

CASE STUDY

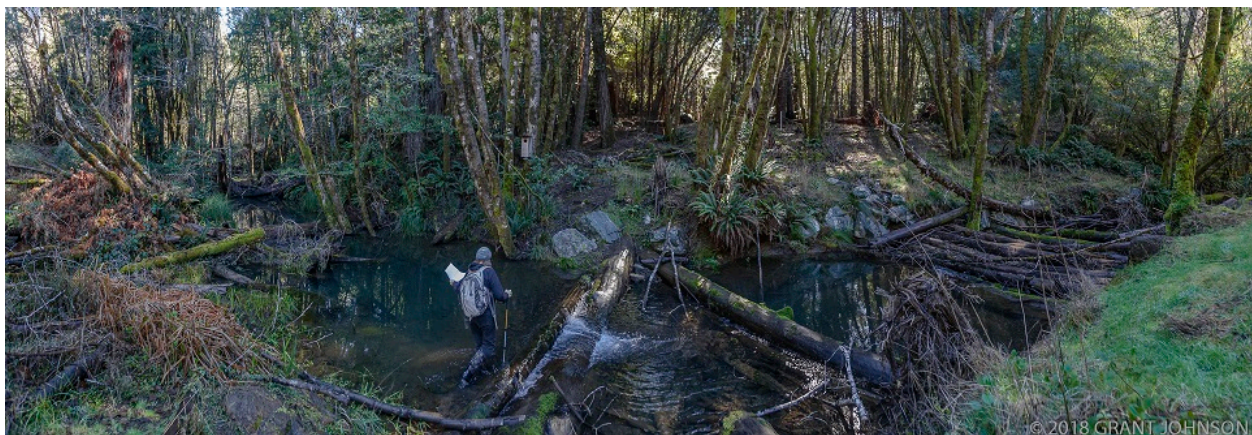
Humboldt County | Near-Stream Recharge: Reconnecting Surface and Groundwater

Summary: Baker Creek, a tributary to the Mattole River, is a key stream for the federally and state protected coho salmon, however portions of the river were running dry due to drought, impeding salmon migration and deteriorating habitat. A partnership of federal and state agencies, consultants and NGOs are working to increase groundwater levels with both instream and offchannel projects to ensure year-round water in the creek and floodplain wetlands for salmon habitat. Salmon now returning to the stream, with Phase 1 of the project complete, 1,300 juvenile coho have been counted in Baker Creek after the previous five years saw zero juveniles. Stream restoration in Baker Creek in the Mattole River watershed is an excellent example of a multi-benefit project recharging groundwater, as well as providing the instream coho salmon habitat that has been disappearing.

Program:

Overdrafted groundwater and drought can lead to disappearing rivers. Since 2000, the Mattole River, a historically strong, cold water stronghold for steelhead, chinook and coho along the North Coast of California, has started to see the river stop flowing, or witnessed entire tributaries drying up and thousands of salmon stranded. The community realized that climate change could spell disaster for a watershed already damaged by past land use practices. In addition to ecological impacts, water quality and quantity have been compromised for residents who rely on pumping from the river for their everyday uses.

Baker Creek, which historically was one of the better coho-bearing tributaries of the Mattole River, began to dry up each summer, leaving disconnected pools and long stretches of dry creek bed. A team of nonprofits and government agencies that includes Sanctuary Forest, Mattole Salmon Group, US Bureau of Land Management, US Fish and Wildlife Service, NOAA Fisheries, and consulting engineers,



hydrologists, fisheries biologists and fisheries resource agencies, is implementing both instream restoration projects and offchannel groundwater recharge ponds to reconnect surface water and groundwater. Successfully implemented between 2012 to 2015, Phase 1 of the project focused on instream restoration actions, including raising the streambed, stream channel modifications, adding large woody debris and other structures. These efforts worked to slow down winter flows and allow for more groundwater infiltration and connected the creek with its floodplain and offchannel pools and wetlands. The connected groundwater and surface water system allowed for longer periods of instream habitat, particularly during the dry summer months.

However, the increase in groundwater storage from the Phase 1 actions was only 50% of expected and not sufficient to provide adequate water for fish and people in extreme drought years. Phase 2 of the project focused on building rainwater capture ponds on abandoned stream terraces upslope of the instream project at Baker Creek. The five groundwater recharge



ponds will increase groundwater storage by 10 million gallons. The five ponds are designed with the topography of the land: with overflow from the top pond filling the next pond downstream and so on to the pond at the lowest elevation, which will then overflow into Baker Creek or slowly infiltrate into the ground.

These types of local projects can create large benefits for the survival of endangered species, and can increase the ability of a watershed to provide water for both humans and wildlife in the face of a changing climate and variable water supply. The work at Mattole Creek demonstrates that reconnecting surface and groundwater is key for a resilient watershed.

Status: Recharge pond project installation began in 2017, with the first 2 of the 5 ponds constructed. The remaining 3 ponds will be completed in 2018, thanks to funding from the State Coastal Conservancy.

Additional Resources:

[Sanctuary Forest groundwater recharge program](#)

Contact Information:

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