ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water Quality

Pederson Hill Creek Draft Total Maximum Daily Load Summary
Juneau, Alaska

TMDL AT A GLANCE

Water-Quality Limited?	*Fecal Coliform (FC) bacteria*
Hydrologic Unit Code:	19010301
Standards of Concern:	Fecal Coliform Bacteria for Fresh Water Uses
Designated Uses Affected:	*Water Supply; Drinking, culinary, contact water recreation; secondary water recreation*
Major Source:	*Failed Septic systems*
Loading Capacities:	*26,874FC/day –high flows (most stringent concentration per flow)*
Wasteload Allocations:	***0 FC/day***
Load Allocations:	*24,187 FC/day, other than from natural sources*
Margin of Safety:	*2,687 FC/day*

Necessary load reductions to meet state Water Quality standards:

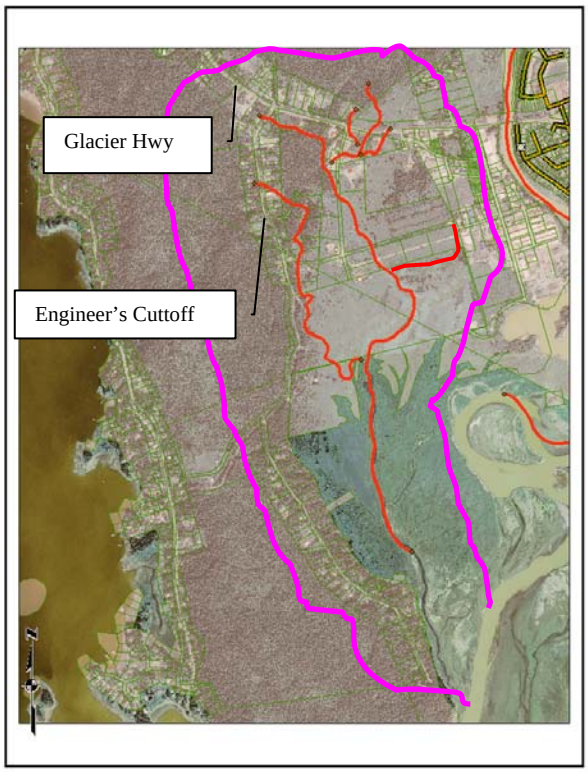
High flow conditions 98%
Medium high flow conditions 65 %
Medium flow conditions 35%
Medium low flow conditions 76%
Low flow conditions 90%

Scope of TMDL

The state of Alaska included Pederson Hill Creek on its 2006 303(d) list as water quality-limited due to fecal coliform bacteria, with failing septic tanks listed as the expected pollutant source. The DEC certifies the design of newly installed septic systems through its wastewater regulatory process. However, it is the landowner's responsibility to properly maintain such treatment systems, post installation. Septic drainages that fail to meet water quality standards are considered a "non-point source" pollutant. A Total Maximum Daily Load (TMDL) is established to meet the requirements of Section 303(d)(1)(C) of the Clean Water Act. A TMDL is composed of the sum of individual waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background loads. In addition, the TMDL must include a margin of safety (MOS), either implicitly or explicitly, that accounts for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. A TMDL represents the amount of a pollutant the waterbody can receive while maintaining compliance with applicable water quality standards.

History & Background

Pederson Hill Creek, also known as, 'Casa Del Sol Creek' is located in the Mendenhall Valley approximately 13 miles northwest of downtown Juneau in southeast Alaska. The total length of Pederson Hill Creek is 2 miles, including a 1-mile intertidal section. The watershed encompasses approximately 1,000 acres.



Pederson Hill Watershed.

Pederson Hill Creek runs through wetlands, collecting a number of small side valley tributaries, until its confluence with the Mendenhall River in the estuary near the south end of Mendenhall Peninsula in the Mendenhall Wetlands State Game Refuge. Side tributaries start as relatively high gradient, bedrock contained primary channels that are influenced by surface and subsurface flow. These source streams are ephemeral and respond to rainfall and snowmelt events. Drainage ditches along road systems contribute surface flow from sheeting flow which empty into tributary streams. The primary sources of fecal coliform to Pederson Hill Creek are from failing septic systems, as reported by ADEC's Water Quality Program.

Standards, Loading Capacity and Allocations

The most stringent surface water quality standard for fecal coliform bacteria (drinking, culinary, and fish processing) that applies to the designated uses of Pederson Hill Creek is the water supply standard, which states, "in a 30-day period, the geometric mean may not exceed 20 FC/100 mL, and not more than 10% of the samples may not exceed 40 FC/100 mL (18 AAC 70 (1)(A)(i))."

A loading capacity is the amount of pollutant a waterbody can contain and still meet water quality standards. Loading capacity is divided up into waste load allocations and load allocations. Waste load allocations are assigned to permitted point source discharges into the waterbody. There are no permitted facilities for the discharge of fecal coliform bacteria into Pederson Hill Creek. Load allocations consist of existing and future nonpoint source discharges and natural background sources. To meet water quality standards, the TMDL establishes loading capacities for various flow conditions.

Because there are no point sources in the watershed, the entire available loading capacity (minus the MOS) is allocated to nonpoint sources as the load allocation. Future human caused nonpoint sources of fecal coliform bacteria will be subject to the Water Quality Standards and other laws.

Margin of Safety

The MOS accounts for any uncertainty concerning the relationship between pollutant loading and receiving water quality. The MOS can be implicit (e.g., incorporated into the TMDL analysis through conservative assumptions) or explicit (e.g., expressed in the TMDL as a portion of the loading) or a combination of both. For the Pederson Hill Creek TMDL, the MOS was included explicitly as 10 percent of the loading capacity.

Implementation

The City and Borough of Juneau (CBJ) currently has plans to extend city sewer along road corridors within the Pederson Hill watershed. The project will be conducted in two phases. Phase I of the sewer expansion is budgeted for 2008 and will include Sherwood Lane and Glacier Hwy., terminating at The Family Medical Practice. Phase II of the Pederson Hill sewer extension is projected to begin soon after the completion of Phase I and will include users along a portion of Engineer's Cutoff. The ADEC will work with CBJ on opportunities for on-going educational outreach, Best Management Practices (BMP), enforcement actions for non-compliant septic violations, and to monitor for future Phase II developments. A secondary source of FC pollutants originates from two horse farms within the watershed. A factsheet describing BMP for properly managing manure will be available to "agricultural" farm owners.

Monitoring

Follow-up monitoring for a TMDL is important in tracking the progress of TMDL implementation and subsequent water quality response as well as in evaluating any assumptions made during TMDL development. Monitoring results can be used to support any necessary future TMDL revisions and to track BMP effectiveness. Most importantly, monitoring will track the water quality of Pederson Hill Creek to evaluate future attainment of water quality standards.

Public Meeting

Location: 410 Willoughby Ave., 2nd Floor Main Conference room, DEC, Juneau.
Date/Time: December 19th (mid-way through public notice period), 12:00 to 1:30
Public Comments: All comments received will be summarized in writing. Comments must submitted to the address below prior to January 14, 2008.

A copy of the Draft TMDL is available on DEC's website at:
http://www.dec.state.ak.us/water/lists_index.htm
or upon request by writing, emailing, or calling the DEC:

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