

# Climate Change Mitigation Policy and the Alaska Economy

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# Concrete Actions Adopted at the December 2009 Copenhagen Climate Meeting (COP-15)

# Palin likens global warming studies to 'snake oil'

Associated Press - February 8, 2010 10:34 PM ET

REDDING, Calif. (AP) - Former Alaska Gov. Sarah Palin, in a rare California appearance, called studies supporting global climate change a "bunch of snake oil science."

Palin spoke before a logging conference in Redding. The media were barred from the event, but The Associated Press bought a \$74 ticket to attend.

"We knew the bottom line ... was ultimately to shut down a lot of our development," she said during her 40-minute speech, which was followed by a 20-minute question-and-answer session.

"And it didn't make any sense because it was based on these global warming studies that now we're seeing (is) a bunch of snake oil science."

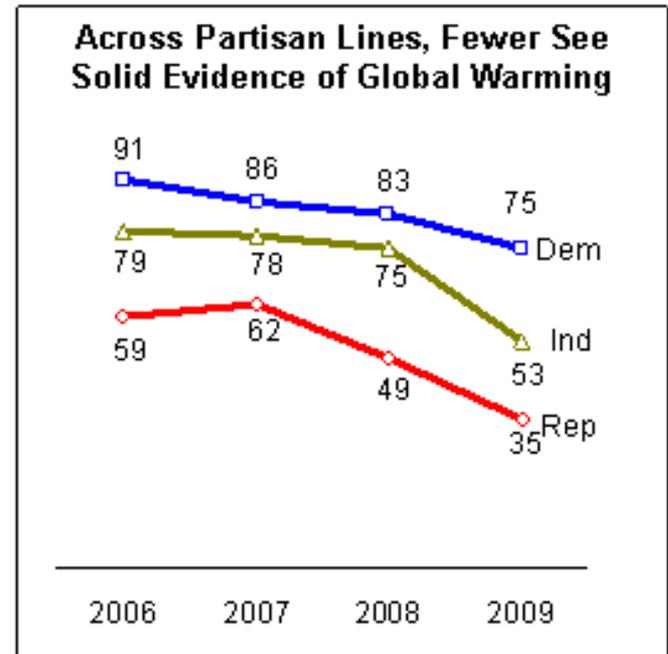
According to the Pew Research Center, 36 percent of Americans believe there is solid evidence of global warming, caused by human activity.

**Changing Opinions about Global Warming**

	April 2008	Oct 2009	Change
<b><i>Is there solid evidence the earth is warming?</i></b>	%	%	
Yes	71	57	-14
Because of human activity	47	36	-11
Because of natural patterns	18	16	-2
Don't know (Vol.)	6	6	0
No	21	33	+12
Mixed/Don't know (Vol.)	8	10	+2
	100	100	
<b><i>How serious a problem?</i></b>			
Very serious	44	35	-9
Somewhat serious	29	30	+1
Not too serious	13	15	+2
Not a problem	11	17	+6
Don't know (Vol.)	3	3	0
	100	100	

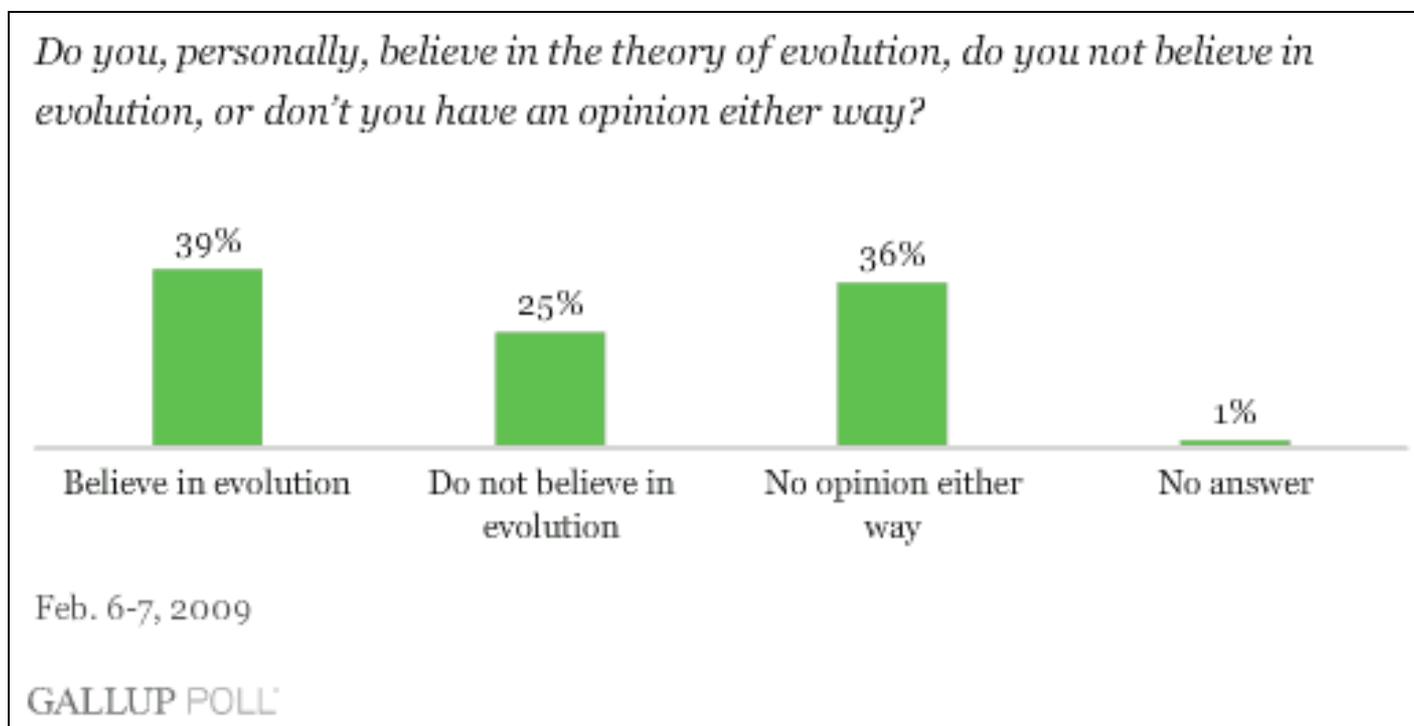
Figures may not add to 100% because of rounding.

Belief in global warming is waning in the U.S.



Source: Pew Research Center for People and the Press, measured October 2009

Global warming is really no different from any other subject, when it comes to Americans' faith in science.



Despite the prevailing political mood in the United States, strong Greenhouse Gas reduction measures are coming.

- The scientific base continues to get stronger every year (silly “Climategate” escapades and sloppy IPCC report editing notwithstanding)
- The United States is increasingly seen internationally as the main obstacle to a global treaty.
- Other countries are likely to proceed without us, with potential negative trade implications for the U.S. This is not good for Alaska’s economy, which is heavily dependent on exports.

# Three Consensus Issues at the December 2009 Copenhagen Climate Meeting (COP-15)

- **Climate** – 2 C Warming from present is the appropriate policy target for international mitigation efforts
- **Equity** – Richer nations should do more to reduce GHG emissions than poorer countries and are obligated to provide financing for adaptation
- **Trade** – Carbon leakage associated with varying emissions policies among nations must be addressed

# U.S. Congress' Approach to Addressing the Three Consensus Issues (based on signals from HB 2454)

- **Climate**

- 17 percent emissions cut by 2020, including domestic and international offsets. 83 percent cut by 2050 (You bet!).
- IPCC says insufficient to meet the 2 C target, even if met entirely with domestic emissions cuts.

- **Equity**

- Free emissions allocations to coal-burning utilities.
- No help for oil-dependent regions

- **Trade**

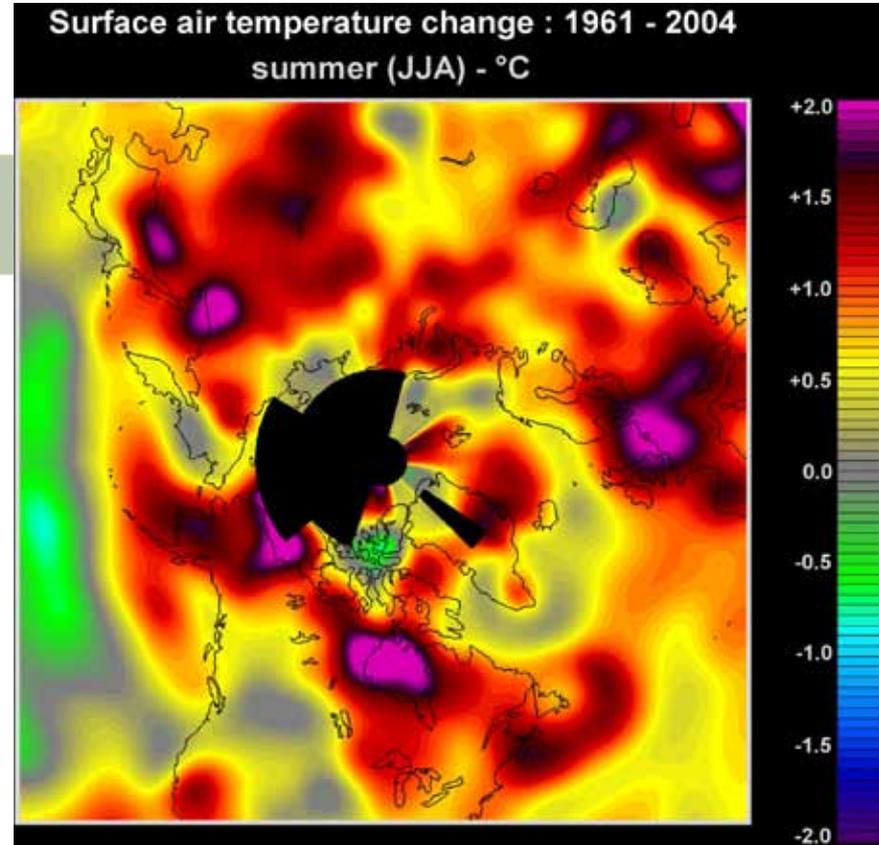
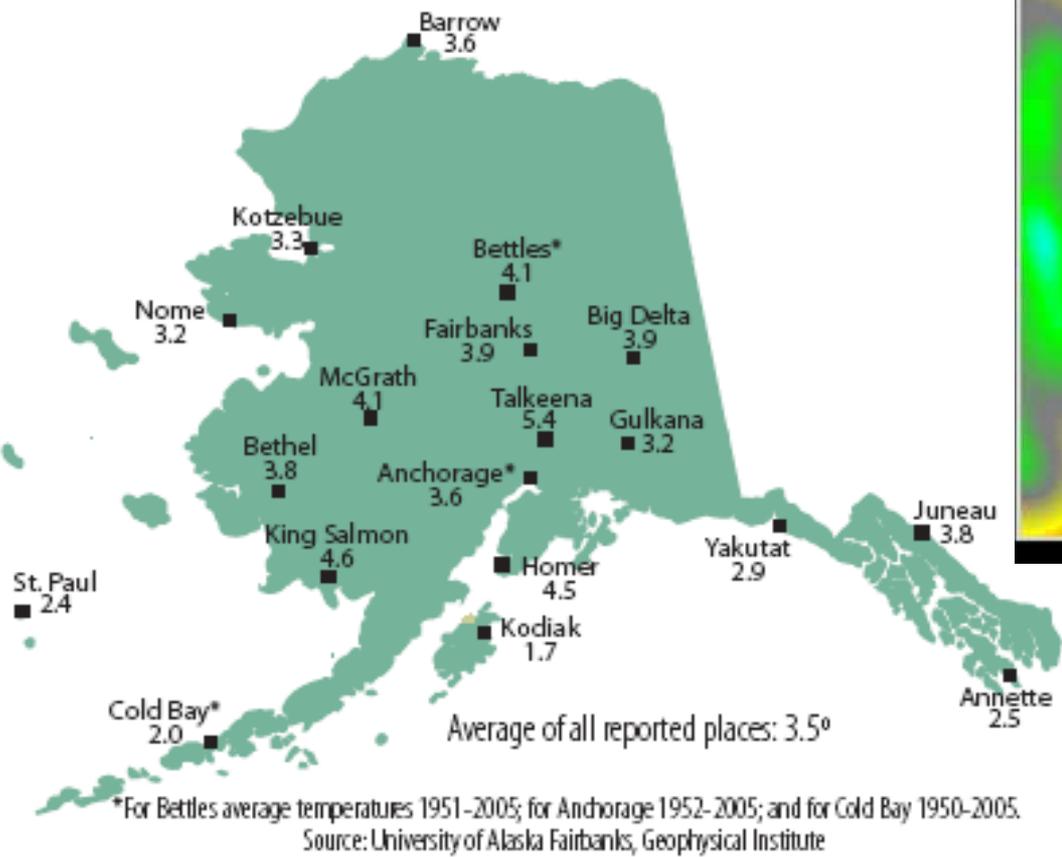
- Free emission allocations to “energy-intensive and trade-intensive manufacturing industries” and maybe impose tariffs on non-participating nations.
- Smaller allowance handouts for petroleum refining, but no tariff protection from imports.

# Implications for Alaska

- Climate
- Equity
- Trade and the economy

**Climate** – warming trend over the past 40 years will likely accelerate.

Map 1. Increase in Average Annual Temperatures, Alaska Locations, 1949 - 2005, In Degrees Fahrenheit



Temperatures increased by 3-5 F over much of Alaska in the last half of the 20<sup>th</sup> Century. Winter temperatures increased by as much as 10° F.

# Effects of Climate Change for Alaska Communities

- Environmental change has consequences for infrastructure, economic activity and livelihoods
- Effects felt most strongly in communities that depend on renewable resources for livelihoods.
- Effects highly localized. Focus on a few regionally significant changes.

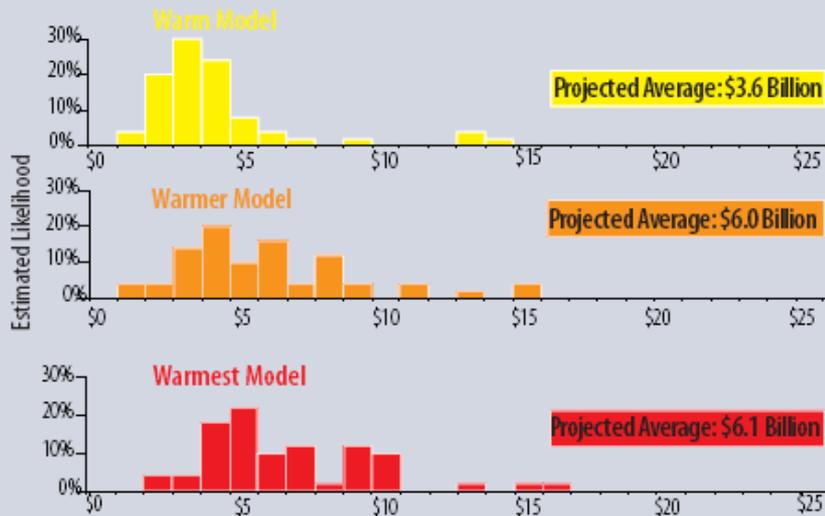
Several villages have to be moved from barrier island locations due to coastal erosion from reduced sea ice protection from fall storms.

Cost: \$100-150 million per community.

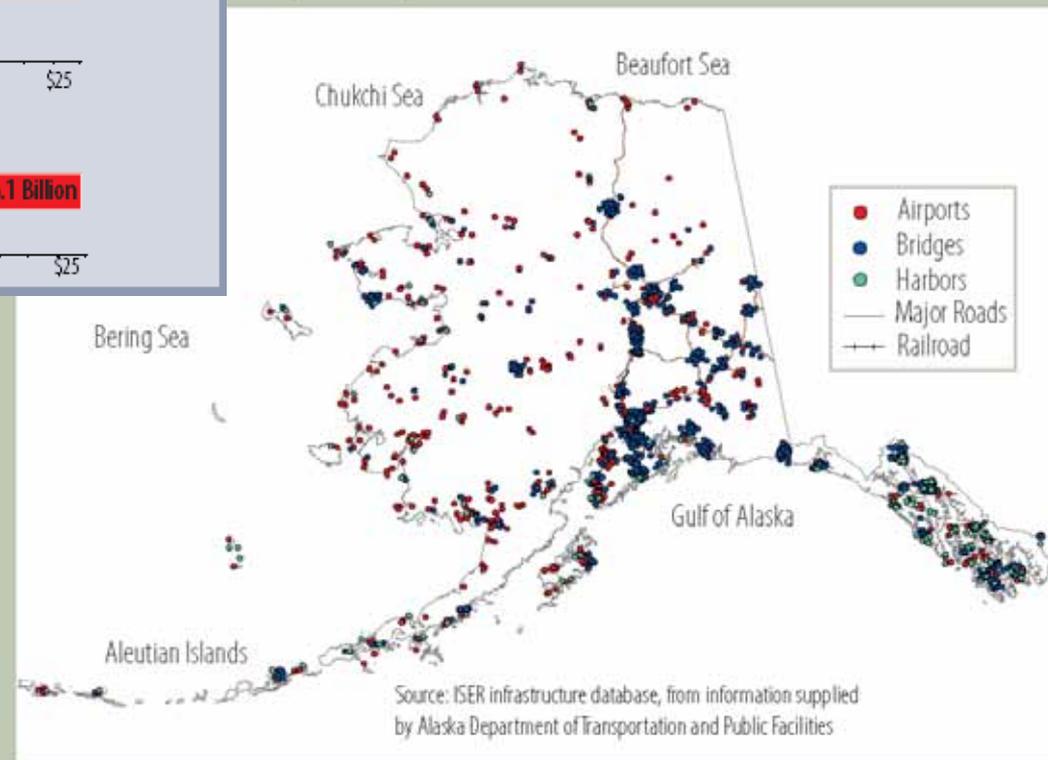


# Melting permafrost reduces useful life and increases design costs of infrastructure.

**Figure 3. Range of Additional Public Infrastructure Costs, 2006-2030, Adaptation Case**  
(In Billions of Dollars, Net Present Value)



**Map 3. Transportation Infrastructure in Alaska, 2006**



One estimate of cost increase just through 2030: \$3.6 to \$6.1 billion, mostly from repair and reconstruction of remote water and sewer systems, airports, roads, and harbors (Larsen et al., 2007).

# Solid permafrost and freshwater ice the key to environmentally friendly, low-cost, and safe surface transportation in a land without roads.

- Ice road season steadily decreasing across Alaska's North Slope. Replacing seasonal ice roads with permanent roads costs \$3.5 - \$4 million per mile.

Source: cost estimate of \$350-400 million for 102 mile road to from Prudhoe Bay to Nuiqsut. "Cost Estimates for Alternatives A, B, C, D, and F." Alpine Satellite Development Plan Final Environmental Impact Statement, Appendix J. Anchorage: U.S. Dept. of the Interior, BLM, 2005.

- Late freeze-up of rivers makes travel dangerous for village residents.



Prudhoe Bay, 2006. photo by Subhankar Banerjee

# Impacts to Livelihoods from Changes in Marine Environments

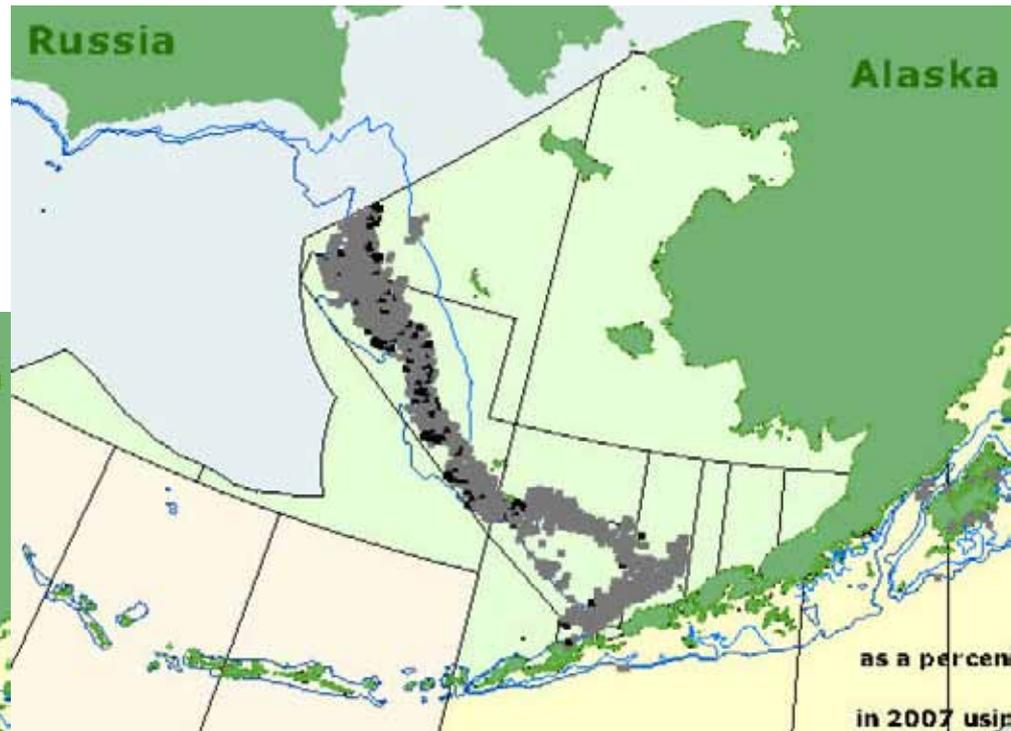
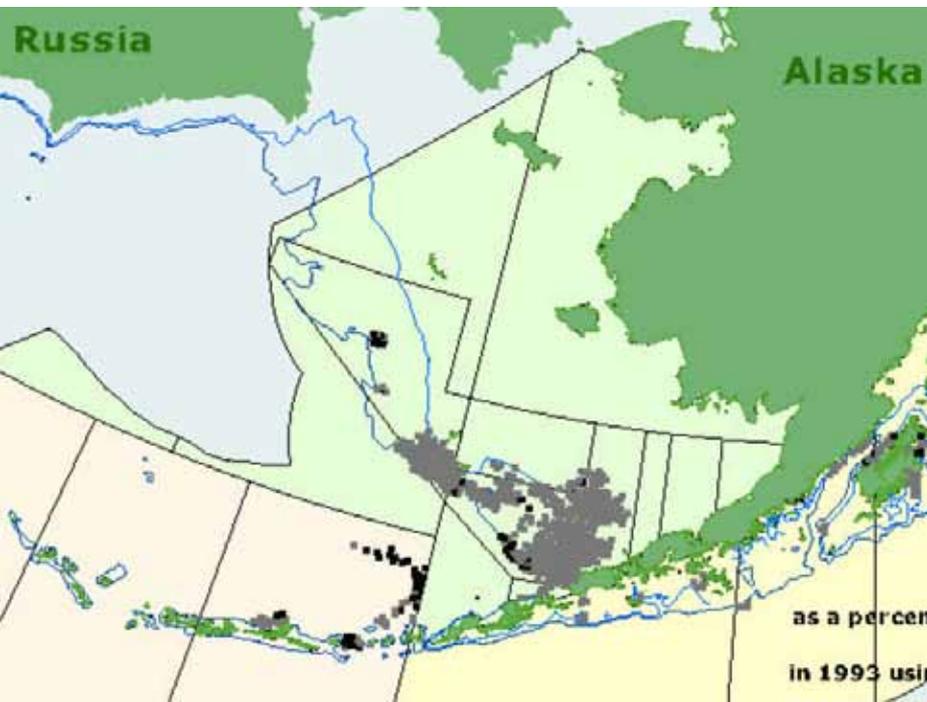
- Commercial fisheries – providing food for the world and supporting Alaska's coastal communities
- Subsistence fisheries and marine mammal harvests – sustaining cultures, putting food on the table, and providing extra cash in rural Alaska



# Bering Sea Pollock: America's Largest Fishery (\$1 billion per year)

Fish are moving northwest towards Russia as waters warm and sea ice melts earlier.

Distribution of harvests in 1993



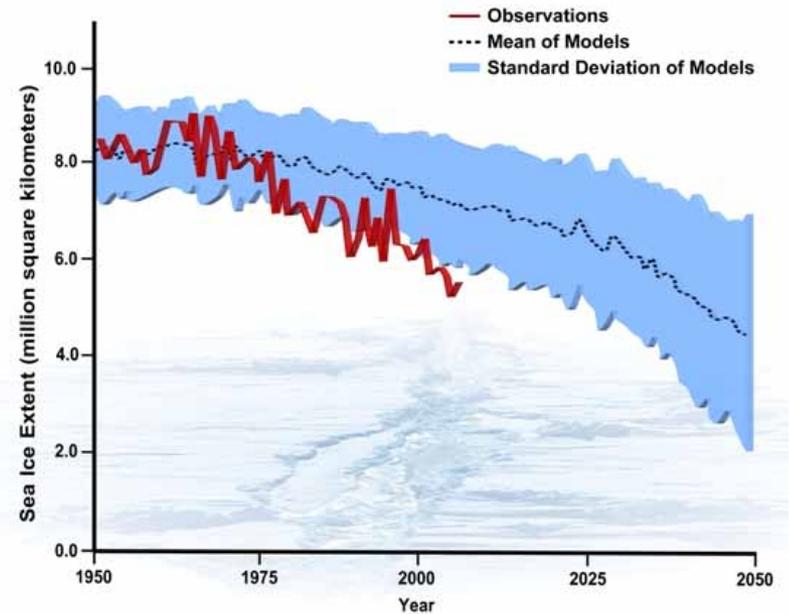
Distribution of harvests in 2007

Source: NMFS Alaska Region, Fisheries Observer Program

# Marine mammals dependent on sea ice are rapidly losing habitat

Walrus provide important source of supplemental income from sale of ivory carvings as well as food for Northwest Alaska communities.

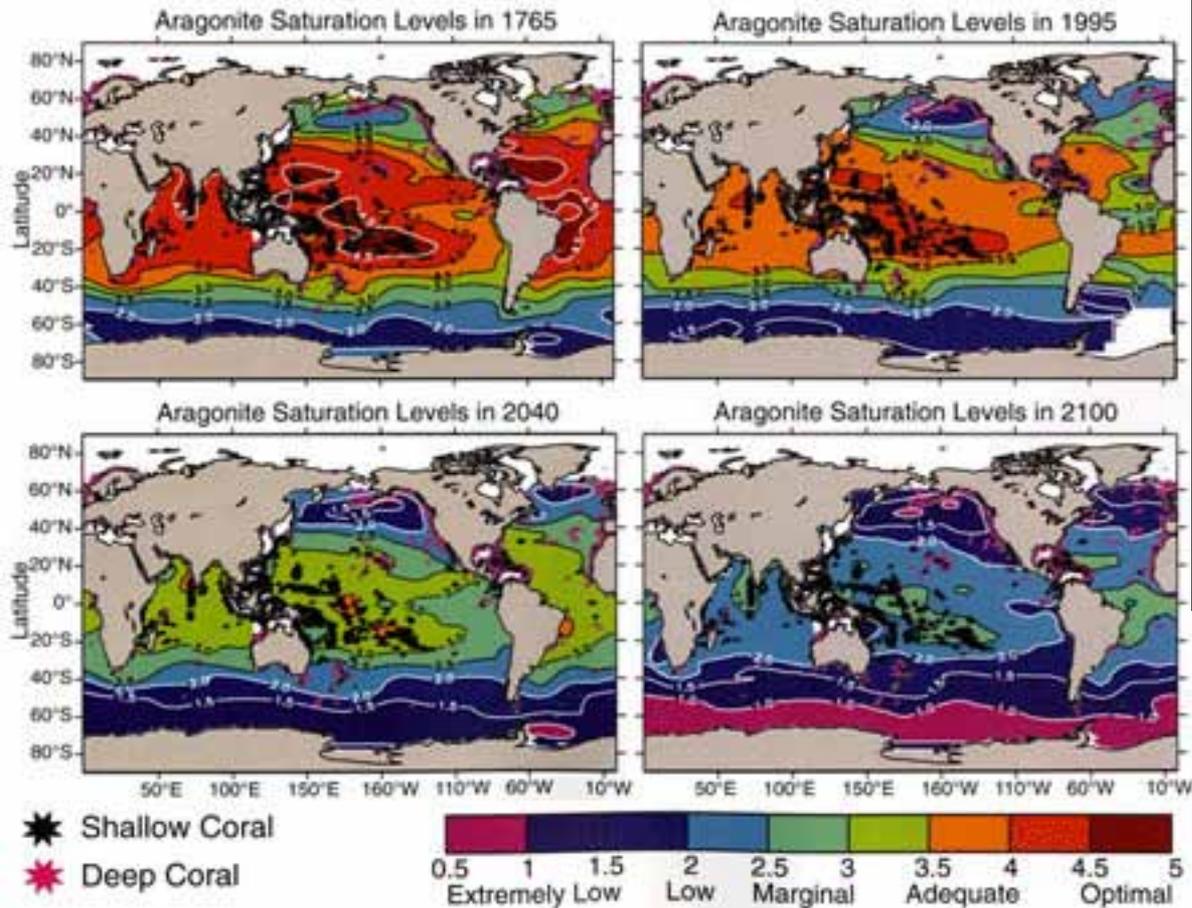
Arctic September Sea Ice Extent: Observations and Model Runs



# Ecological Consequences of Ocean Acidification

## Poorly Understood

What is known bodes ill for Alaska fisheries



Pteropod (butterfly snail): major food source for many coldwater marine fish – up to 50% of pink salmon diet – is highly vulnerable to acidification.

# Equity – while warming hurts some industries, it benefits others.

- Benefits for industry: longer operating season for marine transportation and increased arctic shipping

BBC NEWS | World | Americas | Warming 'opens Northwest P... <http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co....>



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## Warming 'opens Northwest Passage'

The most direct shipping route from Europe to Asia is fully clear of ice for the first time since records began, the European Space Agency (Esa) says.

Historically, the Northwest Passage linking the Atlantic and Pacific Oceans has been ice-bound through the year.

But the agency says ice cover has been steadily shrinking, and this summer's reduction has made the route navigable.

The findings, based on satellite images, raised concerns about the speed of global warming.

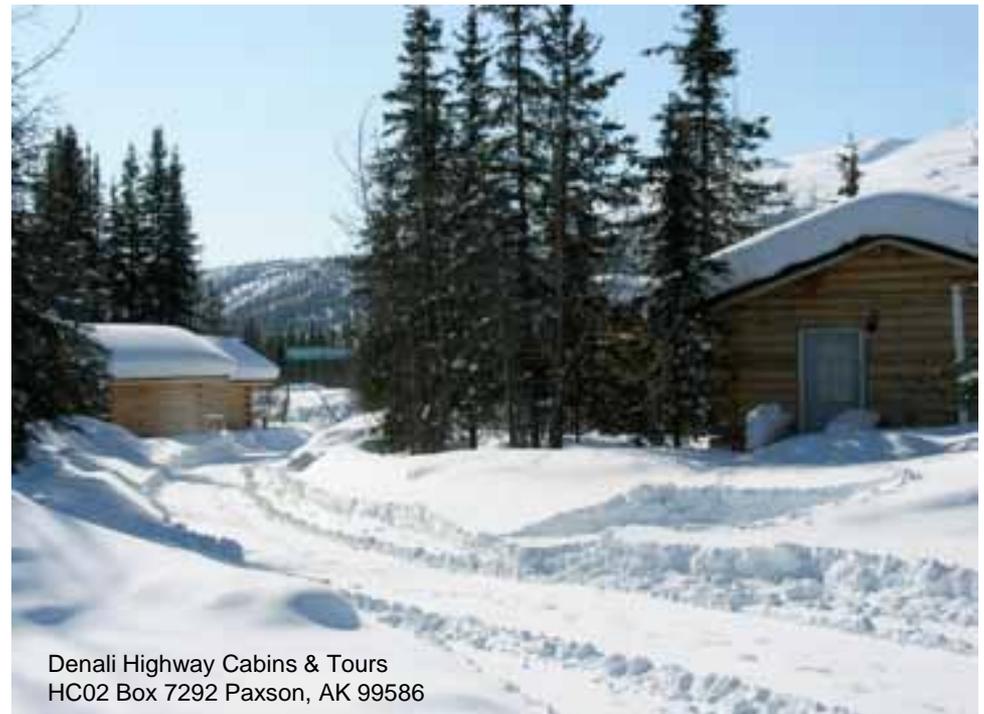
'Extreme'

# Equity – warming benefits urban Alaskans.

- Benefits for households and local businesses: reduced heating costs, greater local food production

Warming over the next 40 years is expected to reduce heating degree-days by 10%, saving Alaska households \$200-400 annually.

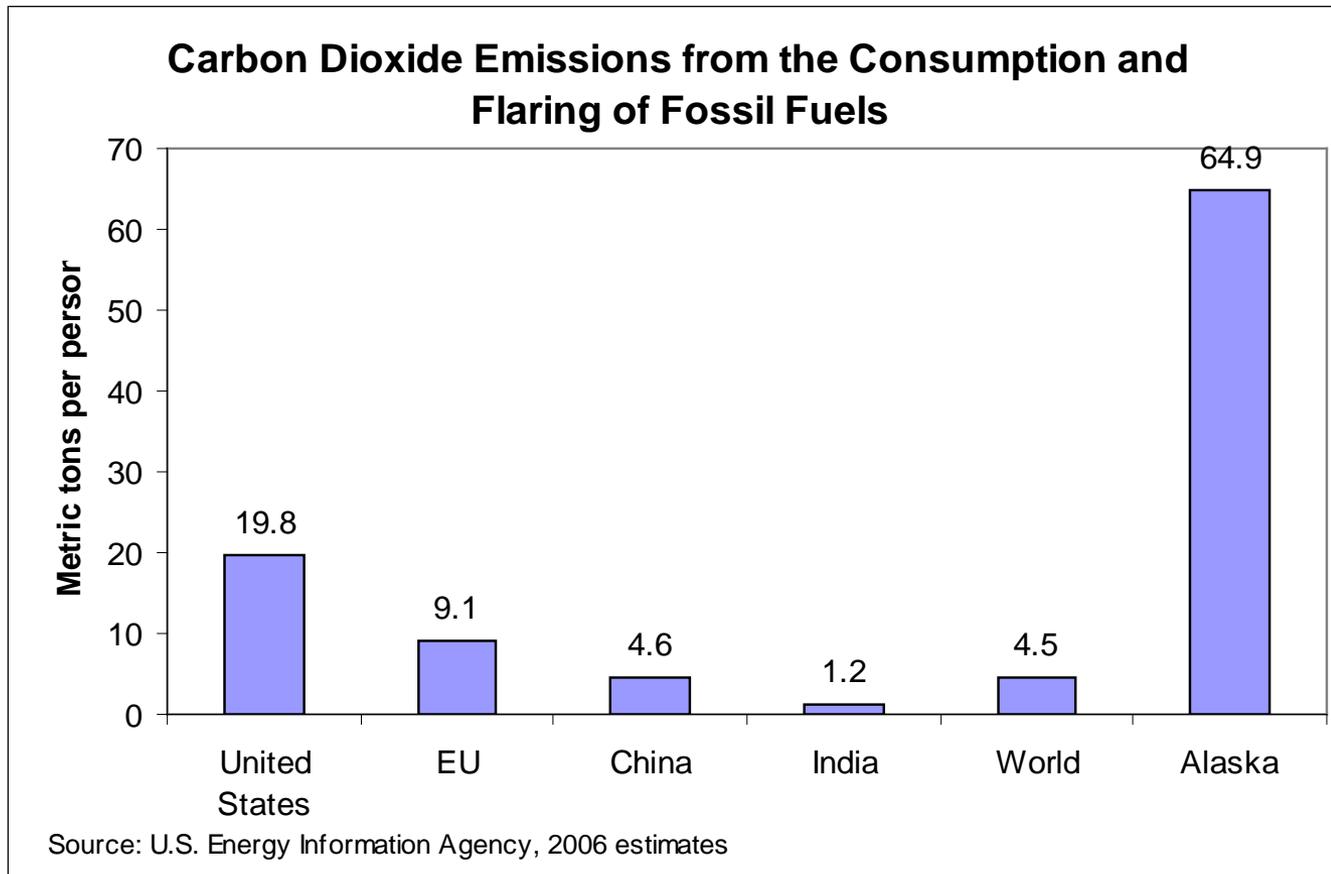
(Based on data from Saylor, Haley, and Szymoniak, 2008)



Denali Highway Cabins & Tours  
HC02 Box 7292 Paxson, AK 99586

# Trade -- Alaska is perhaps the world's most fossil-fuel-dependent society.

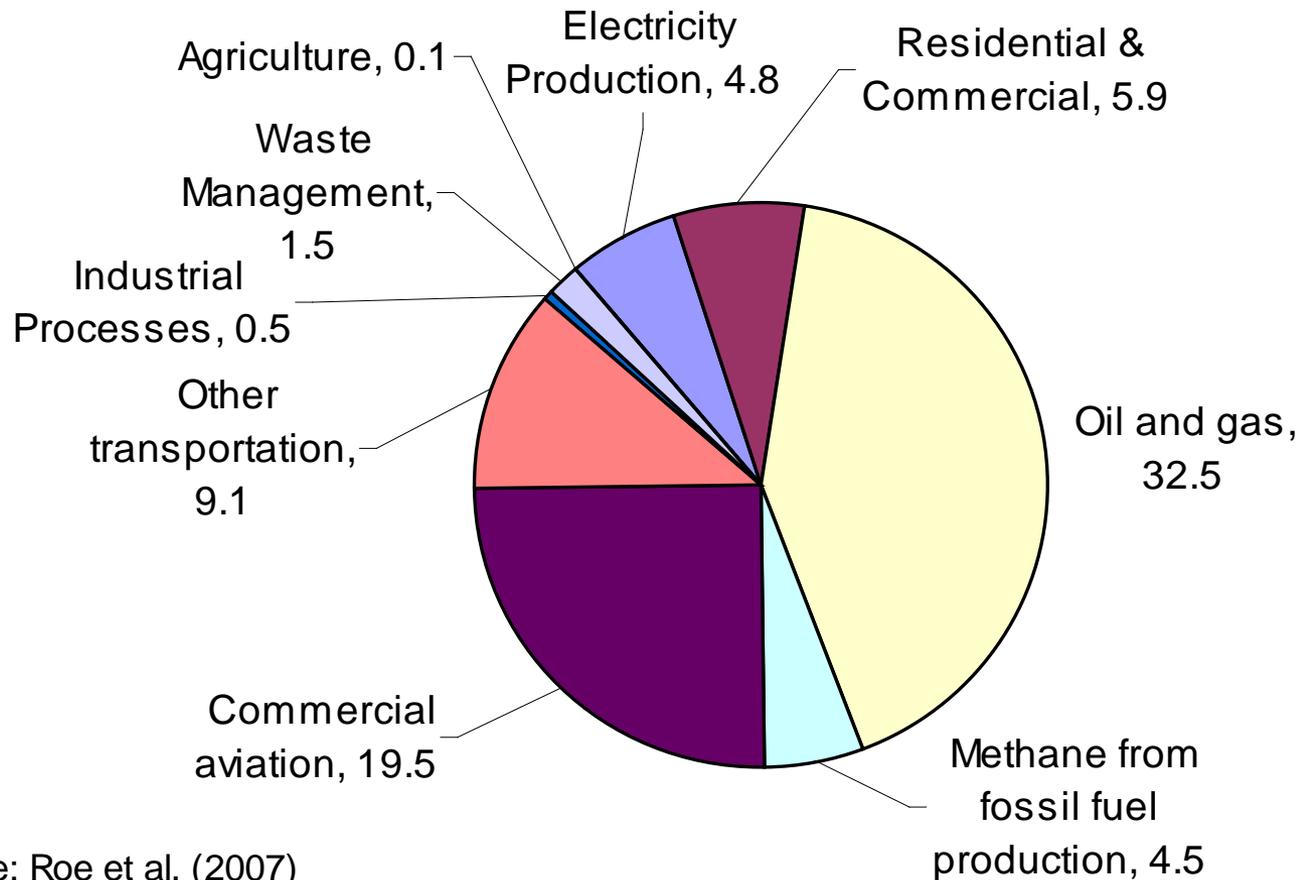
- Per-capita carbon dioxide emissions exceed three times the U.S. average, and 14 times the world average.
- If emissions from combustion of North Slope oil were included, Alaska's CO<sub>2</sub> emissions would be three times as large.



# High petroleum industry and transportation energy use leads to high per-capita greenhouse gas emissions

## Alaska Greenhouse Gas Emissions by Source

Metric tons CO<sub>2</sub> equivalent per person, 2005



Source: Roe et al. (2007)

# How to make climate change legislation work for Alaska

- Recognize vulnerability of Alaska economy
- Rather than try to avoid the problem, seize the opportunity to reduce Alaskans' carbon footprint
- This goes way beyond renewable electricity and weatherization (these are good, too)

# Urgent Alaska need: improve fuel efficiency in commercial fishing



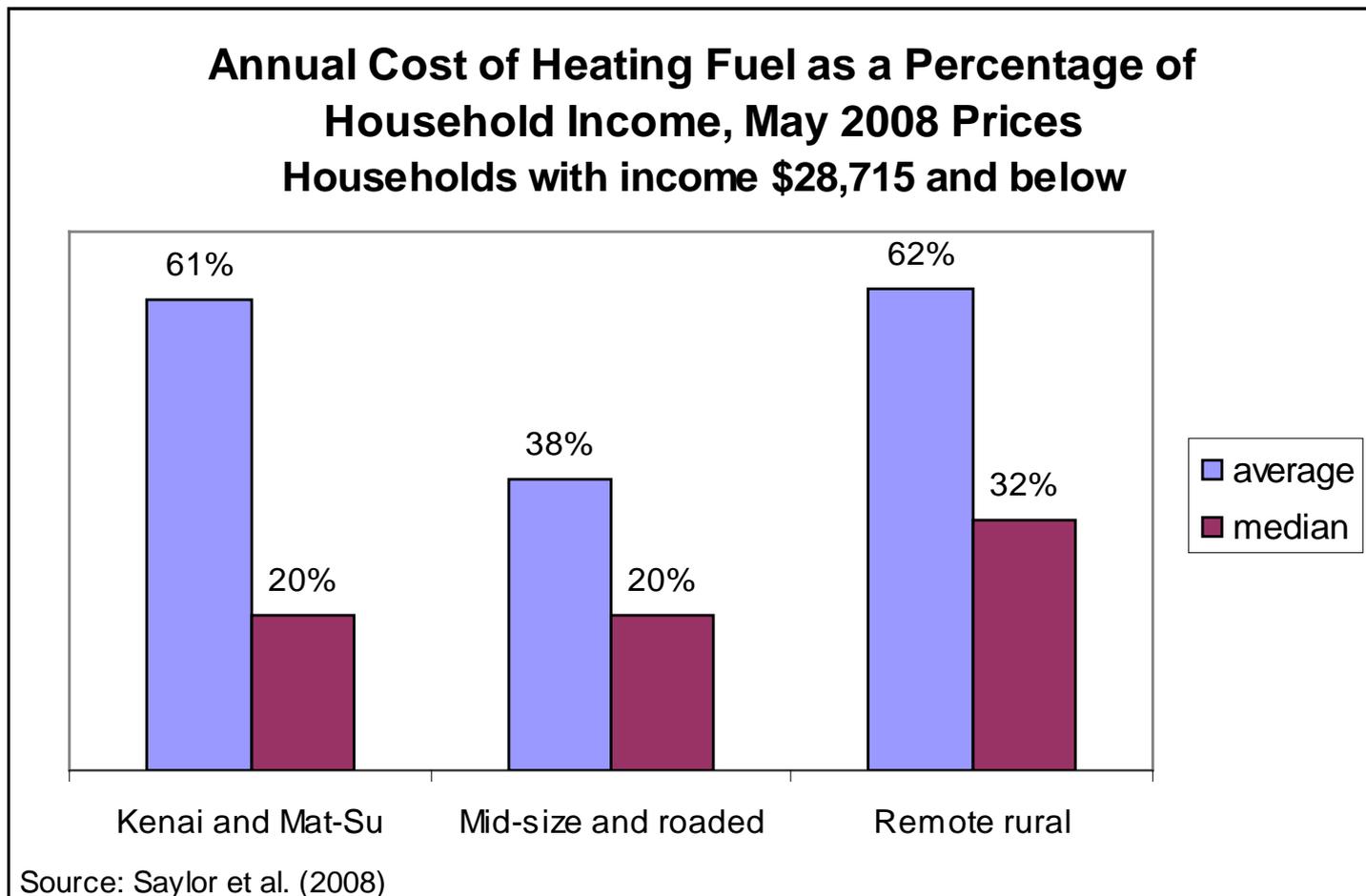
# Urgent Alaska need: improve fuel efficiency for remote rural transportation



**Alpine**  
Air Alaska Inc.

Equity: the cost of reducing greenhouse gas emissions will fall heavily on Alaska's lower income rural residents.

High fuel prices in 2008 provide a window to such a future.



# Urgent Alaska need: fuel-efficient replacement for two-stroke engine in subsistence livelihoods.

- Simple technology – can be repaired in the Bush
- Small scale, transportable
- Sustainable life cycle



# Local governments key to reducing residential and commercial emissions

- Sprawl, public transit, building and design codes, water and wastewater systems, solid waste management, etc.
- Measures to involve local governments
  - Audits of non-industrial emissions within local government boundaries
  - Direct financial incentives to local jurisdictions achieving emissions reductions

# Conclusions

- Strong national and international measures to reduce U.S. greenhouse gas emissions are virtually inevitable. Alaskans must look ahead and face this reality, whether they agree with the goal or not.
- The longer we wait to implement these measures, the more costly they will be. So the choice is to get dragged in kicking and screaming, or be proactive and help shape policy so it works for Alaskans.