NONPOINT SOURCE SUCCESS STORY

Alaska

Community Efforts Improve Jordan Creek

Waterbody Improved

Urban runoff damaged water quality in lower Jordan Creek, an anadromous fish-bearing stream in Juneau, Alaska. Urban development encroached upon riparian areas and contributed sediment and other pollutants to the stream, which began showing declines in aquatic life health. As a result, the Alaska Department of Environmental Conservation (DEC) added Jordan Creek to the Clean Water Act (CWA) section 303(d) list in 1998 for impairments due to debris, sediment and low dissolved oxygen (DO). Since then, partners have collaborated on various projects throughout the lower Jordan Creek watershed to control pollutants and restore creek health. The creek's water quality has improved as a result.

Problem

Jordan Creek is a salmon stream in Juneau, Alaska. It drains 1,664 acres of mostly undisturbed forest in the Mendenhall Valley before entering a highly developed commercial and residential area downstream of Egan Drive (Figure 1). The Lower Jordan Creek watershed comprises less than 5% of the total watershed area; however, its extensive impervious surfaces, heavy traffic, and degraded riparian corridor have continued to negatively affect stream and riparian habitat.

Data collected in the mid-1990s showed declines in benthic macroinvertebrate populations and reduced salmon egg survival. High sediment levels enter the creek from urban runoff, riparian area and streambank erosion, land-disturbing activities, and traction sand applied during winter months. Adult coho salmon returns had dropped from a few hundred individuals to a handful by 1997. As a result, DEC added Jordan Creek to the CWA section 303(d) list in 1998 for failing to support aquatic life and other designated uses due to debris, sediment and DO impairments. DEC developed total maximum daily loads (TMDLs) for Jordan Creek in May 2005 (debris/residue) and 2009 (sediment and interstitial DO).

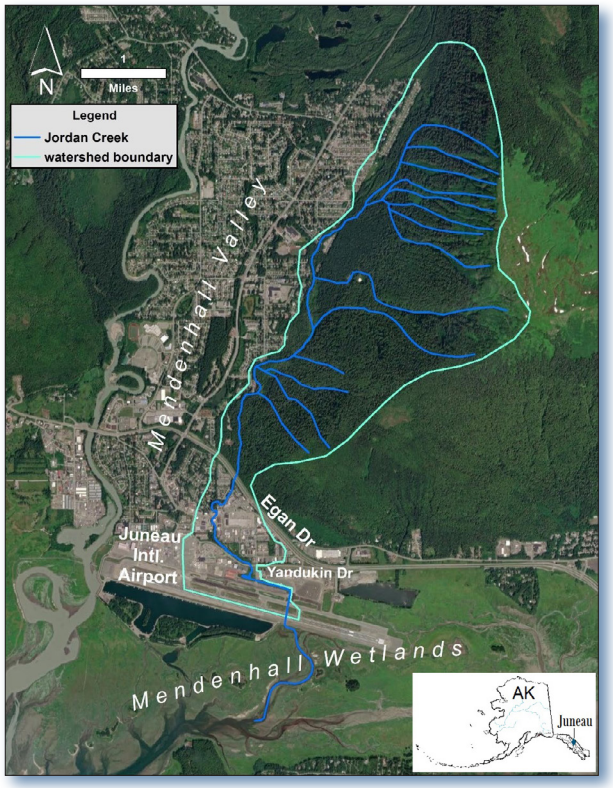

Figure 1. Jordan Creek is in southeast Alaska.

Story Highlights

Since the impairment listings, partners have worked on protecting and restoring Jordan Creek. In 2006, DEC partnered with the Natural Resources Conservation Service (NRCS) and the Mendenhall Partnership to develop the *Jordan Creek Watershed Recovery and Management Plan*, which assessed pollution sources and possible solutions. In 2015, the U.S. Fish and Wildlife Service (USFWS) and the Juneau Watershed Partnership (JWP) completed *Stormwater in the Lower Jordan Creek Watershed*, a stormwater inventory and assessment. In 2021, the Southeast Alaska Watershed Coalition (SAWC) developed a *Lower Jordan Creek Watershed Management Plan* (WMP), which focused on reducing sediment transport to the creek and designing stormwater best management practices (BMPs) for installation.

Thanks to the many plans in place, partners have been chipping away at the pollution problem. In 2013, USFWS and JWP worked with a Southeast Alaska Guidance Association (SAGA) AmeriCorps crew to revegetate riparian areas damaged during bridge construction. In 2015–2016, JWP and SAWC worked with the Central Council of Tlingit Haida Indian Tribes of Alaska (CCTHITA) to install barrier fencing and a rain garden at the tribal office building. Stormwater from a large shopping mall parking area (about 0.8 acres) had been flowing across the CCTHITA's unpaved lot and discharging untreated into Jordan Creek. The partners installed a pre-treatment rock swale and a rain garden to treat the stormwater before it enters the creek (Figure 2). The partners also installed 460 feet of snow barrier fencing along the creek to discourage snow disposal near and directly into the creek to reduce snow as a source of pollution. JWP conducted extensive public education through its website, social media, meetings and newspaper articles.

In 2019, SAWC and the City and Borough of Juneau (CBJ) – Juneau International Airport partnered to replace two pedestrian bridges over the creek. Local volunteers helped the partners restore an adjacent 8-acre greenbelt just north of the airport by removing invasive plants, planting trees, relocating snow storage areas, removing litter, and transforming an obsolete trail in the riparian area into a popular community trail. Jordan Creek neighbors, the Society of St. Vincent De Paul (SSVDP) homeless shelter, hold a weekly litter patrol. Also in 2019, SAWC partnered with a local motel to remove access to an unauthorized trail through the riparian area on the motel's property, which had led to erosion and litter problems. The motel erected a barrier fence, and SAWC and local volunteers revegetated the damaged riparian area.

Since 2021, SAWC has spearheaded several low impact development (LID) projects, including installing a wet biofiltration swale on CBJ property to treat runoff from a mall parking lot. The swale will remove an estimated 12,000 pounds of sediment annually. Other LID projects currently underway or planned include installing bioretention planters and permeable pavement.

Results

Partners have implemented many projects designed to reduce the volume of sediment reaching Jordan Creek, and these reductions are making a difference. Anecdotal reports from local residents note that fish

Figure 2. A rain garden installed on CCTHITA property captures and treats stormwater runoff.

numbers are rebounding—likely due to better habitat conditions. DEC and partners have collected and evaluated data periodically from the early 1990s to the early 2020s, but these data cannot be directly compared because various methods and instruments were used. The most recent measurements from 2019/2020 show that most data meet Alaska's water quality standards for turbidity (less than 25 nephelometric turbidity units above natural conditions) and dissolved oxygen (greater than 7 milligrams per liter for waters with fish); however, some locations along the creek continue have seasonal turbidity problems during spring/fall stormwater events. These areas were highlighted in the WMP, and additional targeted green infrastructure projects are being installed in 2023 (with effectiveness monitoring to follow).

Partners and Funding

Restoration partners have included SAWC, DEC, CBJ, JWP, USFWS, NRCS, Alaska Department of Fish and Game, CCTHITA, SAGA, Super 8 motel, Discovery Southeast, Juneau International Airport, Tongass Chapter of Trout Unlimited, SSVDP, Zach Gordon Youth Center, cub scouts, local landowners, business owners and others. Funding sources have included CWA section 319 grants (more than $400,000, matched by at least $340,000 in local funds), some of which were DEC Alaska Clean Water Action grants issued directly to local groups. Funding was also provided through the USFWS Coastal Impact Assistance Program and the National Fish and Wildlife Foundation Wells Fargo Environmental Solutions for Communities Grant Program. Private landowners and business owners have contributed time and money to various restoration projects.

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