Gravel Removal from Streams

Division of Water

Background

Reports of excessive gravel removal from Kentucky streams have prompted the Kentucky Division of Water (DOW) to reiterate creek gravel extraction guidelines to minimize impacts on the physical, chemical, and biological characteristics of the waterway. Creek gravel is used by road departments, construction companies, and private landowners in a variety of ways. The size, shape, hardness, and chemical composition of stream gravel make the gravel ideal for use in concrete.

Harm to Streams

However, when gravel is removed from the stream channel in an environmentally unsound manner, the disturbance to the stream bed and banks can degrade the stream channel, water quality, and aquatic life. Gravel removal causes the stream bed and banks to become unstable, sometimes for miles upstream and downstream. The resulting head cuts (abrupt vertical drops) and bank failures impact farmlands, wetlands, recreational areas, and infrastructure.

Contrary to popular belief, removing gravel bars does not help control floodwater. Removal of material from the streambed will damage riffles, pools and vegetation that reduce the speed of flowing water. Dredging removes this natural structure, replacing it with a uniform stream bottom that does not slow the flow of water, again increasing erosion. A wider channel will slow the movement of water so the stream is unable to move sediment. Gravel and sand will be deposited in the widened channel, filling the waterway and forcing water outside the stream's banks.

Since gravel provides a natural filtering system, it's removal increases the volume of sediment in the water. The resulting cloudy or turbid water, harms fish by clogging their gills, reducing the oxygen in the water and impairing feeding and egg development.

Permitting

The excavation, removal, and sale of gravel requires a permit from the Department of Natural Resources, Division of Mine Reclamation and Enforcement, Non-Coal, and/or Explosives & Blasting Branch. In most cases, the Kentucky Division of Water does not issue permits for excavation and removal of gravel in streams. However, various permits may be required in certain circumstances. Activities that disturb one acre or more or that involve significant contribution of pollutants to Waters of the Commonwealth require coverage under the KYR10 General Stormwater Construction Permit. The construction activities refer to the actual earth disturbing construction activities (e.g. gravel excavation). For more information visit bit.ly/WWPERMITS. A Clean Water Act Section 404 Dredge and Fill Permit may be required from the U.S. Army Corps of Engineers and a corresponding Water Quality Certification from the DOW. For more information visit bit.ly/401PERMITS or email 401WQC@ky.gov.

- Even if a permit is not required, specific guidelines, as noted below, should be used to obtain gravel from stream channels in a manner that minimizes impacts to the resource.
- For gravel removal permits, please contact Department of Natural Resources at 502-564-6940.
- For questions or more information about if specific activities may be subject to a Division of Water permit or enforcement action, contact the Division of Water at 502-654-3410, or *water@ky.gov.*

Potential Violation of Water Quality Standards

It should be noted that instream activities that significantly increase sedimentation or alter stream flow are violations of state water quality standards and may be subject to enforcement action.

Additionally, stockpiling of excavated material in the floodplain will require the acquisition of a floodplain permit from DOW.

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Guidelines for Creek Gravel Excavation to Minimize Harm to the Stream

- Before conducting gravel removal activities, determine whether the stream is designated as an Outstanding State Resource Water (OSRW), Outstanding National Resource Water (ONRW), Kentucky Wild River, High-Quality Water, or is listed as an impaired water. Additional state and federal requirements, including anti-degradation review or other protective measures, may apply. Coordinate with the Division of Water before conducting work in these waters.
- Avoid using vehicles and heavy equipment in the water. If you must cross the stream, drive vehicles at right angles to stream flow. Perform work from the bank of the stream, avoiding use of vehicles in the stream channel. When it is not possible to access the work area from land, additional authorizations may be required.
- Excavate only once per year during low-flow periods of late summer or fall, avoiding the fish spawning season of April 15 to June 15.
- Excavate gravel by using backhoes and front-end loaders to scoop and lift the material and place it outside of the stream channel.
- Keep fuel, oil and other wastes out of the stream.
- Avoid channel straightening or packing sand and gravel on eroding stream banks.
- Do not remove gravel from riffles (shoals) because they prevent erosion of the stream bed. Riffles are very important to stream stability and are a major source of food and oxygen for aquatic life.
- Avoid washing sand or gravel in the stream channel to avoid polluting the water with sediment. If you must wash sand or gravel, use a settling basin and wash your material outside of the stream.
- Restrict excavation to the top 12 inches of gravel bars outside of the stream flow.
- Maintain a buffer of 10 feet between the shoreline and the work area and minimize vegetation loss. Vegetation holds gravel and soil, keeping bars and banks in place. To protect water quality, stream stability, and aquatic habitat, wider riparian buffers should be maintained for High Quality Waters, OSRW, Kentucky Wild Rivers, and other environmentally sensitive waters.
- Gravel removed from the channel or floodway should be placed sufficiently upland/landward outside of the floodplain enough to prevent the runoff from re-entering streams and/or wetlands.
- The temporary or permanent disposal and/or side-casting of removed material into wetlands, stream tributaries, side ditches, or other surface water is not allowed under one-step removal and would require appropriate state and federal authorizations before the work is done.
- All disturbed areas outside the stream channel should be graded and restored to original conditions, reseeded or replanted with native riparian species and mulched in order to prevent erosion and sedimentation.

