<b>Element (3): Construct landings away from steep slopes and reduce the likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside SMAs.</b>				
USFS	WQMH BMP 1.5 – Limiting the Operating Period of Timber Sales Activities	Timber, Fuels	Same as above	
	WQMH BMP 1.12 - Log Landing Location	Same as above	Same as above	
	WQMH BMP 5.6 – Soil Moisture Limitations for Tractor Operations	All programs	Same as above	
<b>Element (4): Protect stream channels and significant ephemeral drainages from logging debris and slash material.</b>				
USFS	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	Same as above	Same as above	
	WQMH BMP 1.22 - Slash Treatment in Sensitive Areas	Timber, Fuels	Same as above	
<b>Element (5): Use appropriate areas for petroleum storage, equipment maintenance and service. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.</b>				
USFS	WQMH BMP 2.11 - Equipment Refueling and Servicing	All programs	Same as above	
	WQMH BMP 7.4 - Forest Hazardous Substance Spill Prevention Control and Countermeasures Plan	Same as above	Same as above	
<b>Component 2. For cable yarding:</b>				
<b>Element (1): Limit yarding corridor gouge or soil plowing by properly locating cable yarding landings.</b>				
USFS	WQMH BMP 1.11 - Suspended Log Yarding in Timber Harvesting	Timber	Same as above	
	WQMH BMP 1.14 - Special Erosion-prevention Measures on Disturbed Land	Same as above	Same as above	



Agency	Authority	Programs	Implementation Location	Notes
Element (2): Locate corridors for SMAs following Management Measure 2B.				
USFS	WQMH BMP 1.11 - Suspended Log Yarding in Timber Harvesting	Timber	Statewide- NFS lands	
	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
Component 3. For groundskidding:				
Element (1): Within SMAs, operate groundskidding equipment only at stream crossings. In SMAs, fell and endline trees to avoid sedimentation and damage to residual vegetation.				
USFS	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
	WQMH BMP 1.10 - Tractor Skidding Design	Same as above	Same as above	
Element (2): Use improved stream crossings for skid trails which cross flowing drainages.. Construct skid trails to disperse runoff and with adequate drainage structures.				
USFS	Same as Element (1) above, plus:	Same as above	Same as above	
	WQMH BMP 1.13 - Erosion Prevention and Control Measures During Timber Sales Ops	Same as above	Same as above	
	WQMH BMP 1.17 - Erosion Control on Skid Trails	Same as above	Same as above	
	Timber Sale Administration FSH 2904.15, Chapter 60, 61.42, Streamcourse Protection	Timber, Fuels	Same as above	
Element (3): On steep slopes, use cable systems rather than groundskidding where groundskidding may cause excessive erosion.				
USFS	WQMH BMP 1.9 - Determining Tractor Loggable Ground	Same as above	Same as above	
Management Measure 2F Site Preparation and Forest Regeneration				
Confine on-site potential NPS pollution and erosion resulting from site preparation and the regeneration of forest stands. The components of the management measure for site preparation and regeneration are:				
Component (1): Select a method of site preparation and regeneration suitable for the site conditions.				
USFS	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
	WQMH BMP 1.22 - Slash Treatment in Sensitive Areas	Same as above	Same as above	
Component (2): Conduct mechanical tree planting and ground-disturbing site preparation activities on the contour of sloping terrain.				
USFS	WQMH BMP 5.1 - Soil Disturbing Treatments on the Contour	Timber	Same as above	
Component (3): Do not conduct mechanical site preparation and mechanical tree planting on streamside management areas.				
USFS	WQMH BMP 1.19 - Streamcourse and Aquatic Protection	All programs	Same as above	
Component (4): Protect surface waters from logging debris and slash material.				
USFS	Same as Component (1) above	Timber, Fuels	Same as above	
Component (5): Suspend operations during wet periods.				
USFS	WQMH BMP 1.5 – Limiting the Operating Period of Timber Sales Activities	Same as above	Same as above	
Component (6): Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.				
USFS	Same as Component (1) above	Same as above	Same as above	
Component (7): Conduct bedding operations in high-water-table areas during dry periods of the year. Conduct bedding in sloping areas on the contour.				
	Not Applicable: No bedding operations on NFS lands	Same as above	Same as above	
Component (8): Protect small ephemeral drainages when conducting mechanical tree planting.				
	Not Applicable: No mechanical tree planting on NFS lands	n/a	Same as above	

### Management Measure 2G Fire Management

Prescribe fire for site preparation and control or suppress wildfire in a manner which reduces potential nonpoint source pollution of surface waters.

Component (1): Intense prescribed fire should not cause excessive erosion due to the combined effect of removal of canopy species and the loss of soil-binding ability of subcanopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages, or on very steep slopes.

Agency	Authority	Programs	Implementation Location	Notes
USFS	WQMH BMP 6.1 - Fire and Fire Management Activities	Fire	Statewide- NFS lands	
	WQMH BMP 6.2 - Consideration of Water Quality in Formulating Fire Prescriptions	Same as above	Same as above	
	WQMH BMP 6.3 - Protection of Water Quality from Prescribed Burning Effects	Same as above	Same as above	

Component (2): Prescriptions for prescribed fire should protect against excessive erosion or prevent sedimentation.

USFS	Same as Component (1) above	Same as above	Same as above	
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Component (3): All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques if needed to control excessive sedimentation or erosion of the fireline.

USFS	WQMH BMP 5.1 - Soil Disturbing Treatments on the Contour	Same as above	Same as above	
	WQMH BMP 6.3 - Protection of Water Quality from Prescribed Burning Effects	Same as above	Same as above	
	WQMH BMP 6.5 - Repair or Stabilization of Fire Suppression-related Watershed Damage	Same as above	Same as above	

Component (4): Rehabilitation and salvage logging areas burned by wildfires should be managed to minimize erosion and prevent sedimentation.

USFS	WQMH BMP 6.6-Emergency Rehabilitation of Watersheds Following Wildfires	Same as above	Same as above	
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### Management Measure 2H Revegetation of Disturbed Areas

Reduce erosion and prevent sedimentation by rapid revegetation of areas disturbed by timber operations.

Component (1): Revegetate disturbed areas (using seeding or planting) promptly after completion of earth-disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.

USFS	WQMH BMP 1.13 - Erosion Prevention and Control Measures During Timber Sales Operations	Timber	Same as above	
	WQMH BMP 1.15 - Revegetation of Areas Disturbed by Harvest Activities	Same as above	Same as above	

Component (2): Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region or area.

USFS	Same as Component (1) above	Same as above	Same as above	
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Component (3): Concentrate revegetation efforts initially on priority areas such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

USFS	Same as Component (1) above	Same as above	Same as above	
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### Management Measure 2I Forest Chemical Management

Use chemicals when necessary for forest management in accordance with the following to reduce nonpoint source pollution impacts due to the movement of forest chemicals off-site during and after application:

Component (1): Conduct applications by skilled and licensed applicators according to the registered use, with special consideration given to impacts to nearby surface waters.

USFS	WQMH BMP 5.8 - Pesticide Application According to Label Directions and Applicable Legal Requirements	Range, Fuels, Timber	Same as above	
	WQMH BMP 5.12 - Streamside Wet Area Protection During Pesticide Spraying	Same as above	Same as above	
	WQMH BMP 5.13 - Controlling Pesticide Drift During Spray Application	Same as above	Same as above	

Component (2): Carefully prescribe the type and amount of pesticides appropriate for the insect, fungus, or herbaceous species.

USFS	WQMH BMP 5.7 - Pesticide Use Planning Process	Same as above	Same as above	
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Agency	Authority	Programs	Implementation Location	Notes
Component (3): Prior applications of pesticides and fertilizers, inspect the mixing and loading process and the calibration of equipment, and identify the appropriate weather conditions, the spray area, and buffer areas for surface waters and mixing and loading areas.				
USFS	WQMH BMP 5.7 - Pesticide Use Planning Process	Range, Fuels, Timber	Statewide- NFS lands	
	WQMH BMP 5.12 - Streamside Wet Area Protection During Pesticide Spraying	Same as above	Same as above	
Component (4): Establish and identify buffer areas for surface waters to protect beneficial uses. (This is especially important for aerial applications.)				
USFS	Same as Component (3) above, plus:	Same as above	Same as above	
	WQMH BMP 5.13 - Controlling Pesticide Drift During Spray Application	Same as above	Same as above	
Component (5): Immediately report accidental spills of pesticides or fertilizers into surface waters to the California Office of Emergency Services (Cal/OES). Develop an effective spill contingency plan to contain spills.				
USFS	WQMH BMP 5.10 - Pesticide Spill Contingency Planning	Same as above	Same as above	
	WQMH BMP 7.4 - Forest Hazardous Substance Spill Prevention Control and Countermeasures (SPCC) Plan	Same as above	Same as above	
<b>Management Measure 2J Wetlands Forest</b>				
Plan, operate, and manage normal, ongoing forestry activities (including harvesting, road design and construction, site preparation and regeneration, and chemical management) to adequately protect the aquatic functions of forested wetlands.				
USFS	WQMH BMP 1.4 - Use of Sale Area Maps and/or Project Maps for Designating Water Quality Protection Needs	Timber	Same as above	
	WQMH BMP 1.8 - Streamside Management Zone Designation	All programs	Same as above	
	WQMH BMP1.18 - Meadow Protection During Timber Harvesting	All programs		
	WQMH BMP 1.22 - Slash Treatment in Sensitive Areas	Timber, Fuels	Same as above	
	WQMH BMP 2.1 - General Guidelines for the Location and Design of Roads	Engineering	Same as above	
	WQMH BMP 5.3 - Tractor Operation Limitation in Wetlands and Meadows	Timber, Engineering	Same as above	
	WQMH BMP 5.12 - Streamside Wet Area Protection During Pesticide Spraying	Timber, Range, Fuels	Same as above	
	WQMH BMP 7.3 - Protection of Wetlands	All programs	Same as above	
<b>Management Measure 2K Postharvest Evaluation</b>				
Conduct post-operation evaluation of the effectiveness of the State's forest practices requirements as implemented. The components of this are: a) implementation monitoring to determine if the operation was conducted according to specifications, and b) effectiveness monitoring after at least one winter period to determine if the specified operation prevented or minimized discharges.				
USFS	WQMH BMP 7.6 - Water Quality Monitoring	All Programs	Same as above	
	BMP Evaluation Program	BMPEP	Same as above	
	Baseline Hillslope and In-Channel Monitoring at Watershed Scale		Some national forests	
	Project-Level Monitoring in Watersheds without Baseline Monitoring		Some national forests	
<b>Management Measure 2L Education/Outreach</b>				
Implement educational programs to provide greater understanding of watersheds, and to raise awareness and increase the use of applicable forestry management measures and practices where needed to control and prevent adverse impacts to surface and ground water. Public education, outreach, and training programs should involve applicable user groups and the community.				
[Refer to the Forestry Management Measures 2A – 2K listed in this document.]				

Agency	Authority	Programs	Implementation Location	Notes

## Grazing Management Measures

### Management Measure 1E Grazing Management Measure

Protect range, pasture and other grazing lands:

MM Component (1): By implementing one or more of the following to protect sensitive areas (such as streambanks, wetlands, estuaries, ponds, lake shores, and riparian zones): (a) exclude livestock, (b) provide stream crossings or hardened watering access for drinking, (c) provide alternative drinking water locations away from surface waters, (d) locate salt and additional shade, if needed, away from sensitive areas, or (e) use improved grazing management (e.g., herding) to reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and

Agency	Authority	Programs	Implementation Location	Notes
USFS	WQMH BMP 8.1 - Range Analysis and Planning	Range Mgmt	Statewide- NFS lands	
	WQMH BMP 8.2 - Grazing Permit System	Same as above	Same as above	
	WQMH BMP 8.3 - Rangeland Improvements	Same as above	Same as above	

MM Component (2): By achieving either of the following on all range, pasture, and other grazing lands not addressed under (1) above: (a) implement the range and pasture components of a CMS as defined in the Field Office Technical Guide of the USDA-NRCS by applying the progressive planning approach of the USDA-NRCS to reduce erosion, or (b) maintain range, pasture, and other grazing lands in accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior or the Forest Service of USDA or the California Rangeland Water Quality Management Plan.

USFS	Same as Component (1) above	Same as above	Same as above	
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