



## Fish in the Arctic National Wildlife Refuge

Arctic Grayling  
US Fish and Wildlife Services

Numerous fish species are found within the boundaries of the coastal plain of the Arctic National Wildlife refuge known as area 1002, including freshwater and anadromous (utilize both fresh and saltwater) fish species. Arctic grayling and Dolly Varden char are the most preferred sport and subsistence fish species.<sup>1</sup> Other fish such as nine-spine sticklebacks play an important role in the food chain as prey for birds.

Oil development impacts could reduce fish species food supplies or impede free movement up and down waterways by construction of gravel docks or offshore causeways. Development could also reduce spawning successes by altering habitat through erosion and increased sedimentation, or by removing water from traditional over-wintering pools. Oil development could also introduce toxic substances into the water resulting from spills and leakages which can be lethal, or otherwise harmful by stunting growth, reducing longevity, and limiting reproduction.<sup>1,2</sup>

Laboratory testing and field observations have shown that eggs and larval fish are sensitive to oil exposure because embryos and larval stages lack the mobility to avoid contaminated areas. They have not yet developed the organs found in adults that can help detoxify hydrocarbons. And lastly, larval stages of many species are concentrated on the water surface where they are most likely to be exposed to oil spills.<sup>3</sup> Studies after the Exxon Valdez oil spills showed that chronic exposure of parent stocks of reproducing pink salmon to PAHs from Exxon Valdez oil caused functional sterility that led to population crashes, even with concentrations as low as 0.01 parts per million (ppm).<sup>2</sup>

The most vulnerable fish species that are found in the 1002 area are Dolly Varden (formerly known as Arctic char). These fish migrate through the 1002 area into north flowing rivers to spawn and to overwinter. According to Alaskan biologists spawning and overwintering areas are associated with springs that become isolated from these rivers by ice during the winter. These rivers and side-springs are absolutely critical to the fish. Locations of these side-springs have been identified by biologists and are included in the Alaska Department of Fish and Game's catalog of streams that are important to anadromous fish.<sup>4</sup>

1. U.S. Fish and Wildlife Service. 1987. Arctic National Wildlife Refuge, Coastal Plain Resource Assessment: Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement. April 1987.

2. U.S. Department of the Interior, Marine Management Service. 1996. Outer Continental Shelf Oil and Gas Leasing Program: 1997-2002. Final Environmental Impact Statement, Volume I. Peterson, C.H. 2001. The "Exxon Valdez" oil spill in Alaska: Acute, indirect and chronic effects on the ecosystem. *Advances in Marine Biology* 39: 1-103.

3. Rice, Stanley. 1999. "Pink salmon and oil: Ten years later. Long-term studies have changed the way we think about oil pollution." EVOS Trustee Council, Anchorage, AK. Pink salmon synthesis 99329. U.S. Dept. of Commerce, NOAA/NMFS website: [www.afsc.noaa.gov/abl/evos/index.htm](http://www.afsc.noaa.gov/abl/evos/index.htm)

4. Burr, John. 2001. Alaska Department of Fish and Game, Area Biologist. Personal Communication.

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907-276-7034

[http://www.audubon.org/  
chapter/ak/ak](http://www.audubon.org/chapter/ak/ak)

Alaska Conservation Alliance  
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[www.akvoice.org](http://www.akvoice.org)

Alaska Wilderness League  
202-544-5205  
[www.alaskawild.org](http://www.alaskawild.org)

Arctic Connections  
907-272-1909

Defenders of Wildlife  
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[www.savearcticrefuge.org](http://www.savearcticrefuge.org)

League of Conservation Voters  
Education Fund  
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[www.voteenvironment.org](http://www.voteenvironment.org)

Natural Resources  
Defense Council  
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[www.savebiogems.org/arctic/](http://www.savebiogems.org/arctic/)

Trustees for Alaska  
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U.S. PIRG  
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The Wilderness Society  
202-833-2300  
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