



Alaska Department of Environmental Conservation
Division of Water Quality

**Noyes Slough Draft Total Maximum Daily Load Summary
For Petroleum Hydrocarbons, Oils and Grease in Fairbanks, Alaska**

ESSENTIAL FACTS:

<i>Water Quality Limited?</i>	Yes
<i>Hydrologic Unit Code:</i>	19040506
<i>Criteria of Concern:</i>	Petroleum Hydrocarbons, Oils and Grease
<i>Designated Uses Affected:</i>	Water supply; Water recreation; Growth and propagation of fish, shellfish, other aquatic life, and wildlife
<i>Major Source(s):</i>	Urban runoff
<i>Loading Capacity:</i>	The criterion for petroleum hydrocarbons, oils and grease prohibits inputs that cause visible sheen upon the surface of the water
<i>Wasteload and Load Allocation:</i>	No visible anthropogenic petroleum sheens on the surface of the water
<i>Margin of Safety:</i>	No visible anthropogenic petroleum sheens on the surface of the water

What are some basic facts about Noyes Slough?

Noyes Slough is a 5.5 mile long side branch of the Chena River located in the City of Fairbanks. Noyes Slough branches off to the north from the Chena River just below the Wendell Street Bridge and returns to the north bank of the Chena River above the University Avenue Bridge, just upstream of the confluence of the Chena River with the larger Tanana River.

Noyes Slough is typically navigable except during low flows. It is a popular canoeing area and used by local elementary school students to observe wildlife and learn about waterways. The slough and the adjacent wetlands provide habitat for beavers, muskrat, and waterfowl and spawning grounds for grayling and other fish.

Flow in Noyes Slough has declined over the past 50 years. Flood control structures were built upstream in 1945 and 1967 to prevent flooding in Fairbanks. The flood control measures have also caused down-cutting (lowering) of the Chena River channel bed at

the entrance to Noyes Slough, reducing the magnitude and duration of surface water flow from the Chena River to the slough. Beavers are also highly active in the slough. There are beaver dams approximately every half mile in the slough, which further inhibit flow.

Why is Noyes Slough considered polluted?

Noyes Slough is considered polluted from petroleum hydrocarbons, oil and grease, debris (trash) and sediment. The determination that Noyes Slough was polluted for petroleum was based on qualitative assessments which included visual observations. Potential sources of petroleum hydrocarbons, oils and grease to Noyes Slough include urban runoff, buried debris within the slough, and groundwater plumes from contaminated sites.

What is a Total Maximum Daily Load

A Total Maximum Daily Load (TMDL) identifies the amount of a pollutant that a waterbody can assimilate and maintain compliance with water

quality standards. It is a “pollution budget” that sets limits on the contributions from anthropogenic pollutant sources to a waterbody. The TMDL must include inputs or loadings from discrete permitted sources, inputs from non-point sources, and a margin of safety. The margin of safety accounts for the uncertainty in the relationship between pollutant loads and the quality of the receiving water body.

A TMDL is has already been developed, and EPA approved, for debris and the sediment impairment is currently being evaluated. This TMDL only addresses the petroleum hydrocarbons, oils and grease pollution.

What is the current water quality in Noyes Slough?

Surface sheens were observed during DEC sampling efforts in 2009, 2007, and 2005. Many of these sheens had characteristics of petroleum and in some cases were accompanied by a petroleum smell. The sheens can indicate the presence of petroleum hydrocarbons which can cause a wide range of impairments to aquatic life and habitat, including lethal or sublethal effects. Naturally occurring sheens can also occur and are produced by the decomposition of organic matter.

Numeric water quality criteria for in the water column have been met. Samples collected between 2000 - 2009 found total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) are below water quality standards and are not a problem.



Sediment criteria are being met. Sediment samples were collected in 2009 and analyzed for polycyclic aromatic hydrocarbons (PAHs). The results were compared to Threshold Effect Levels (TELs) and Probable Effect Levels (PELs) for freshwater sediments from the National Oceanic and Atmospheric Administration (NOAA) *Screening Quick Reference Tables* (SQuiRTs). TELs represent the concentrations below which adverse effects on benthic organisms are expected to rarely occur, while PELs represent concentrations above which effects on benthic organisms are frequently expected. There is not a problem with petroleum in Noyes Slough sediments.



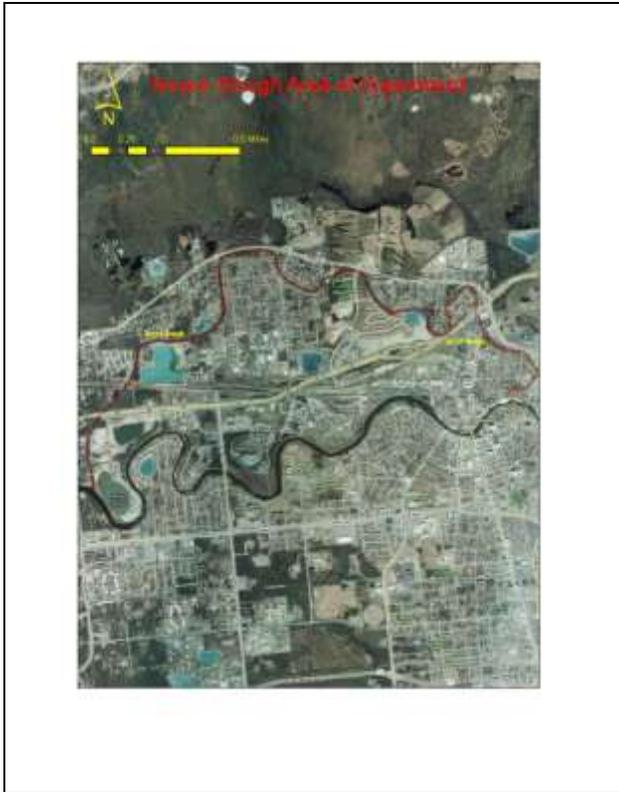
What limits does this TMDL set for Noyes Slough?

This TMDL establishes limits for visible petroleum sheens in Noyes Slough.

The pollution in Noyes Slough does not fit the model for the typical loading capacity determination because the nature of sheens does not lend well to quantitative analysis. However, because Alaska water quality standards do not allow for any visible anthropogenic petroleum sheens on surface water, no loading calculation is necessary. The pollutant loads will be set to no visible sheen, and the TMDL document focuses on implementation of strategies that will keep petroleum hydrocarbons, oils and grease out of the slough.

What are the three most important “fixes” for Noyes Slough?

- Increase public awareness of the importance of the slough as a natural resource by involving businesses and residents in monitoring water quality through programs such as the Tanana Valley Watershed Association’s Adopt-a-Stream program;
- Increase enforcement of City and Borough ordinances that address illicit discharges and aggressive implementation of requirements in the stormwater program; and,
- Continue monitoring and clean-up associated with petroleum contaminated sites.



Where can I learn more and how can I provide comments?

A public review and comment period for the draft TMDL is underway. Written public comments must be mailed, faxed, e-mailed, or hand delivered to the addresses below by 4:30 p.m. on Thursday September 22, 2011. Answers to commonly asked questions about TMDLs can be found on the DEC website at: [http://dec.alaska.gov/water/tmdl/pdfs/Comonly asked questions about TMDLs Final.pdf](http://dec.alaska.gov/water/tmdl/pdfs/Comonly%20asked%20questions%20about%20TMDLs%20Final.pdf)

ADEC will hold a public information meeting to discuss the draft TMDL in Fairbanks from 4 to 6 p.m. on Thursday September 15, 2011. Interested persons needing special assistance must contact ADEC to make arrangements to participate by September 8, 2011.

The draft TMDL is available at ADEC's website; <http://www.dec.state.ak.us/water/wqsar/index.htm> or upon request by contacting the ADEC:

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