

California Regional Water Quality Control Board
North Coast Region

Monitoring and Reporting Program No. R1-2015-0021

For

United States Forest Service

~~Categorical~~ Waiver of Waste Discharge Requirements For
Nonpoint Source Discharges Related to
Certain Federal Land Management Activities
On National Forest System Lands
In the
North Coast Region

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code section 13267(b) and is associated with the Categorical Waiver of Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Federal Land Management Activities on National Forest System Lands Order Number R1-2015-0021 (hereinafter referred to as “the Order” or “Waiver”). The reasons for requiring the Discharger to provide this information, and the evidence supporting this need, can be found in the Waiver. The Regional Water Quality Control Board (Regional Water Board) has delegated its authority to the Regional Water Board Executive Officer (Executive Officer) to revise, modify, and reissue the MRP.

Under the authority of the California Water Code section 13267(b), the Discharger named above is required to comply with the following:

The current United States Forest Service (USFS or National Forest) Best Management Practices Evaluation Program (BMPEP)¹ satisfies some Waiver monitoring elements; however, additional monitoring is required under this Order, both at project specific and forest-wide scales. Monitoring shall be conducted by each National Forest by utilizing a forest-wide watershed approach (see Sections I and II) for some monitoring requirements and a project specific approach for qualifying projects (see Sections III and IV). Range allotments have specific monitoring requirements (see Section V). Summaries of Burned Area Emergency Response (BAER) activities shall be submitted annually (see Section VI) to allow Regional Water Board staff to assess post-fire treatments. Section VII requires tracking of projects and activities aimed at abating existing sediment discharges for TMDL compliance. Reporting requirements are contained in Section IX.

Unless otherwise stated, details regarding criteria and methods for determining sample site location, number of sample sites, sample selection for retrospective hillslope

¹ New National BMP Monitoring Protocols are under development and scheduled for approval sometime in 2016. These draft protocols appear to be an adequate replacement of BMPEP and as such can be used as a replacement of BMPEP following approval.

monitoring, and all other monitoring related items shall be developed by USFS staff in collaboration with Regional Water Board staff prior to initiation of the monitoring program.

USFS Hydrologic Use Code (HUC) Classification System

The USFS uses the Hydrologic Use Code (HUC) classification system for describing watershed boundaries. Watersheds can be described in the HUC classification system in terms of a HUC name, HUC number, HUC code, or HUC field. HUCs are a string of numbers composed of individual two-digit fields. The Etna Creek subwatershed is a relatively small catchment partially located within the Klamath National Forest in Siskiyou County. The Etna Creek subwatershed is a sixth field subwatershed; this means that the HUC number (180102080205) is comprised of six two-digit fields, making it twelve numbers long (HUC 12). An in-channel monitoring location situated in the Etna Creek subwatershed would function as the sixth field monitoring location within the fifth field French Creek-Scott River Watershed.

HUC Name	California Region	Klamath-Northern California Coastal Subregion	Klamath Accounting Unit	Scott Cataloging Unit (or sub-basin)	French Creek-Scott River Watershed	Etna Creek Subwatershed
HUC Number	18	1801	180102	18010208	1801020802	180102080205
HUC Code	HUC2	HUC4	HUC6	HUC8	HUC10	HUC12
HUC Field	First Field	Second Field	Third Field	Fourth Field	Fifth Field	Sixth Field
						

I. Forest-Wide In-Channel Monitoring Network

The purpose of the forest-wide in-channel monitoring network is to help determine whether USFS project management and BMPs collectively are effective in meeting water quality objectives, protecting beneficial uses, and assessing trends in water quality at the watershed scale. BMP effectiveness will be partially assessed by monitoring trends in channel characteristics that affect beneficial uses to determine water quality trends and if standards are being attained.

Establishing an in-channel monitoring network of baseline sampling sites will assist USFS and Regional Water Board staff in evaluating trends and compliance with water quality standards. To the extent possible, in-channel conditions at managed sites may be compared to baseline in-channel conditions at reference sites for areas of similar geology and geomorphology. Reference sites are locations that function as examples of undisturbed or minimally-disturbed conditions and display an absence of significant anthropogenic disturbance or alteration. Reference sites may be sourced from areas

outside a particular National Forest such as a county, state or national park, or an adjacent National Forest.

Where reference sites are not available, management site baseline data will be assessed for positive or negative trends, and compared to values from scientific literature on the desired conditions protective of the most sensitive beneficial use to determine compliance with water quality standards. Management sites are any in-channel monitoring locations that reflect anthropogenic disturbance or alteration.

Forest-wide baseline in-channel monitoring will follow Stream Condition Inventory (SCI) protocols². In some watersheds, suitable response reaches for baseline monitoring may not exist. Appropriate metrics for each watershed will need to be determined based on the particular characteristics of that watershed. The purpose of the Pacific Southwest Region SCI protocols is to collect intensive and repeatable data from stream reaches to document existing stream conditions and make reliable comparisons over time within or between stream reaches. The SCI protocol includes in-channel physical habitat indicators and effective shade and water temperature measurements. Monitoring locations shall be widely distributed in order to characterize the ambient water quality conditions across each National Forest. Alternative approaches that provide the same types of information on long-term channel geomorphic stability, quality of aquatic habitat, riparian shading, and bed substrate may be substituted for SCI protocols with the approval of the Executive Officer. The forest-wide monitoring program shall meet the following conditions:

A. Development of Forest-Wide In-Channel Monitoring Program

1. Each National Forest shall develop and submit a Forest-Wide In-Channel Monitoring Program as part of the Monitoring Plan/Quality Assurance Project Plan (MP/QAPP) approval by the Executive Officer by the date specified in Section IX.C.2. The MP/QAPP shall contain maps and descriptions of the network of in-channel monitoring locations (monitoring network).
2. Monitoring network locations shall be selected by each National Forest with consultation and agreement by USFS Pacific Southwest Regional Office aquatic ecologists, fisheries biologists, soil scientists, and hydrologists in collaboration with Regional Water Board staff.
3. At a minimum, the monitoring network shall contain at least one monitoring network location within each fifth field watershed located primarily on National Forest System (NFS) lands. Monitoring network locations shall be situated in a response reach of a watercourse located in a sixth or seventh field subwatershed located within each of the fifth field watersheds identified as part of the monitoring network. In the event that a National Forest cannot identify suitable

² USDA Forest Service, 2005. Stream Condition Inventory Technical Guide. USDA Forest Service, Pacific Southwest Region – Ecosystem Conservation Staff. Vallejo, CA.

monitoring sites in a particular fifth field watershed, the National Forest shall work with Regional Water Board staff to identify suitable alternative sampling locations. Exceptions for unique situations, such as a very small property holding within a fifth field watershed, may be granted with concurrence by the Executive Officer.

4. Reference sites are locations where beneficial uses are fully supported and exhibit minimally-disturbed conditions. Reference sites shall be selected using State Water Resources Control Board Surface Water Ambient Monitoring Program guidance³ and may include subwatersheds within 303(d) listed waterbodies.

B. Uses of the Forest-Wide In-Channel Monitoring Program

1. Each National Forest shall conduct in-channel monitoring at established monitoring locations within each fifth field watershed at least once every five years and ~~as soon as possible the in-channel monitoring network shall be sampled as soon as practical~~ following major ~~storms-storm events~~ with a precipitation rate greater than the ten-year recurrence interval (RI).
2. Approximately 20 percent of the monitoring network shall be surveyed each year.
3. Each National Forest shall evaluate trends in SCI metrics to assess whether in-channel conditions are staying the same or moving in a positive or negative direction. Additionally, each National Forest shall compare monitoring results from managed monitoring locations to conditions in reference reaches, desired values established in scientific literature, or established thresholds, in order to determine compliance with Basin Plan water quality standards.
4. The RI of the highest precipitation event or runoff event measured during the period between in-channel monitoring surveys shall be reported.
5. Each National Forest shall, in collaboration with Regional Water Board staff, review the in-channel monitoring data assessments and provide feedback in order to prioritize restoration activities and to assess progress towards attainment of water quality standards and Waiver effectiveness.
6. Monitoring network sites may be removed from or added to the sample pool as needed by agreement with the USFS Pacific Southwest Regional Office, the affected National Forest, and Regional Water Board staff.

³ Ode, P., and Schiff, K., 2009. Recommendations for the development of a reference condition management program to support biological assessment of California's wadeable streams. Technical Report 581, State Water Resources Control Board's Surface Water Ambient Monitoring Program, 49pp.

7. Each National Forest shall enter monitoring results into the USFS Aquatic Surveys (AqS) database annually.

II. Road And Trail Patrols And Inspections

A. Travel Analysis and Road Inventories

The Travel Management Rule was adopted in 2005 and requires each National Forest to identify and designate roads, trails, and areas that are open to motor vehicle use. The Travel Management Rule has three subparts: Subpart A - Administration of the Forest Transportation System; Subpart B - Designation of Roads, Trails, and Areas for Motor Vehicle Use; and Subpart C - Use by Over-Snow Vehicles.

Subpart A of the Travel Management Rule requires the National Forests to utilize the Travel Analysis Process (TAP) in order to develop a Travel Analysis Report (TAR)⁴. A function of the TAP is to identify sections of the National Forest Transportation System (NFTS) that are suitable for decommissioning and represents the first step towards the identification of a future minimum road system. The Travel Management Rule requires the TAP be conducted at a forest-wide scale to inform future NEPA decisions that change the NFTS. TARs characterize the existing NFS roads and identify road segments proposed for future decommissioning.

~~The Each~~ National Forests ~~has have been~~ developing ~~ing~~ road inventories, typically by watershed or for each ranger district, in phases over many years. These road inventories are comprehensive assessments of NFTS roads. The National Forests use the road inventories as guidance documents for planning and prioritization of future road work.

1. Each National Forest shall generate TARs at a forest-wide scale.
2. Each National Forest shall maintain and update road inventories.
3. Each National Forest shall track road maintenance and improvement activities pertaining to water quality. At a minimum, the following information shall be tracked:
 - a. the number of watercourse crossings repaired or replaced;
 - b. the number of crossings where diversion potential was corrected;
 - c. total miles of new road construction and road decommissioning;
 - d. total miles of road stormproofed;
 - e. total miles of road hydrologically disconnected; and

⁴ USFS, 2012. *Travel Analysis Process: A Guidebook. Guidance for Region 5 Forests to complete Travel Analysis.* United States Department of Agriculture, 30pp.

e.f. a summary of cubic yards of sediment ~~removed-prevented from being delivered to a watercourse~~ as part of road maintenance, road decommissioning, and construction activities.

B. Storm Patrol for Roads and Trails

Storm patrols are inspections conducted on NFS lands after major storm events. The purpose of the storm patrol is to identify, and to the extent feasible, repair damage to NFS roads and trails infrastructure that threaten to impact water quality. Major storm events are periodic events of intense rainfall or rain-on-snow events that have the potential to cause major damage to NFS roads and trails.

1. Each National Forest shall develop protocols to describe the conditions under which storm patrols are initiated. Storm patrol protocols shall include information on:
 - a. safety precautions for storm patrol inspections;
 - b. procedures for road and trail monitoring;
 - c. definition of triggering events;
 - d. categories of proposed corrective actions; and
 - e. a description of reporting requirements.
2. Each National Forest shall develop protocols for storm patrol inspections after major storm events.
3. Each National Forest shall conduct storm patrols along NFS roads ~~before,~~ during, and after major storms, to the extent allowed by weather, safety, and road conditions.
4. Each National Forest shall prepare reports for each storm or series of storms that triggers a storm patrol.

C. Green-Yellow-Red Trail Monitoring

National Forests with designated Off Highway Vehicle (OHV) trails conduct trail monitoring utilizing the Green-Yellow-Red (GYR) trail condition rating system in order to identify and assess the OHV trail network on NFS lands. GYR ratings are based on the number, length, type, and magnitude of problems identified on segments of OHV trails on NFS lands. GYR Trail Monitoring is performed in order to evaluate existing trail segments, as well as to identify new unauthorized OHV trails, and to prioritize restoration treatments for OHV routes threatening or causing water quality impacts.

1. Each National Forest shall conduct GYR Trail Monitoring to identify OHV trails in need of maintenance and prioritize treatment of red and yellow-designated OHV trail segments. GYR Trail Monitoring shall focus on periods following major storm events.

2. Each National Forest shall monitor treated or maintained red and yellow-designated OHV trail segments at least annually until the condition of the OHV trail segment is reclassified as green. Green or stable OHV trails shall be monitored at least once every three years.
3. Each National Forest shall identify unauthorized OHV trails in order to assess treatment options.

III. Monitoring for All Projects

A. Best Management Practices Monitoring Program

The USFS currently utilizes the BMPEP in California to assess BMP implementation and effectiveness. The USFS is developing new National Core BMP Monitoring Protocols for assessing BMP effectiveness through randomly selected assessments of BMPs at a project scale. Approval of this new program is expected in 2016. The USFS shall continue to use BMPEP until the National Core BMP Monitoring Protocols are approved and replace BMPEP in California. BMP monitoring is performed across all projects conducted by the USFS, including Category A and Category B projects as defined under this Waiver.

1. Each National Forest shall take corrective actions in response to recommendations made in the previous year's BMP monitoring report to address issues related to water quality protection. Annual BMP monitoring reports shall include a summary of implemented corrective actions.
2. Follow-up monitoring shall be conducted for BMP monitoring sites that were not rated as fully effective the previous year. Corrective actions shall be implemented and documented, and a summary of those actions shall be presented in annual BMP monitoring reports.
3. Each National Forest shall enter BMP monitoring results annually into the USFS BMP monitoring data base.

~~B.—Retrospective Hillslope Monitoring of Past Management Activities~~

~~The purpose of retrospective hillslope monitoring of past management activities is to evaluate the effectiveness of BMPs after they have been in place for three to five years. A subset of timber, engineering (road construction and maintenance), and grazing projects completed in the past five years that were rated as effective as part of the initial random BMP monitoring will be selected for retrospective BMP effectiveness evaluations. Retrospective monitoring results will be compared to original BMP effectiveness ratings to determine if BMPs remained effective over a period of years.~~

- ~~1.—Each National Forest shall develop a sample pool of projects annually to evaluate BMP effectiveness. Projects where BMPs were evaluated in the previous three to five years and were rated as effective would be eligible for inclusion in the sample pool. Sites shall be selected randomly from this pool for retrospective BMP effectiveness evaluations.~~
- ~~2.—Retrospective BMP evaluations will follow the standard BMP monitoring protocols. If standard protocols change between the time of the original evaluation and the retrospective evaluation, the current BMP monitoring protocol shall be used.~~
- ~~3.—Results of retrospective monitoring shall be compared to original BMP monitoring effectiveness scores to determine if BMPs remained effective over a period of three to five years.~~
- ~~4.—The RI for the highest rainfall (based on design storm criteria) during the period between the original and retrospective evaluations will be estimated for the rain or snow gage nearest the site of the evaluation. The RI estimates shall be compared to long-term effectiveness in National Forest and Regional BMP monitoring reports.~~

IV. Monitoring for Category B Projects

A. Implementation Monitoring

Implementation monitoring shall be conducted for all Category B projects. The purpose of implementation monitoring is to assess whether the project specific BMPs and on-the-ground prescriptions were fully and properly carried out and are functioning properly. Implementation monitoring is the primary process for early detection of potential water-quality problems.

1. Each National Forest shall develop an implementation monitoring program using the “checklist” approach or may propose an alternative implementation monitoring program subject to review and approval by the Executive Officer.
2. Implementation monitoring checklists shall be developed by USFS project staff (timber, range, recreation, engineering, etc.) for each Category B project.
3. Implementation monitoring checklists shall be developed for all water quality related BMPs and on-the-ground prescriptions.
4. Implementation monitoring checklists shall be submitted with the Category B project enrollment package for Regional Water Board staff review.
5. Implementation monitoring checklists shall be used by USFS project staff during field evaluations of project activities. Checklists shall be reviewed by National

Forest hydrologist(s) to ensure that any deviations from the project BMPs and on-the-ground prescriptions are corrected effectively.

6. Implementation monitoring shall occur during the Normal Operating Season (NOS), following ground-disturbing activities, and prior to the start of the period when Wet Weather Operation (WWO) standards and guidelines are in affect. The NOS and WWO periods are defined by the USFS on a project-by-project basis.

B. Road Projects Effectiveness Monitoring

Road projects effectiveness monitoring assesses whether each new road project (e.g. new road construction or re-construction, crossing and culvert replacements, etc.) and the associated BMPs and on-the-ground prescriptions were effective in protecting water quality after one winter. Effectiveness monitoring may be as simple as conducting a visual inspection of the project site and the BMPs or may require more in-depth assessment of the BMP site and adjacent area. Road project effectiveness monitoring shall be performed after a particular road project/BMP has gone through at least one winter period in order to evaluate how well the project and BMPs functioned during winter rain events and/or spring snowmelt.

1. Each National Forest roads project shall develop an effectiveness monitoring program using the "checklist" approach or may propose an alternative effectiveness monitoring program subject to review and approval by the Executive Officer.
2. Road project effectiveness monitoring checklists shall be developed by USFS project staff for each road project.
3. Road project effectiveness monitoring checklists shall be developed for all water quality related BMPs and on-the-ground prescriptions.
4. Road project effectiveness monitoring checklists shall be submitted with the Category B project enrollment package for Regional Water Board staff review.
5. Road project effectiveness monitoring checklists shall be used by USFS project staff during field evaluations of project activities. Completed checklists shall be reviewed by a National Forest road engineer to ensure that any deviations from the project BMPs and on-the-ground prescriptions are corrected effectively.
6. Road project effectiveness monitoring checklists shall be completed after a BMP or on-the-ground prescription has gone through at least one winter period. If necessary, BMP corrective actions shall be implemented.

V. Grazing Allotment Monitoring

Grazing allotments on NFS lands cover approximately 18 percent of the North Coast Region. In order to characterize current grazing allotment management and the potential effects of livestock grazing on water quality, each National Forest shall develop allotment monitoring plans to assess grazing management compliance, seasonal grazing disturbance levels, and long-term grazing effects including:

- near stream riparian vegetation and streambank conditions;
- wetland/wet areas - physical and vegetative impacts; and
- pathogen indicator bacteria.

Annual allotment monitoring plans, including designation of which allotment to monitor, monitoring sites, and monitoring protocols, shall be developed in coordination with Regional Water Board staff annually. These monitoring plans will describe seasonal, effectiveness and validation monitoring. In choosing which allotments to monitor, priority shall be given to: 1) active allotments proposed for updated environmental analysis of allotment management plans (NEPA sufficiency) within the next one to three years, and 2) active allotments with higher human contact (e.g. contact recreational waters, wilderness areas, etc.). Draft allotment monitoring plans shall be submitted to Regional Water Board staff by March 1 each year for review and approval.

A. Seasonal Monitoring on Streambanks, Riparian Vegetation and Wetlands/Wet Areas

Livestock impacts to streambanks, riparian vegetation, and wetlands/wet areas have the potential to adversely impact water quality. Seasonal monitoring can help determine whether management practices (i.e. authorized grazing permit, allotment management plan, and annual operating instructions) are protecting water quality.

A general assessment of streambank, riparian vegetation, and wetland/wet area conditions in key grazing areas within an allotment serves to describe the potential intensity and spatial distribution of seasonal impacts within active grazing allotments. Key grazing areas are locations within allotments where livestock grazing primarily occurs as opposed to forested uplands that may receive slight to no grazing disturbance.

Annually, each National Forest shall develop allotment monitoring plans to conduct seasonal monitoring on at least three active allotments. Monitoring should include one or more of the following on at least two key grazing areas that include at least one streambank site, one riparian vegetation site and one wetlands/wet area site, in each of the three allotments:

- a. utilization of key herbaceous forage species;
- b. utilization of key woody browse species;
- c. residual stubble height of key herbaceous species;

- d. residual dry matter ground cover of key upland areas;
- e. streambank stability and cover;
- f. accelerated soil erosion;
- g. streambank and wetland/wet area alterations;
- h. establish designated monitoring area (DMA) photo points.

Monitoring protocols will follow U.S. Forest Service accepted, published methods such as those described in the Interagency Technical Reference for Utilization Studies and Residual Measurements (BLM TR 1734-3) and Multiple Indicator Monitoring (BLM TR 1737-23). Alternative monitoring may be proposed to reflect unique characteristics of the National Forest or the allotment/site being considered, subject to Executive Officer concurrence. The Quality Assurance Project Plan (QAPP) may also be used to propose alternative monitoring for the National Forest, subject to Executive Officer approval.

B. Annual Grazing Allotment Inspections

Each year at least ten percent of active allotments on each National Forest shall be inspected for overall permit compliance. It is recognized that the USFS follows standard monitoring protocols and schedules for active grazing allotments, as outlined below, and this allotment monitoring shall continue.

- a. Allotment inspections shall be performed to ensure permittee compliance with annual operating instructions authorized stocking rates, seasons of use, allotment boundaries, and maintenance of structural range improvement terms are within the terms and conditions of grazing permits.
- b. Forage utilization and residual vegetation monitoring described above in V. A. shall be performed at the end of the grazing season, at a minimum, to ensure compliance with authorized grazing standards and other requirements included in the terms and conditions of the grazing permit.

C. Effectiveness Monitoring on Streambanks, Riparian Vegetation and Wetlands/Wet Areas

Effectiveness monitoring determines whether management standards and practices are effective in maintaining or attaining desired conditions of the key grazing areas. Effectiveness monitoring is repeated at 3 to 5 year intervals to determine site conditions and measure trends in conditions over time.

Annually, each National Forest shall monitor three grazing allotments following U.S. Forest Service accepted published methods such as Interagency Technical Reference for Sampling Vegetative Attributes (BLM TR 1734-4) Multiple Indicator Monitoring (BLM TR 1737-23), California Rapid Assessment Method (CRAM), or Stream Condition Inventory (SCI). Effectiveness monitoring should include one or more of

the following at one streambank site, one riparian site, and one wetlands/wet area sites in each of the three allotments per Forest:

- a. riparian greenline composition;
- b. riparian community structure and composition (cross-section transects);
- c. woody species height and age classes (belted transects);
- d. meadow rooted frequency; and
- e. channel morphology (e.g. pool quality metrics, channel cross section, stream bank stability and cover, percent fines, etc.)

Alternative monitoring may be proposed to reflect unique characteristics of the National Forest or the allotment/site being considered, subject to Executive Officer concurrence. The Quality Assurance Project Plan (QAPP) may also be used to propose alternative monitoring for the National Forest, subject to Executive Officer approval.

D. Pathogen Indicator Bacteria Monitoring

The U.S. EPA has recently adopted revised recreational water quality criteria⁵ utilizing *e. coli* indicator bacteria, and the state is moving towards adoption of the same standard using *e. coli* water quality objective for beneficial use protection. *E. coli* is the parameter that shall be monitored, using published or standard sampling and analysis methods. The intent of this monitoring is to provide a benchmark of pathogen indicator bacteria conditions.

Annually, each National Forest shall develop allotment monitoring plans to monitor one key grazing area within one allotment for pathogen indicator bacteria. Preference should be given to selecting one of the allotments selected for monitoring as required above in V. A. Monitoring shall be as follows:

- a. Sample one key grazing area for pathogen indicator bacteria at least five times within a 30 day period, prior to start of annual livestock grazing.
- b. Sample the same location identified in Section V. D. a. for pathogen indicator bacteria five times within a 30 day period, during annual grazing operations when and where livestock are present.
- c. The pre-grazing and during grazing sampling locations shall be the same sampling site, within key grazing areas with flowing water, in order to detect background conditions and potential impacts to water quality from livestock grazing.

Alternative monitoring that provides the same relative assessment of pathogen indicator bacteria water quality conditions may be proposed, subject to Executive Officer approval.

⁵ USEPA Office of Water, 2012. Recreational Water Quality Criteria.
<http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/>

~~V. Grazing Allotment Monitoring~~

~~Grazing allotments on NFS lands cover approximately 18 percent of the North Coast Region. In order to characterize current allotment management and the potential effects of livestock grazing on water quality, each National Forest shall develop allotment monitoring plans to assess:~~

- ~~• near stream riparian vegetation and streambank conditions;~~
- ~~• wetland/wet areas physical and vegetative impacts; and~~
- ~~• pathogen indicator bacteria.~~

~~Annual allotment monitoring plans, including which allotment to monitor, monitoring sites, and monitoring protocols, shall be developed in coordination with Regional Water Board staff. In choosing which allotments to monitor, priority shall be given to: 1) allotments proposed for renewal within the next one to three years, and 2) allotments with higher human contact (e.g. wilderness areas). Draft allotment monitoring plans shall be submitted to Regional Water Board staff by March 1 each year for review and approval.~~

~~A. Streambank, Riparian Vegetation and Wetlands/Wet Area Monitoring~~

~~Livestock impacts to streambanks, riparian vegetation, and wetlands/wet areas have the potential to adversely impact water quality. A general assessment of streambank, riparian vegetation, and wetland/wet area conditions in key grazing areas within an allotment serves to describe the potential intensity and spatial distribution of impacts within grazing allotments. Key grazing areas are locations within allotments where livestock grazing primarily occurs as opposed to forested areas that may receive little grazing pressure.~~

- ~~1. Annually, each National Forest shall develop an allotment monitoring plan to monitor two key grazing areas within one allotment for the following:~~
 - ~~a. streambank stability and cover;~~
 - ~~b. streambank alteration;~~
 - ~~c. accelerated soil erosion;~~
 - ~~d. riparian community structure/composition;~~
 - ~~e. woody species height class;~~
 - ~~f. woody species age class;~~
 - ~~g. woody species use;~~
 - ~~h. greenline composition; and~~
 - ~~i. other (e.g. stream cross sections, pool depth, etc.)~~

~~Monitoring protocols should follow standard, published methods such as Multiple Indicator Monitoring (MIM), California Rapid Assessment Method (GRAM), or SCI. Alternative monitoring may be proposed to reflect unique characteristics of the National Forest or the allotment/site being considered,~~

~~subject to Executive Officer approval. The MP/QAPP may also be used to propose alternative monitoring for the National Forest, subject to Executive Officer approval.~~

- ~~2. Annually, each National Forest shall develop an allotment monitoring plan to monitor two key grazing area wetlands/wet areas within one allotment for the following:
 - ~~a. wetland/wet area stability and trampling;~~
 - ~~b. accelerated soil erosion;~~
 - ~~c. woody species age class;~~
 - ~~d. woody species use;~~
 - ~~e. woody species height class;~~
 - ~~f. vegetation community structure/composition; and~~
 - ~~g. other~~~~

~~Monitoring protocols should follow standard, published methods such as MIM, CRAM, or SCI. Alternative monitoring may be proposed to reflect unique characteristics of the National Forest or the allotment/site being considered, subject to Executive Officer approval. The MP/QAPP may also be used to propose alternative monitoring for the National Forest, subject to Executive Officer approval.~~

~~B. National Core BMP Monitoring Protocols⁶~~

~~The USFS is developing National Core BMP Monitoring Protocols for assessing BMP effectiveness through randomly selected assessments of BMPs at a project scale. These monitoring protocols will be implemented by interdisciplinary teams on a subset of the USFS projects and activities which utilize BMPs. The section of the National Core BMP Monitoring Protocols specific to rangeland management activities will be used to assess the BMPs employed to protect water, aquatic, and riparian resources during grazing and livestock management activities on USFS grazing allotments.~~

~~The National Core BMP Monitoring Protocols will be conducted each year on a subset of grazing allotments on NFS lands in the North Coast Region. The monitoring protocols for grazing management are to be conducted on the area of highest livestock utilization within a grazing allotment selected in accordance with the monitoring protocols. The area to be monitored is selected to best represent livestock grazing activities and conditions in and adjacent to riparian and aquatic habitats.~~

- ~~1. Annually, each National Forest in the North Coast Region shall implement the National Core BMP Monitoring Protocols on at least one grazing allotment.~~

⁶~~New National BMP Monitoring Protocols are under development and scheduled for approval sometime in 2016. <http://www.fs.fed.us/biology/watershed/BMP.html>~~

~~Grazing allotments shall be selected in accordance with the monitoring protocols and in collaboration with Regional Water Board staff.~~

~~C.—Pathogen Indicator Bacteria Monitoring~~

~~The U.S. EPA has recently adopted revised recreational water quality criteria⁷ utilizing *e.coli* indicator bacteria, and the state is moving towards adoption of the same standard using *e.coli* water quality objective for beneficial use protection. *E. coli* is the parameter that shall be monitored, using published or standard sampling and analysis methods. The intent of this monitoring is to provide a benchmark of pathogen indicator bacteria conditions.~~

~~Annually, each National Forest shall develop an allotment monitoring plan to monitor one key grazing area within one allotment. Preference should be given to selecting the same allotment selected for the monitoring as required in above Section V.A. Monitoring shall be as follows:~~

- ~~1.—Sample one key grazing area for pathogen indicator bacteria at least five times within a 30 day period, prior to annual livestock grazing.~~
- ~~2.—Sample the same location identified in Section V.C.1 for pathogen indicator bacteria five times within a 30 day period, during annual grazing operations when and where livestock are present.~~
- ~~3.—The pre-grazing and during grazing sampling locations shall be the same sampling site, within key grazing areas with flowing water in order to detect background conditions and potential impacts to water quality from livestock grazing.~~

~~Alternative monitoring that provides the same relative assessment may be proposed, subject to Executive Officer approval.~~

~~D.—Grazing Allotment Inspections~~

~~It is recognized that the USFS follows standard monitoring protocols and schedules for grazing allotments, as outlined below, and this allotment monitoring shall continue.~~

- ~~1.—Inspections of allotment condition and trend shall be performed once every five years on selected allotments in key areas to track the ecological trend of upland and meadow vegetation. Inspections shall include monitoring of rooted frequency, riparian greenline width, and streambank stability.~~

⁷USEPA Office of Water., 2012. Recreational Water Quality Criteria.
<http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/>

- ~~2.—Allotment inspections shall be performed to ensure stocking rates, season of use, allotment boundaries, and range improvement terms are within the terms and conditions of grazing permits.~~
- ~~3.—Utilization monitoring shall be performed at the end of the grazing season, at a minimum, to ensure compliance with forage utilization limits and other requirements included in the terms and conditions of the grazing permit.~~

VI. Post-Fire Monitoring

BAER is a USFS program initiated after a wildfire to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property. Another goal of BAER assessments is to stabilize and avoid or minimize unacceptable degradation to natural and cultural resources resulting from the effects of the wildfire. Such treatments are identified in an approved BAER report and funded under the BAER funding authority. Submittal of approved BAER reports is required in accordance with Section IX.A.5.a.

VII. Tracking Sediment TMDL Compliance

Many waterbodies throughout the North Coast Region are listed under section 303(d) of the Federal Clean Water Act as impaired for sediment. In addition, many of these watersheds have established sediment TMDLs.

1. Each National Forest shall track projects and activities designed to abate existing and threatened sediment discharges in order to track progress in remediating existing sediment inputs on NFS lands. Tracking shall include:
 - a. the project name and location, including the fifth field watershed name;
 - b. the type of project;
 - c. an estimate of volume of sediment remediated in cubic yards; and
 - d. other relevant information to characterize and quantify the remediation of existing and threatened sediment discharges.

VIII. Klamath National Forest

The Klamath National Forest (KNF), in collaboration with the Regional Water Board, developed a sediment and water temperature monitoring plan, the Klamath National Forest Sediment and Temperature Monitoring Plan and QAPP (KNF MP/QAPP). The KNF MP/QAPP covers the portions of the KNF in the Salmon, Scott, Shasta, and Klamath River watersheds.

A. Existing KNF Monitoring Program

1. The monitoring program outlined in KNF MP/QAPP shall be used to satisfy Waiver monitoring and reporting requirements relating to the forest-wide in-channel monitoring and BMP monitoring sections outlined in this MRP.

2. Additional monitoring beyond the protocol outlined in the KNF MP/QAPP may be required on a case-by-case basis by the Executive Officer.
3. Implementation and road projects effectiveness monitoring as described in Section IV.A and IV.B as well as grazing allotment monitoring described in Section V of this MRP shall be amended into the protocol outlined in the KNF MP/QAPP.

B. Additional Monitoring and Reporting Requirements

1. KNF shall incorporate into the annual report the requirements of this MRP as they pertain to Road and Trail Patrols and Inspections (Section II), Monitoring for All Projects (Section III), Monitoring for Category B Projects (Section IV) and Grazing Allotment Monitoring (Section V), Post-Fire Monitoring (Section VI), and Tracking Sediment TMDL Compliance (Section VII).

IX. Reporting

Each National Forest shall prepare an annual report which presents and discusses the results of the various monitoring efforts required pursuant to this Order, and as specified below. The annual reports shall be submitted by July 15 of each year. In addition, each National Forest shall prepare a five-year summary report. This five-year report shall summarize and discuss the previous four years of monitoring required in the annual reports.

A. Annual Reports

Annual reports shall contain sufficient information that Regional Water Board staff can clearly identify the types of monitoring that was conducted throughout the project area including key results, findings, problems encountered, and corrective actions taken. Annual reports shall summarize the types of monitoring conducted at each location, including a reference to the required monitoring section.

Each National Forest shall maintain findings and analysis of the collected data, and shall furnish copies of raw monitoring data upon request.

Each National Forest shall summarize any information pertinent to corrective actions that have been or need to be taken to ensure adequate water quality protection.

Regional Water Board staff will review the annual reports from each National Forest and provide comments as necessary. Comments will be discussed with each National Forest, and any agreed-to changes shall be incorporated into the following year's monitoring activities. The following shall be reported in each annual report and the five-year report:

1. Forest-wide In-Channel Monitoring Network Reporting
 - a. A summary of in-channel monitoring activities from the previous calendar year. At a minimum, this summary report shall include:
 - i. the number of in-channel monitoring sites assessed by each National Forest per year;
 - ii. a map of the sampling locations; and
 - iii. a brief discussion of any significant changes to sampling locations if appropriate.
 - b. Monitoring data entered into the USFS AqS database (or equivalent database) shall be made available to Regional Water Board staff upon request.
 - c. Each National Forest shall submit all data collected under the forest-wide in-channel monitoring network to the State Water Resources Control Board or Regional Water Board during the data solicitation period for the Integrated Report in accordance with the requirements of the data solicitation letter for each Integrated Report cycle.
 - d. The USFS shall continue to work with State Water Board and Regional Water Board staff on creating a framework for in-channel monitoring data to be transferred from the USFS AqS database or the National Water Quality Portal to the California Environmental Data Exchange Network (CEDEN) database.

2. Road and Trails Reporting
 - a. Each National Forest shall include copies of TARs completed over a particular year as an appendix to the annual report.
 - b. Each National Forest shall submit electronic copies of existing, revised, and new road inventories to the Regional Water Board.
 - c. Each National Forest shall include a summary of road maintenance and improvement activities pertaining to water quality in each annual report. At a minimum, the summary report shall include:
 - i. the number of watercourse crossings repaired or replaced;
 - ii. the number of crossings where diversion potential was corrected;
 - iii. total miles of new road construction and decommissioning;
 - iv. total miles of road stormproofed;
 - ~~iv.v.~~ v. total miles of road hydrologically disconnected; and
 - ~~v.vi.~~ vi. a summary of cubic yards of sediment ~~removed-prevented from~~ delivery to a watercourse as part of road maintenance, road decommissioning, and construction activities.
 - d. Road maintenance activities shall be summarized by sub-basin (fourth field watershed).
 - e. Storm Patrol summary reports will be posted to the USFS water quality web site and made available to the Regional Water Board upon request.
 - f. Each National Forest shall submit GYR Trail Condition Monitoring summary reports as part of the annual report. GYR summary reports shall detail actions related to OHV trail monitoring, construction and maintenance.

3. Category B Projects Reporting

- a. Field data sheets, including completed implementation and effectiveness checklists, and any other relevant information related to monitoring such as, but not limited to, any water quality sample results will be made available to the Regional Water Board upon request.
 - b. A summary of BMP implementation and effectiveness monitoring including a description of any problems encountered and the solutions for addressing the problems.
 4. Grazing Allotment Reporting
 - a. Monitoring results from sections V.A, V.B and V.C under Grazing Allotment Monitoring shall be incorporated into the annual report submitted to the Regional Water Board.
 - b. Monitoring results from section V.D shall be made available to the Regional Water Board upon request.
 - c. Each National Forest shall submit all data collected under this program to the State Water Resources Control Board or Regional Water Board during the data solicitation period for the Integrated Report in accordance with the requirements of the data solicitation letter for each Integrated Report cycle.
 - d. Each National Forest shall submit a draft allotment monitoring plan to Regional Water Board staff by March 1 each year for review and approval.
 5. BAER Reporting
 - a. Each National Forest shall include as an appendix to their annual report any BAER reports generated during the previous year.
 6. Sediment TMDL Compliance Reporting
 - a. Each National Forest shall include in their annual report the tracking information required in Section VII. 1. above and a summary of that information.
- B. Five-year Summary Report
1. By no later than April 15, 2020 (note: this is approximately six months prior to the expiration of Order R1-2015-0021), each National Forest shall prepare and submit a detailed report summarizing the results of the various monitoring requirements over the monitoring period. Retrospective assessment of in-channel monitoring results, progress on implementation of various USFS programs described in the MRP, and summaries of grazing allotment monitoring are examples of reporting requirements to be summarized in the Five-year Summary Report.
 2. Report content and details will be developed in consultation with Regional Water Board staff such that this report can be utilized to evaluate compliance with the Waiver, progress related to TMDL implementation, and to inform the Regional Water Board of any potential Waiver revisions.

C. Quality Assurance Project Plan

Each National Forest is engaged in a variety of activities and projects. The type of monitoring appropriate for each project will vary according to the activities associated with each project. Therefore, it is necessary for each National Forest to prepare and submit a MP/QAPP prior to the initiation of any monitoring activities related to the forest-wide in-channel monitoring network and pathogen indicator bacteria sampling.

1. Each National Forest shall develop, in consultation with Regional Water Board staff, a comprehensive MP/QAPP for the monitoring and reporting activities to be implemented.
2. The MP/QAPP shall be submitted to the Regional Water Board for Executive Officer Approval by July 15, 2016, and implemented by March 15, 2017.
3. The MP/QAPP shall address all in-channel monitoring activities. At a minimum, the MP/QAPP shall include:
 - a. standard procedures for the establishment of repeatable sampling locations;
 - b. standard operating procedures for each field method and piece of field equipment used;
 - c. standard operating procedures for each laboratory method and piece of laboratory equipment used;
 - d. standard reporting procedures;
 - e. measures for quality assurance associated with monitoring and reporting procedures;
 - f. measures for quality control associated with monitoring and reporting procedures;
 - g. a training program for personnel conducting monitoring activities; and
 - h. measures for adapting the MP/QAPP, when necessary.
4. The USFS may propose to use an existing QAPP for these monitoring requirements as long as it addresses the above list of elements.
5. Following implementation of the approved MP/QAPP, the USFS may propose changes to the procedures and control measures specified in the MP/QAPP, in consultation with Regional Water Board staff. Following approval of changes to the MP/QAPP, the USFS shall document such changes and implement the new procedures and control measures immediately.

X. Request for Extensions

Requests for extensions to required time lines specified within this Monitoring and Reporting Program shall be submitted in writing at least ten working days prior to the due date. Requests for extensions must provide a reason or reasons for the request. Approval of any request for an extension of time to comply with required deadlines is

subject to the approval of the Executive Officer. If written approval is not received, it should not be assumed that the due dates are extended indefinitely or have been approved. The USFS shall be accountable for all due dates set out in this Plan in the absence of written approval from the Executive Officer.

Ordered by: _____
Matthias St. John
Executive Officer

Date: October 8, 2015

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