

# BEST MANAGEMENT PRACTICES FOR INSTREAM AND STREAMSIDE ALTERATIONS

## PURPOSE

Development of best management practices (BMPs) for instream and streamside alterations is intended to establish guidelines for project proponents in order to successfully complete stream alteration projects while at the same time minimizing adverse impacts to the stream itself. It is not intended to be an exhaustive presentation of BMPs, but addresses some BMP methods relevant to common stream alteration projects throughout Utah.

It should be noted that many of the BMPs presented are typically required on stream alteration permits. It is the hope of the Division of Water Rights that by presenting this information and having it successfully implemented by project proponents that noncompliance with stream alteration permit conditions will be minimized.

## GENERAL BMPs

Although many general BMP methods are simply application of common sense, those individuals working in and around streams may not be aware of the potential impacts that may result from their actions. An understanding and adherence to general BMPs during activities adjacent to and within natural streams will minimize impacts to the natural stream environment.

### Ingress and Egress to Streams and Riparian Areas

When working in or adjacent to natural streams, heavy equipment egress and ingress should be kept to a minimum. The more frequent vehicles must cross a natural stream, the greater the potential for disturbing soils (compaction and erosion), damaging aquatic wildlife and riparian vegetation, and contaminating water. Project proponents should devise strategies for minimizing stream channel ingress and egress prior to initiating stream alteration activities. Some questions to ask when developing these strategies include:

- Can access to the site be gained through utilization of existing roadways or bridges rather than moving equipment through riparian areas and across active flowing water?

- Can the project be accomplished during a period of low or no flow to avoid potential impacts to water quality or aquatic wildlife?
- Can staging areas be located as to require less frequent entry into stream and riparian areas?
- Will mitigation for damage associated with frequent ingress and egress be successful or sufficient?
- Where will refueling of machinery take place?

When applying for a stream alteration permit, project proponents should be prepared to demonstrate that all efforts to avoid frequent entry into riparian and channel areas will be minimized.

Many stream alteration activities involve work along the banks of a natural stream (e.g. bank

stabilization, outfall structure installation, etc.). In these situations, all efforts should be made to conduct work from outside the channel area. In planning stream alteration activities make sure to utilize equipment that can conduct the work without entering flowing water and, if at all possible, riparian area. For example, a larger trackhoe may allow for stream bank grading without entering channel areas as opposed to a small bobcat.

### Cleaning and Maintenance of Equipment

Prior to entering riparian and channel areas to conduct stream alteration activities it is extremely important to clean and ensure machinery is functioning properly. Equipment brought in from areas outside riparian areas may be contaminated depending on the location of their last mobilization. Sources of contamination could include oil, joint coating, noxious weeds/seeds, or even disease. Properly cleaning the equipment will ensure minimization of contamination to aquatic resources. Furthermore, heavy equipment such as backhoes or trackhoes frequently leak fluid. It is important to confirm that equipment is in good repair prior to entering riparian and channel areas. This will also minimize the potential need to exit and re-enter sensitive riparian and channel areas during stream work.

When working in natural streams that may contain infectious agents (whirling disease and chytrid fungus) to fisheries. All equipment should be cleaned of mud and debris and thoroughly disinfected prior to moving on and off site.

### Conducting Work During Periods of Low Flow

When a project involves conducting instream work, it is usually recommended that the work be conducted during a period of low or preferably no flow (if ephemeral or intermittent conditions exist). This will minimize the possibility of causing excessive downstream

turbidity in the channel. Limiting turbidity is extremely important for streams that contain diversions for culinary or agricultural purposes or contain sensitive fish species.

When planning stream alteration activities, make sure to consider the time of year the work will be conducted. In general, instream work should not be conducted during spring runoff (typically late April through June) and be aware of monsoonal weather during the late summer if the work occurs in the southern portions of Utah.

### Conducting Work in Fisheries

Many of Utah's streams contain native or introduced fish species. These species are an important resource to the citizens of the state, and it is important to ensure that stream alteration projects will have minimal effects. When planning stream alteration activities in sensitive fisheries consider the following:

- Will the proposed work have an adverse effect to the fishery?
- What are spawning periods for species within the fishery?

Because fishery characteristics vary widely throughout the state, project proponents are encouraged to conduct a little research prior to developing detailed plans. By doing so, costly delays or unnecessary mobilizations may be avoided if stream alteration permit conditions do not allow work during spawning periods. Utah Division of Wildlife personnel may be able to assist in determining how best and when to conduct instream work in order to minimize impacts to fisheries.

### Working with Cement

Stream alteration projects that involve utilization of cement (bridge abutments, pour-in-place box culverts, etc.) must be conducted without letting wet cement enter stream flow. Wet cement in flowing water can be toxic to aquatic wildlife and its introduction to waters of the United States is a violation of the Clean Water Act.

Extreme care must be taken to prevent flowing water from coming in contact with cement until it has set and equipment used for pouring concrete must be cleaned well outside of riparian and channel areas.

In order to isolate wet cement from flowing water it may be necessary to construct temporary cofferdams or install temporary culverts. In some cases, pumping contaminated water away from the channel to an isolated area may be required.

### **Imported Fill Material**

Often, stream alteration projects require fill material to be brought in from outside sources. However, it is not uncommon for project proponents to import fill material that may be contaminated with pollutants or noxious weeds and seeds. Obviously, contaminated fill will have a detrimental impact to the natural stream environment, so be conscientious of the source of imported fill material.