Facts about **Washington's retreating glaciers and declining snow pack**

from Ecology's Water Resources Program

53 North Cascades glaciers gone since 1950s

Multiple droughts 2000-2005

Threefold increase in wildfires 1970-2006

Washington is especially vulnerable to climate change resulting from global warming, and a major reason for this is our dependence on glaciers and mountain snow pack to feed summer stream flows.

Mountain snowfall varies from year to year, so it's difficult for scientists to agree on predictions about future snow pack. But, the scientists who study climate change agree that more precipitation will fall as rain rather than snow in the years to come.

Several well documented trends in Washington provide compelling evidence in support of Washington's aggressive response to climate change.

For example:

- Multiple droughts since 1971 caused dried-up stream beds, withered and abandoned crops, dead fish, record low rivers and declining aquifers. Between 2000 and 2005, Washington experienced two drought emergencies, resulting in drought declarations by Governors Locke and Gregoire.
- An effect of global warming is an increase in the frequency of droughts. Washington has experienced unusually dry periods almost every year since 2000.
- During the drought of 2001, hundreds of thousands of juvenile salmon were stranded by low flows in the Columbia River and were unable to travel to the Pacific Ocean. In spring 2005, above-average ocean temperatures and reduced ocean movement resulted in a 20 to 30 percent drop in juvenile marine salmon populations.

Lake Roosevelt (mouth of the Colville River) in Stevens County. Ecology Photo, 2005 Drought.

April 2007 **07-11-016**

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- The average mountain snow pack in the North Cascades (critical to summer stream-flows) has declined at 73 percent of mountain sites studied. Spring runoff is occurring earlier each year.
- Stream flows are peaking earlier in the year in watersheds throughout the state, including the Columbia Basin.
- Mountain glaciers in the North Cascades have lost 18 to 32 percent of their total volume since 1983.

Photographic record of South Cascade Glacier retreat.

- 53 glaciers in the North Cascades have disappeared since the 1950s. That's according to Dr. Mauri S. Pelto, director of the North Cascade Glacier Climate Project at Nichols College in Dudley, Massachusetts. Dr. Pelto has personally tracked North Cascades glaciers since 1984. Based on his observations and U.S. Geological Survey data, he says these named and unnamed glaciers are now gone:

Lyall Glacier, Frisco Peak
Lewis Glacier, Corteo Peak
Milk Lake Glacier, Fire Mountain
North Branch Whitechuck Glacier, Kololo Peaks
Spider Glacier, Chiwawa Peak
East White River Glacier, Kololo Peaks
David Glacier, Mount David
1 South Side Sloan Peak
1 Northeast Mount Watson
1 East Ridge Mount Daniels
1 West Side Primus Peak
4 North side Cutthroat Peak
2 North side Mount Gilbert
7 North side Mount Lago, Osceola and Carru
5 East slope of Lago-Ptarmigan Peak
1 West side Mount Arriva
5 Entiat Range
2 Sandalee glaciers
3 North side Frisco Peak
2 North side Corteo and Black Peak
4 North side Jonathan to Mount David Ridge
2 Snow Creek glaciers
2 North side Indian Head
1 Gap between Lynch and Hinman
1 North side Hinman
1 South side Ptarmigan Ridge

- The number of large (more than 500 acres) wildfires has increased from an average of 6 per year in the 1970s to 21 per year in the first part of the 21st century.
- A 50-year warming trend in Lake Washington has reduced the food available for fish and caused algae blooms.

For more information, see Washington's Climate Change website:
http://www.ecy.wa.gov/climatechange/

To keep up to date on the state's climate change efforts, join our ListServ:
http://listserv.wa.gov/cgi-bin/wa?SUBED1=wa-climate-change&A=1

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