Boulder Creek Furnishes Laboratory for NPS Treatment

The Boulder Creek Enhancement Project, designed to evaluate a new approach to water quality cotrol, provides a complete laboratory to test the feasibility and effectiveness of combining off-site nonpoint source treatment with traditional point source treatment to achieve water quality goals.

In the mid-1980s, the City of Boulder faced increased regulation of its wastewater treatment plant (WWTP) under state National Pollutant Discharge Elimination System permitting requirements, which protect the designated uses of receiving waters.

The Boulder Creek Enhancement Project's overall goal is to find out how best management practices can improve stream quality when used with traditional point source treatment at a publicly owned treatment works. The project investigates techniques to stabilize pH and temperature fluctuations and to reduce turbidity and un-ionized ammonia in the creek's main stem section. The project compliments the city's conventional wastewater treatment plant. Early attempts to construct a dynamic computer model of the Boulder Creek system showed that a full-scale demonstration project was the only practical means to test the effect of channel modifications, revegetation, and erosion control on in-stream quality and habitat.

Two specific project goals are:
1. To verify basic assumptions about how enhancing the riparian habitat affects the water quality.
2. To verify the cost, constructability, and durability of BMPs.

BMPs that address each site's specific problems vary according to its current land use:
- Cattle exclusion (fencing),
- Bank stabilization,
- Channel modification (thalweg pools),
- Recreation,
- Wetland enhancement, and
- Planting of riparian vegetation.

The Boulder Creek project is transferable to other streams requiring similar treatment. Riparian restoration that can provide multiple benefits to wildlife, water quality, and property owners can increase the effectiveness of existing traditional treatment facilities.