



Habitat Restoration

SALMONID HABITAT RESTORATION | Fact Sheet

The term “habitat restoration” covers a range of actions that create, or re-create, stream features critical to a healthy environment and fish population. Successful restoration projects are long-term, and meant to bridge the gap between a spoiled habitat and nature taking its course to remedy it. Habitat is restored, and repopulated by salmon, over time—such work requires patience and vision. By returning streams to normal parameters and complexities, restoration groups can speed the natural process up and give nature a head start.

Habitat restoration is a sum of its parts. Each stage in the restoration process builds upon those that precede it, and relies upon those that will follow. Without healthy salmon stocks, spawning gravel is useless. Without a healthy nutrient base, salmon stocks can not survive. And without the carcasses of spawned-out salmon, there are no nutrients. All the pieces of the restoration puzzle are interlocking. Because of this, restoration design is part science and part philosophy. Projects have a better chance at success if they build upon the experiences of other successful projects, and to succeed at all they

How it Works

Actual habitat restoration work involves reshaping streambed and banks, re-channeling stream flow, planting vegetation, and other actions to help bring an area back to historically healthy status. Among the different types of restoration projects are the following:

Structure. Two main types of structures can be added to streams to prevent erosion, root wads and rock vanes.

Root Wads are lengths of downed tree that include a portion of the trunk as well as the root mass, or ball. They “armor” stream banks by deflecting stream flows away from the bank, and provide structural support, habitat for fish and other aquatic animals, and food for aquatic insects.

Rock vanes are essentially “walls” constructed from boulders, and protect the streambed by redirecting the deepest part of the channel away from the bank and toward the center of the stream. They also improve in-stream habitat by providing cover for fish and helping oxygenate the water. The three most common types of vanes are *single*, *J-hook* and *cross vanes*.

Spawning Gravel. Streambeds in Washington tend to have natural cobble bottoms rather than gravel or sand. Creating spawning gravel in a stream is one way in which restoration projects can quickly improve habitat. Gravel should match naturally occurring gravel in a given stream.

Nutrient Enhancement. When Pacific salmon spawn out and die, their carcasses decompose, creating nutrients for young salmon to feed on. As salmon populations decrease, nutrient levels decrease. Future generations face stacked-up odds.

Traditionally, nutrient enhancement projects manually distribute carcasses into a stream. A newly developing method of nutrient enhancement is the use of bio-technologically manufactured “carcass analogs.” Analogs are processed fishmeal pasteurized and sterilized to minimize the likelihood of spreading disease, and are designed to dissolve over time when placed in a stream.

Plantings. Riparian planting, or planting on the banks and in the general area of a stream, is also a component of habitat restoration. Riparian zones maintain critical ecosystem functions by mediating the cycling of nutrients and sediments, increasing the retention of water in vegetation, and providing habitat for wildlife. Planting is important for its effect on terrestrial species, which interact with aquatic species. It also can help prevent erosion..

What You’ll Need

Habitat restoration projects require specific materials as well as technical manuals and design guides, applicable permits, landowner permission, and contractors or skilled workers and volunteers. Check with your local Fish and Game department to determine what local, state and/or federal permits may be required for restoration projects.

For more detailed information see the related How-To Guide, “Habitat Restoration.”

Copies of this document are available through Fish First, and can be found on the Web at www.fishfirst.org. You’ll also find a library of how-to guides and fact sheets as well as other resources and information to help with salmon restoration projects made possible in part by grants from:



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