HEALTH EFFECTS OF CLIMATE CHANGE

CLIMATE CHANGE

Temperature Rise ¹
Sea level Rise ²
Hydrologic Extremes

1 3° C by 2100
2 40 cm by 2100
IPCC estimates

Adapted from Patz, 1998

CLIMATE CHANGE

Urban Heat Effect
Heat Stress
Cardiorespiratory failure

Air Pollution & Aeroallergens
Respiratory diseases, e.g., COPD & Asthma

Insect Related Diseases
Malaria
Dengue
Encephalitis
Hantavirus
West Nile virus
Stings / Anaphylaxis

Water-borne Diseases
Cholera
Cyclospora
Cryptosporidiosis
Campylobacter
Leptospirosis
Vibrio

Water resources & food supply
Malnutrition
Diarrhea
Toxic Red Tides

Mental Health & Environmental Refugees
Forced Migration
Overcrowding
Infectious diseases
Human Conflicts
Health Impacts will vary...

- Regionally
  - Rate of climate change
  - Health status of the population
  - Public Health Response
  - Adaptive capacity and response of the population
Governor Palin

Governor’s Sub-Cabinet on Climate Change

Immediate Action Work Group

Mitigation Advisory Group

Research Needs Work Group

Climate Change Adaptation Advisory Group

- Appointed Members
  - Public Infrastructure Technical Work Group
    - Interested Parties
    - Technical Experts
    - Public
  - Health & Culture Technical Work Group
    - Interested Parties
    - Technical Experts
    - Public
  - Natural Systems & Associated Economies Technical Work Group
    - Interested Parties
    - Technical Experts
    - Public
  - Other Economic Activities Technical Work Group
    - Interested Parties
    - Technical Experts
    - Public

(Mitigation TWG framework is similar)
Adaptation Advisory Group (AAG) Technical Working Group (TWG) Composition

• Public Infrastructure
  – the physical impacts of climate change on the built environment and transportation options

• Health and Culture
  – Human health, cultural, archeological, recreational and way of living impacts of climate change

• Natural Systems
  – Impacts of climate change on biodiversity, ecosystem health and associated human economic activities

• Other Economic Activity
  – Economies affected by a changing climate that are not directly dependent on living ecosystems.
Health & Culture

• Option 1: Identify a Central Ombudsman
  – Support rural communities deal with complex issues requiring coordination among multiple state and federal agencies, local governments and others.

• Option 2: Augment Surveillance and Control for Insect, Water and Food-borne Disease
  – Protect the health of humans and animals, both domestic and wildlife, from emerging threats effected by climate change.
Health & Culture

• **Option 3: Community Health Impact Evaluation**
  – Establishes a mechanism by which any planned adaptation or mitigation activity can be rapidly screened to see whether a detailed evaluation might be advisable.

• **Option 4: Environmental Health Protection**
  – Evaluate sanitation infrastructure and practices at risk from flooding, thawing permafrost, and other events that will reduce performance of environmental health protection.
Health & Culture

• Option 5: Archeological Sites and Gravesites
  – In cooperation with appropriate local, regional, and statewide entities; assess archeological sites and gravesites at risk from accelerated coastal and river erosion.
  – Protection and recovery of important at-risk sites.
AK Native Science Commission
Inuit Circumpolar Council
Allergy, Asthma, and Immunology Center of AK
Catholic Cathedral, Juneau
NANA Corp
Emergency Preparedness & Traditional Food Safety, ANTHC
Bering Sea Elders Advisory Group
Whaling Captain (Barrow)
State Veterinarian, ADEC
Huntington Consulting
Tanana Chiefs Conference
Tribal Administrator Native Village of Kwigillingok
State Epidemiologist and Chief, Alaska Section of Epidemiology
Environmental Health Services, ANTHC
Statewide Alaska Inter-Tribal Council
Dept of Archaeology, UAF
National Park Service
Food Safety and Sanitation Program at DEC
National Association of Food and Drug Officials (AFDO)
Alaska Department of Fish and Game
Zender Environmental Health and Research Group
Community Environment and Safety, ANTHC
Office of History and Archaeology, Alaska DNR
Professor of Anthropology, UA Kenai
Our Consultants and Facilitators

Jason Vogel, PhD
Status Consulting
Dr. Vogel holds a PhD in environmental studies and an MS in astrophysical, planetary, and atmospheric sciences from the University of Colorado, Boulder; as well as a BS in chemistry and a BA in humanities from the University of Texas at Austin.

Kris Ebi, PhD
ESS Consulting
Dr. Ebi’s scientific training includes a M.S. in toxicology and a Ph.D. and MPH in epidemiology, plus two years of postgraduate research in epidemiology at the London School of Hygiene and Tropical Medicine.
Health and Culture TWG
Our Presentations

• Insect & Vector-borne Disease
  – Jeffrey G Demain, MD
• Food and Water-borne Disease
  – Joe McLaughlin, MD, MPH
• Subsistence Impacts
  – Craig Fleener, BS
• Cultural Impacts
  – Elaine Abraham, MS

http://climatechange.alaska.gov/