

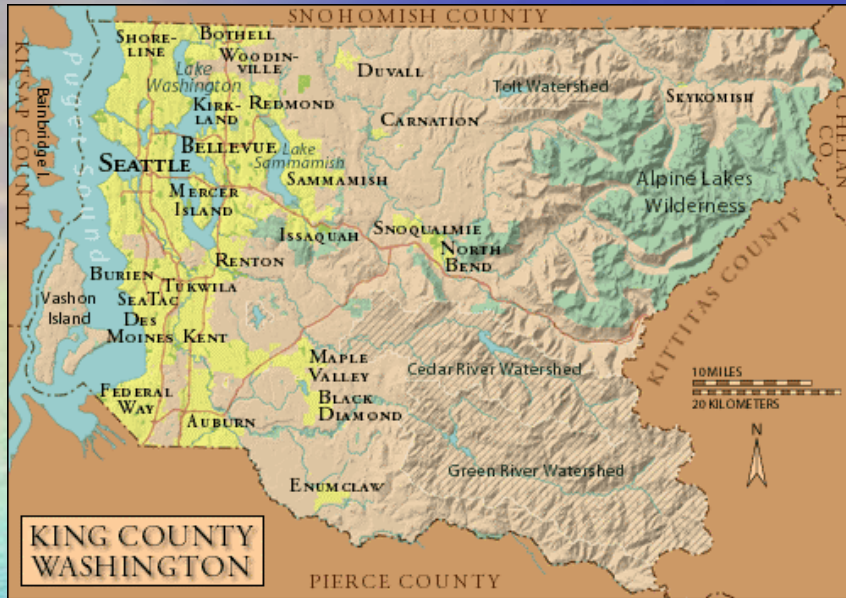
DECISION-MAKERS WORKSHOP, ADAPTING TO CLIMATE CHANGE IN TORONTO



King County

Doug Howell, King County
Climate Initiative

King County, Washington



Key Regional Services

- Wastewater treatment
- Solid waste disposal
- Transit service
- Flood control
- Regional parks, trails and open space
- District & Superior Courts
- Prosecutor & public defense
- Jail
- Public health for city & county
- Tax assessment
- Human services & housing

Key Local Services

- Roads
- Stormwater management
- Zoning, permitting and code enforcement
- Sheriff
- Ag and Forestry Programs

- On Puget Sound in Washington State
- 2,134 square miles, nearly twice as large as the average county in the US
- More than 1.8 million people, 13th most populous county in the nation, more populous than 13 states (including Nebraska, Maine and New Hampshire)
- 16,000 employees and a \$3.5B annual budget



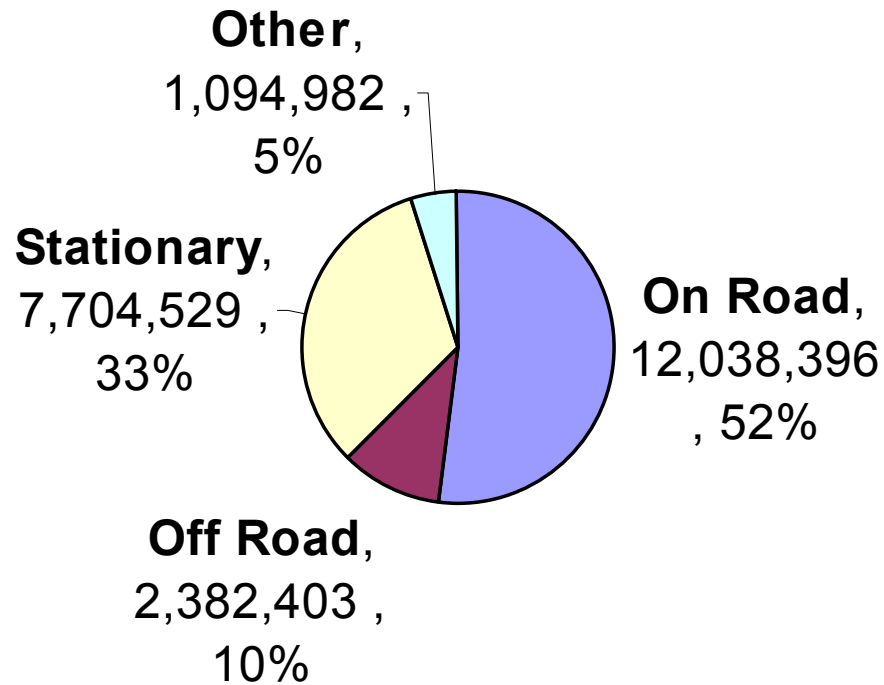
World-wide global warming emissions are equal to **EIGHT Mount St. Helen eruptions of carbon dioxide...EVERYDAY!**

In the Puget Sound region, transportation emissions are the number one culprit!



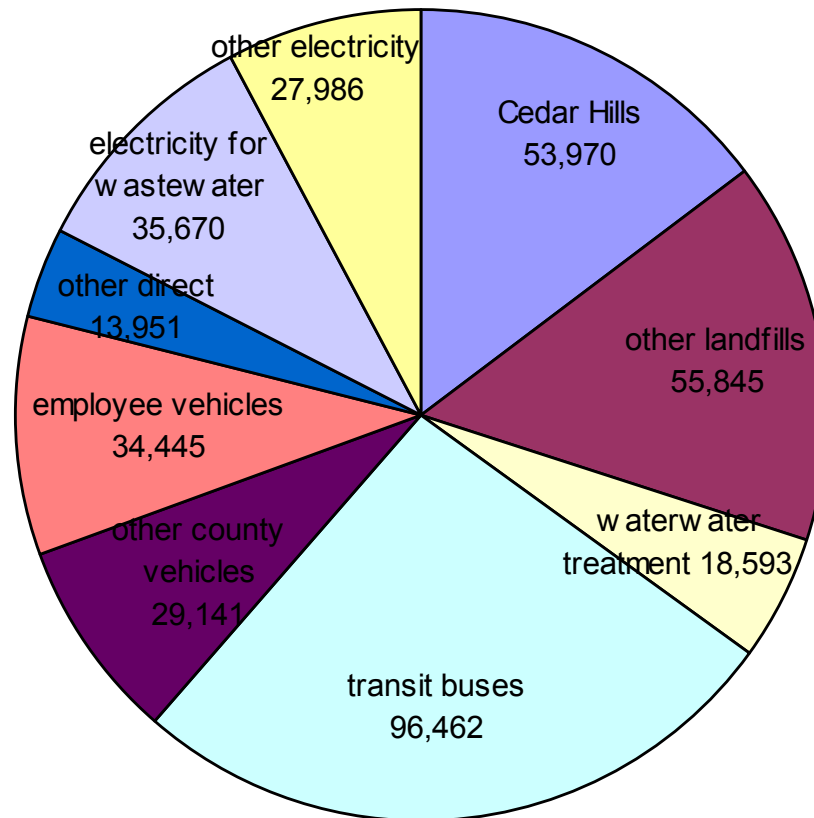
King County "Geographic" Emissions

23,220,310 MTCO₂e



King County "Government" Emissions

366,063 MTCO₂e





PRIMARY IMPACTS

- Water Supply
- Salmon
- Forest
- Agriculture
- Stormwater, Flooding, Wastewater
- Roads
- Public Health
- Hydropower
- Coastal

KING COUNTY AND REGION'S HISTORIC INVOLVEMENT

1. Ordinances and Motions:

- 1988 King County Council Proposed Motion
- 2002 King County Executive Order
- 2002 King County Council Motion
- 2006 King County Executive Orders
- 2006 King County State of County Speech

KING COUNTY AND REGION'S HISTORIC INVOLVEMENT – CONTINUED

2. State and Local Initiatives

- Seattle 2000 Earth Day Resolution
- West Coast Governors' Initiative
- Puget Sound Clean Air Agency's Climate Stakeholder Process
- State Legislation 2004, 2005, 2006
- Seattle Kyoto Resolution 2005 and 2006
 - ❖ Gore Presentations/Films
 - ❖ Laurie David's "Too Hot Not to Handle"

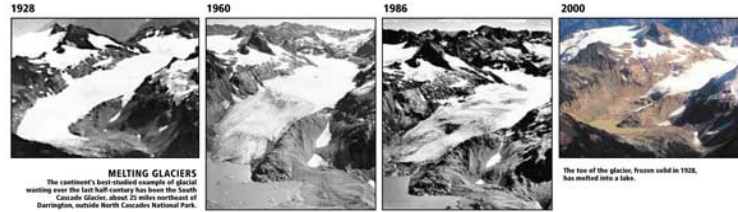
KING COUNTY AND REGION'S HISTORIC INVOLVEMENT - CONTINUED

- ## 3. Universities, Non-Profits, National Labs
- University of Washington's Climate Impacts Group
 - Washington State University Energy and Biomass Program
 - Pacific Northwest National Lab
 - Climate Solutions
 - Sierra Club's "Cool Cities"
 - Healthy Priorities
 - Washington Association of Churches Earth Ministry
 - Labor Council, Apollo Alliance

LOCAL BUSINESSES INVOLVED

- Starbucks
- REI
- LaFarge Cement
- University of Washington
- wind industry
- biofuels
- solar

OUR WARMING WORLD



MELTING GLACIERS
The continent's best studied glacier and glacial wasting over the last half-century has been the South Cascade Glacier, about 25 miles northeast of Darrington, outside North Cascades National Park.

The toe of the glacier, frozen solid in 1928, has melted into a lake.

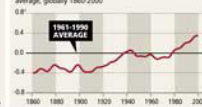
A warmer, wetter Northwest

"It is likely that the rate and duration of the warming of the 20th century is larger than any other time during the last 1,000 years."
— Intergovernmental Panel on Climate Change 2001 Report

THE LONG-TERM TREND



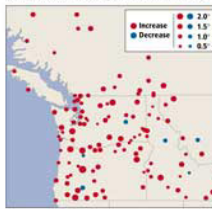
THE PAST 140 YEARS



"Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities. . . . Temperatures are, in fact, rising."
— National Academy of Sciences 2001 report to President Bush

REGIONAL TEMPERATURE TRENDS

Dots indicate areas where readings were taken from 1930 to 1995



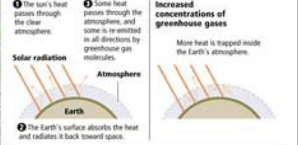
Average Northwest temperatures have increased more than the global average. During the 20th century, the region has warmed by about 1.5 degrees, based on readings taken around the area and analyzed by University of Washington scientists. They expect temperatures to increase another 2.0 degrees by the 2020s.

BY LISA STIFFLER AND ROBERT MCCLURE

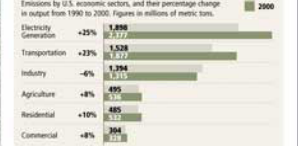
Surprisingly small fluctuations in average global temperatures can have far-reaching impacts on any given region because those global averages mask extremes. For example, the Earth has warmed just 0.9 degrees since emerging from the last Ice Age about 12,000 years ago. Over the next century, average global temperatures are expected to warm 2.5 to 10.4 degrees. The Pacific Northwest has already felt the impacts of climate change—from melting glaciers to shrinking populations of some native fish species. Here's how the warming happens, and how scientists predict it will affect the region:

THE GREENHOUSE EFFECT

Carbon dioxide, methane, nitrous oxide and other gases capture and hold heat in the earth's atmosphere instead of letting it escape into space. The trapped heat warms the planet like a greenhouse. The gases occur naturally, but human activities since the Industrial Revolution are believed to have greatly boosted their concentrations. Some greenhouse gases can linger hundreds of years in the atmosphere and vary in their ability to trap heat. Nitrous oxide traps heat 296 times better than CO₂, while methane is 23 times more potent.



GREENHOUSE GASES BY SECTOR



TOP PRODUCERS IN WASHINGTON



CARBON EMISSIONS BY COUNTRY



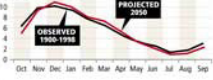
REGIONAL PRECIPITATION CHANGES

Dots indicate areas where readings were taken from 1930 to 1995



Over the past century, rainfall has increased across the Northwest. The increase in rain, on average, could be as much as 20 percent. While precipitation trends are harder to forecast than temperature, most predictors show climate change will result in more rain overall.

WESTERN WASHINGTON PRECIPITATION CHANGE



ENVIRONMENTAL IMPACT AT SEA

WATER BIRDS
Off the coast of British Columbia, there have been mass starlings and tufted puffins.

KILLER WHALES
Orca are expected to suffer if salmon runs are hampered by climate change. They could also be hit with more pollutants as containers are released from melting snowpacks and flow down stream.

FISH
Pacific cod, which are at the southern end of their range, have nearly vanished from Puget Sound. Baby salmon get smacked as predators migrate north when the water warms. Marlin, mahi mahi and ocean tunfish have also joined the northward migration.

WESTERN WASHINGTON TEMPERATURE CHANGE

Observed and projected average monthly temperatures
80° Fahrenheit



ENVIRONMENTAL IMPACT INLAND

Scientists can't precisely predict how a warming Earth will affect a given region, but can paint a fairly picture based on some of the warming that already has gone on.

FLOWERS
For nearly a half-century, a network of monitoring stations across the West reported on the bloom time of lilac and honeysuckle bushes. The research shows the average bloom date getting up by 5 to 10 days since the 1930s.

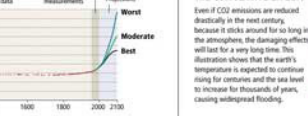
INSECTS
Sachem skipper butterfly

TREES
As it grows hotter, trees and meadows, and the soil will dry. Western hemlock and other water-loving trees could disappear from some areas. The most severe impact will be an increase in major wildfires.

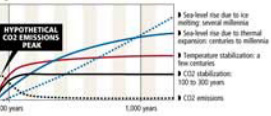
CO2 PROJECTIONS



THE CUMULATIVE EFFECTS



Degrees of increase



Seattle Post Intelligencer article, November 13, 2003



New Bird Flu Jitters • The Enron Fallout

& WORLD REPORT
U.S. News
MAY 15, 2006

GLOBAL WARMING

CAN WE LIVE WITH IT?

Plus: Al Gore on His Chilling New Movie
and How Bad Things Really Are



www.usnews.com

Carbon Sink

A leader in trying to adapt to a warming world, Ron Sims is head of the Seattle area's King County, which purchased development rights in the Snoqualmie Forest. The woods will be kept intact to absorb carbon dioxide emissions and prevent rainwater from running off.



KING COUNTY CLIMATE INITIATIVE

Five Areas:

- Inventories
- Mitigation Projects
- Adaptation Program
- Policies: National, State, and Regional
- Education



Christine Todd Whitman and Ron Sims

MITIGATION -vs- ADAPTATION

Trade Offs:

- Can't mitigate if scope is still unfolding
- Some impacts inevitable. Delaying adaptation extremely costly
- Project example: Black Rock Reservoir

History:

- Framework Institute's "Talking Global Warming"
- Solutions First
- Adaptation Conference
- State's focus on storage
- ICLEI's transition
- Yale Conference
- Activities around the globe: Jennifer Penny's presentation

EVOLUTION OF WORK ON ADAPTATION

- Impacts inevitable
- Hire UW for conference
- Conference preparation
- Sold out conference
- Conference summaries
- Collaboration with UW, now ICLEI

"GOOD GOVERNMENT" BENEFITS MITIGATION & ADAPTATION

Waste to Resources

- Cedar Hills
- Wastewater/Reclaimed Water
- Manure Project

Preservation

- Farmland Preservation Program
- Snoqualmie Tree Farm
- Growth Management
- Salmon Restoration
- Flood Plan

Transportation

- Bus Expansion
- Sound Transit
- Biofuels and Hybrids

OUTLINE OF ADAPTATION GUIDEBOOK

- Foreword: Contribution by third-party
- The View from the Policy Community: Mitigation -vs- Adaptation
- Testimonials from business representatives and other high-profile regional sector leaders
- Raising, maintaining, and motivating interest in preparing for climate change
- Create a Climate Change Adaptation "Team"
- Review current policies and procedures
- Identify jurisdictional authorities for building adaptive capacity
- Adaptation strategies
- To the future

DIFFICULTIES, OBSTACLES AND OPPORTUNITIES

Stating the Obvious:

- Elected officials
- Wins and losses (biodiesel, cement)
- Persistent
- Economics

DO LOCAL GOVERNMENTS REALLY MAKE A DIFFERENCE?

YES

ABSOLUTELY YES

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