



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Alaska

Upgrading Boat Motors Reduces Hydrocarbon Pollution

Waterbody Improved

Water samples collected on the lower Kenai River showed concentrations of total aromatic hydrocarbons (TAH) that exceeded state water quality standards for freshwater fish and other aquatic life during the peak fishing period in July. As a result, the Alaska Department of Environmental Conservation (DEC) placed a 19-mile segment of the lower Kenai River on the state's 2006 Clean Water Act (CWA) section 303(d) list of impaired waters for petroleum hydrocarbons, oils and grease. DEC believes the primary source of the hydrocarbons is unburned gasoline released from older, two-stroke boat motors used to access the sport and personal use fisheries. Watershed stakeholders joined forces to target the source through public outreach, a motor buy-back program and new regulations. TAH levels dropped significantly and now meet water quality standards, prompting DEC to remove the lower Kenai River from the CWA section 303(d) list of impaired waters in 2010.

Problem

The Kenai River provides world-class salmon fishing and wilderness recreation (Figure 1). This river supports 34 fish species including rainbow trout, Dolly Varden char, and chinook, coho, sockeye and pink salmon. The 2,200-square-mile Kenai River watershed is a popular site for a variety of multiuse recreational activities including rafting, kayaking, motor boating, guided and non-guided sport fishing, hunting, snowmobiling, hiking and camping. Within a two-hour drive from Anchorage, the watershed is accessible to more than 70 percent of the state's population and supports 19 percent of the state's sport fishing.

Stakeholders raised concerns of TAH pollution from in-river motorized boats based on the Kenai Watershed Forum (KWF)'s data collection from 2000 through 2003. In response, DEC conducted an assessment in 2003 that confirmed the presence of TAH, which are composed of benzene, toluene, ethylbenzene and xylene—all compounds in gasoline. Both KWF and DEC monitoring data show that during July of every year in areas of heavy boat use, the TAH levels exceed 10 micrograms per liter ($\mu\text{g/L}$), Alaska's water quality standard established for freshwater fish and aquatic life (see Figure 2). As a result, DEC added a 19-mile segment of the lower Kenai River to the state's 2006 CWA section 303(d) list of impaired waters for petroleum hydrocarbons, oils and grease. DEC believes the primary source



Figure 1. The scenic Lower Kenai River offers excellent fishing and recreation opportunities.

of the hydrocarbons is unburned gasoline released from older, two-stroke boat motors, which are heavily used by private boat owners during July's peak sport fishery.

Project Highlights

Project highlights include extensive water quality monitoring, community education and outreach for protection of the Kenai River, and a two-stroke boat motor buy-back program to reduce the

hydrocarbons entering the river. The Two-Stroke Boat Motor Buyback Incentive Program aimed to reduce the effects of hydrocarbon emissions from two-stroke boat motors by encouraging private consumers to trade in their two-stroke motor for a cash voucher of \$500 toward the purchase of a new EPA emission-compliant motor manufactured in 2006 or later.

The Alaska Department of Natural Resources (DNR) led the state's effort to reduce petroleum hydrocarbons in the Kenai River. In 2007 DNR revised their existing motor use regulation to prohibit the use of older, two-stroke motors in the Kenai River Special Management Area, including 15 miles of the impaired segment from river mile (RM) 19 to RM 4.0. The new regulation, which took effect on March 1, 2008, requires power boaters to use cleaner-burning, four-stroke or direct fuel injected two-stroke motors during July. DNR recently strengthened restrictions—beginning in January 2013, all motors used in the Kenai River Special Management Area will need to be cleaner-burning motors, regardless of the time of year. After passage of the DNR regulation, the Alaska Department of Fish and Game (ADF&G) revised their Kenai River personal use fishery regulations to prohibit the use of older, two-stroke motors in the popular fishery that takes place in July in the lower 5 miles of the impaired segment of the river (RM 5.0 to RM 0.0).

Many watershed partners helped to spread the word about the importance of the new regulations and the availability of the buy-back program, including the Kenaitze Indian Tribe, KWF, DNR and ADF&G.

Results

Data collected from July 2008 and 2009—after DNR and ADF&G implemented regulation changes—show that petroleum hydrocarbon levels had declined significantly (Figure 2). Because the lower Kenai River has met water quality standards for TAH year-round at all monitoring locations since 2008, DEC removed the 19-mile segment from Alaska's CWA section 303(d) list in 2010 for petroleum hydrocarbons, oils and grease.

Partners and Funding

Key partners contributing to the success of the project include the Kenaitze Indian Tribe (KIT), KWF, DNR and ADF&G. In 2005 the U.S. Environmental Protection Agency (EPA) awarded a multiyear \$750,000 Targeted Watershed grant to the KIT to support Kenai River protection efforts by the tribe, KWF and DNR. Efforts included water quality monitoring, a riverbank erosion study, community education and outreach for protection of the Kenai River, and the two-stroke boat motor buy-back program. DEC supported monitoring efforts by providing more than \$350,000 from the Alaska Clean Water Actions (ACWA) program for the past 7 years. ACWA includes funds from several federal grant programs, including the Coastal Nonpoint Source Pollution Program (Coastal Zone Management Act section 6217), Enhancement Grants (Coastal Zone Management Act section 309), Southeast Sustainable Salmon Fund/Pacific Coastal Salmon Recovery Program, and EPA Nonpoint Source Pollution Grants (CWA section 319).

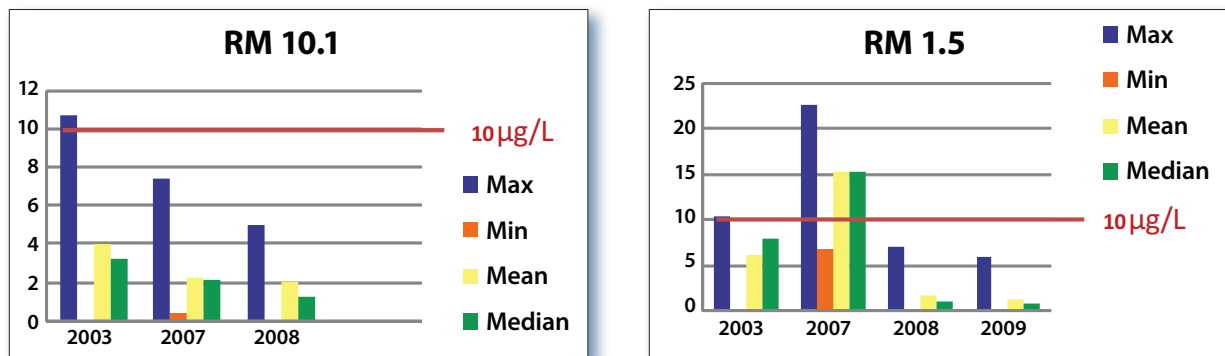


Figure 2. Data collected from the Kenai River at RM 10.1 and RM 1.5 show that the river now meets the TAH water quality standard.



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For additional information contact:

Timothy Stevens
Alaska Department of Environmental Conservation
907-269-7515
tim.stevens@alaska.gov