

**FSH 2509.22 – SOIL AND WATER CONSERVATION HANDBOOK
CHAPTER 10 – WATER QUALITY MANAGEMENT FOR
NATIONAL FOREST SYSTEM LANDS IN ALASKA**

Officer is responsible for designating a project supervisor who is responsible for ensuring that the prescription is followed during application and for terminating application if the standards are exceeded. Technical staff familiar with pesticide monitoring will evaluate and interpret monitoring data in terms of compliance with State Water Quality Standards and the adequacy of project specifications.

4. REFERENCES. FSM 2526, 2527, 2245, 2150 and R-10 Supplement to 2100.

16 - RECREATION MANAGEMENT

Recreation on National Forest System lands falls into two general categories: developed and dispersed. Developed recreation is the term used to describe recreation areas that have been designed and built to provide some facilities to the user, such as campgrounds and picnic areas where tables, fireplaces, and toilets, have been provided. Recreational residences, boat ramps, cabins, resorts, and ski areas, are also considered developed recreation sites.

Dispersed recreation is outdoor recreation occurring outside of sites developed or managed for concentrated recreation use. Facilities are required to safeguard visitors, protect resources, enhance the quality of visitor experiences, and disperse users. Dispersed recreation includes the table-under-the-tree type of facility, toilets in otherwise undeveloped sites, trailheads, and trails.

Many developed and dispersed recreation activities are concentrated within or adjacent to streams, lakes, riparian areas, and wetlands. For example, high intensity sportfishing has the potential to severely impact streambanks and adjacent riparian areas. User related impacts could include: trampling of existing vegetation, soil compaction (and hence loss of plant viability), and physical damage to streambanks. Damaged and exposed streambanks are susceptible to accelerated erosion. This accelerated erosion generally leads to increased stream sediment loads, widening and shallowing of the channel bed, and reduction in stream substrate size where the erosion is occurring. Fish habitat and migration can be adversely affected, as well as riparian habitat along the shore. Riparian buffers are considered when planning and managing recreation activities within riparian areas (see BMPs 12.6 and 12.6a).

16.1 – PRACTICE: Recreation Facilities Planning and Location

1. OBJECTIVE. To protect soil and water resources through appropriate planning, design and location of recreational facilities.
2. EXPLANATION. This is an administrative and preventive practice. Recreation facilities may include developed sites and special-use facilities. Developed recreation facilities can create significant water quality degradation from erosion, sewage, sedimentation, and aquatic habitat trampling if not properly located, designed, and maintained.

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Dispersed recreation activities can cause considerable damage to soil and water resources, depending on the site and the volume of traffic. Wetlands, meadows, and stream banks are particularly susceptible to damage from foot traffic and need special attention when constructing trails, campsites, and cabin sites. Trails are also susceptible to erosion from runoff that increases when hikers make shortcuts off the main trail (See BMP 16.4).

3. IMPLEMENTATION. Individual site plans are prepared for each facility. An IDT identifies potential impacts to water quality and soil hazards for the site development plans as part of the NEPA process. Mitigation measures needed to protect soil and water resources to meet State water quality standards will be included in the planning process (see BMP 14.25).

- a. Pamphlets, brochures, and other material will be used to encourage public cooperation in protecting water quality. Forest Officers can issue citations to violators who cause resource damage.
- b. Where practicable, locate recreation facilities 100 feet from perennial streams and other water-bodies.
- c. The design, construction and maintenance of recreational facilities will be consistent with standard engineering practices to minimize adverse impacts to the soil and water resources (see BMP 14.29).
- d. For contracted projects, compliance with both environmental analysis requirements and contract specifications must be assured by the Contracting Officer.
- e. Erosion control measures will be implemented to mitigate unacceptable disturbance (see BMP 12.12).

4. REFERENCES. FSM 2332 and 2333. State of Alaska (18 AAC 72) Waste Water Regulations.

16.4 – PRACTICE: Trail Construction and Maintenance

1. OBJECTIVE. To minimize soil erosion and water quality problems originating from trails and their drainage structures.

2. EXPLANATION. This is an administrative and preventive practice. Trails often have erosion problems due to poor location, site condition, improper maintenance, and heavy or improper use. These impacts can be minimized by using standard engineering practices (see BMP 14) that include location, construction, maintenance, restriction of use, relocation, and so forth. A variety of techniques can be used to harden trails and campsites in wet areas, and to reduce erosion on hillslopes. Techniques include:

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- a. Turnpiking - involves ditching along the uphill side of the trail or campsite on a sideslope, or ditching both sides of the trail or campsite on the flats to keep water from seeping underneath an area. Native logs or rock are generally placed along the shoulder of the turnpike station.
 - b. Surface or subsurface puncheon - utilizes split cedar planks placed on poles resting on the ground. Cedar or hemlock is best for subsurface puncheon that is then covered with a layer of gravel or wood chips. Subsurface puncheon depends on water saturation for preservation.
 - c. Overlay on filter fabric - gravel or chips may be overlaid onto wetlands on top of a geotextile filter fabric. This technique can provide a hard, well-drained surface across wetlands.
 - d. Boardwalks - timber boardwalks built on piers or pilings or directly on sills set on the ground are particularly effective for crossing wet areas or standing water. Treated timber reduces decay, but chemically treated piers can cause water quality pollution in open surface waters; therefore, concrete, rock, steel, fiberglass/plastic or naturally durable wood piers should be considered.
 - e. Water bars - trails can often become drainageways, causing serious erosion of the trail. Waterbars divert water off the trail at frequent intervals to reduce the volume and velocity of runoff that greatly reduces trail erosion.
 - f. Railings - Railings help keep hikers from shortcutting down erosive hillslopes or across wetlands and other sensitive areas.
 - g. Public Education/Interpretation - signing and/or pamphlets can be a useful technique for focusing hiking and camping use into hardened areas and away from sensitive/erosive areas.
3. **IMPLEMENTATION.** Each District will develop a trail maintenance plan that determines level, timing, and frequency of maintenance. Criteria are developed by the IDT during the NEPA process and incorporated in the project by recreation, engineering, and other appropriate specialists. The need for closures will be identified through Forest Transportation Planning. The Forest Supervisor signs closure orders under the CFRs.
4. **REFERENCES.** FSH 7709.56b and 2309.18. Standard specifications for construction of trails EM 7720-102 (1984). Alaska Region Trails Construction and Maintenance Guide, 10-91 (R10-MB-158).

16.5 – PRACTICE: Management of Off-Highway Vehicle Use

1. **OBJECTIVE.** To control Off-Highway Vehicle (OHV) use which is causing soil erosion and adverse effects on water quality and to identify corrective measures.

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2. EXPLANATION. The resource characteristics of an area are considered when making a determination of suitability for OHV use. The decision of whether or not this type of use is permissible is documented in the Road Management Objective (RMO) approved by the District Ranger. Areas or trails where OHV use is causing degradation of water quality or soil erosion are identified. The success of the RMO is determined through monitoring and evaluation. If degradation or erosion is not within acceptable limits, the RMO is reconsidered, and OHV use may be changed.

3. IMPLEMENTATION. Monitoring results will be evaluated against Water Quality Criteria. If adverse effects are occurring or are likely to occur, corrective action will be taken. Corrective actions may include, but are not limited to; redistribution in the amount of ORV use, development of a Travel Plan, signing or barriers to redistribute use, partial closing of areas, rotation of use on other areas, closure to vehicle types causing the damage or total closure, and structural solutions such as culverts and bridges. Closure is by an order signed by the Forest Supervisor.

4. REFERENCES. E.O. 11644, Use of Off-Road Vehicles on the Public Lands, and E.O. 11989, Off-Road Vehicles on Public Lands; 36 CFR 295.5; FSM 2352, 2355, and 7730.

17 - MINERALS MANAGEMENT

Minerals (including oil, gas, and geothermal resources) exploration and development activities on National Forest System lands fall into 3 categories: Locatable, Leasable, and Saleable.

1. Locatable. The General Mining Law of 1872, as amended, governs the prospecting for and the appropriation of metallic and most non-metallic minerals with a distinct and special value on National Forest System lands that were reserved from the public domain. This applies to most hard rock and placer mineral deposits.

Instruments that analyze and approve locatable mining activities which could affect water quality on National Forest System lands are Notice of Intent to Operate, Plan of Operations, Environmental Analysis, Special-Use Permit(s), Road-Use Permits and State and/or other Federal agency permits and certification (36 CFR 228, Subpart A and FSM 2810).

A Notice of Intent to Operate is required to conduct mining-related activities which may cause disturbance of surface resources on National Forest System lands. The proposed operations described in the Notice must be evaluated and the operator informed that either the operation is exempt from the requirement for a Plan of Operations, or that one is required. If it is determined that significant disturbance of surface resources will likely result from the proposed operations, the operator must submit a Plan of Operations to the District Ranger.

A written Plan of Operations is required from all operators who will likely cause a significant disturbance of surface resources. Prior to approval of the plan, the operator may be required to furnish a bond in the form of a surety or other security to perform reclamation work. All hazardous materials to be used should be listed in the Plan of Operations which shall be submitted to the Forest Service for review and analysis.