

Update on Maine CDC Climate and Health Program

Norman Anderson

norman.anderson@maine.gov

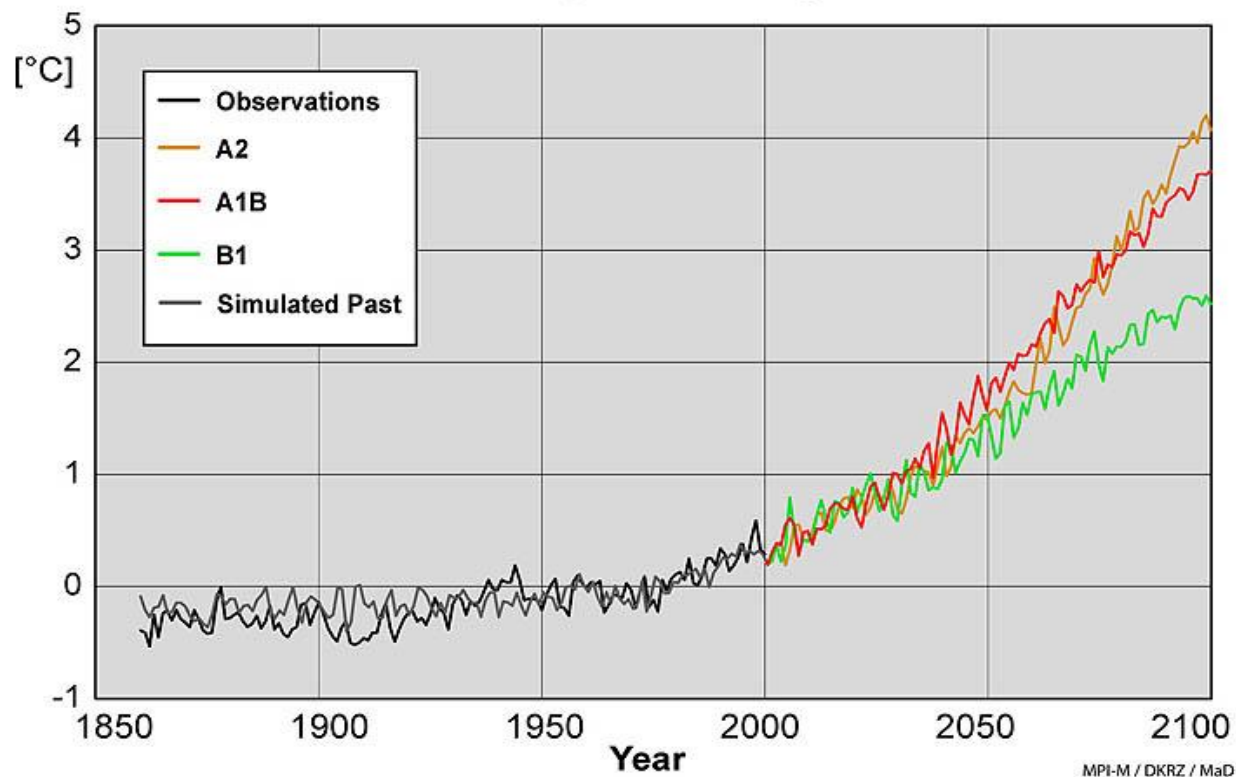
December 11, 2013

Maine Medical Association

Major Components of Maine's Climate and Health Program

- Part of Federal CDC Initiative
- Current emphasis on
 - Identifying/assessing climate related health impacts
 - Projecting important climate indicators
 - Developing/enhancing intervention strategies

IPCC SRES Scenarios: Temperature Change relative to 1961-1990



Potential Health Effects of Climate Change

Climate Change:

- **Temperature rise**
- **Sea level rise**
- **Hydrologic extremes**



HEAT

SEVERE WEATHER

AIR POLLUTION

ALLERGIES

VECTOR-BORNE DISEASES

WATER-BORNE DISEASES

WATER AND FOOD SUPPLY

MENTAL HEALTH

ENVIRONMENTAL REFUGEES



Heat stress, cardiovascular failure



Injuries, fatalities



Asthma, cardiovascular disease



Respiratory allergies, poison ivy



Malaria, dengue, encephalitis, hantavirus, Rift Valley fever



Cholera, cryptosporidiosis, campylobacter, leptospirosis



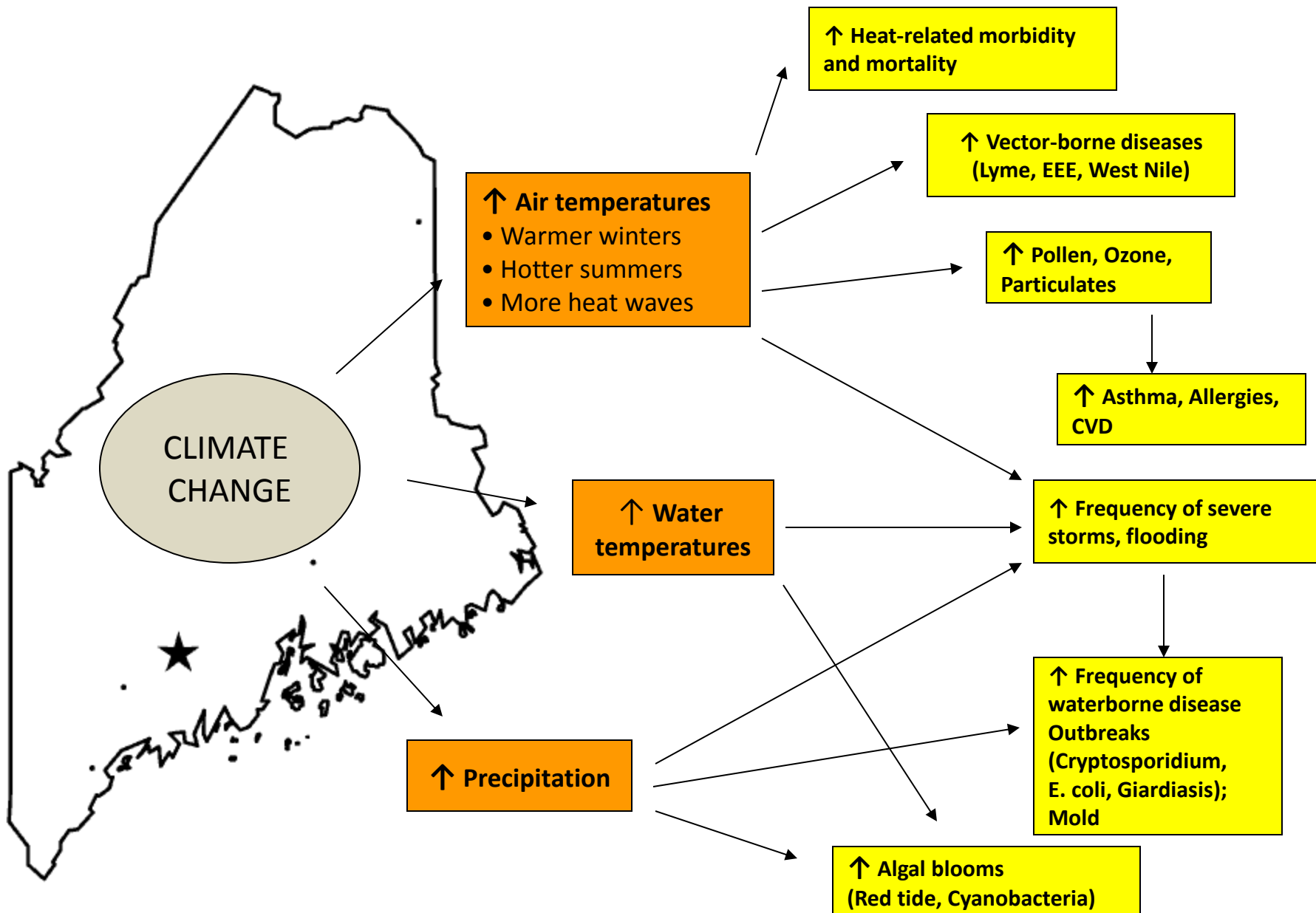
Malnutrition, diarrhea, harmful algal blooms



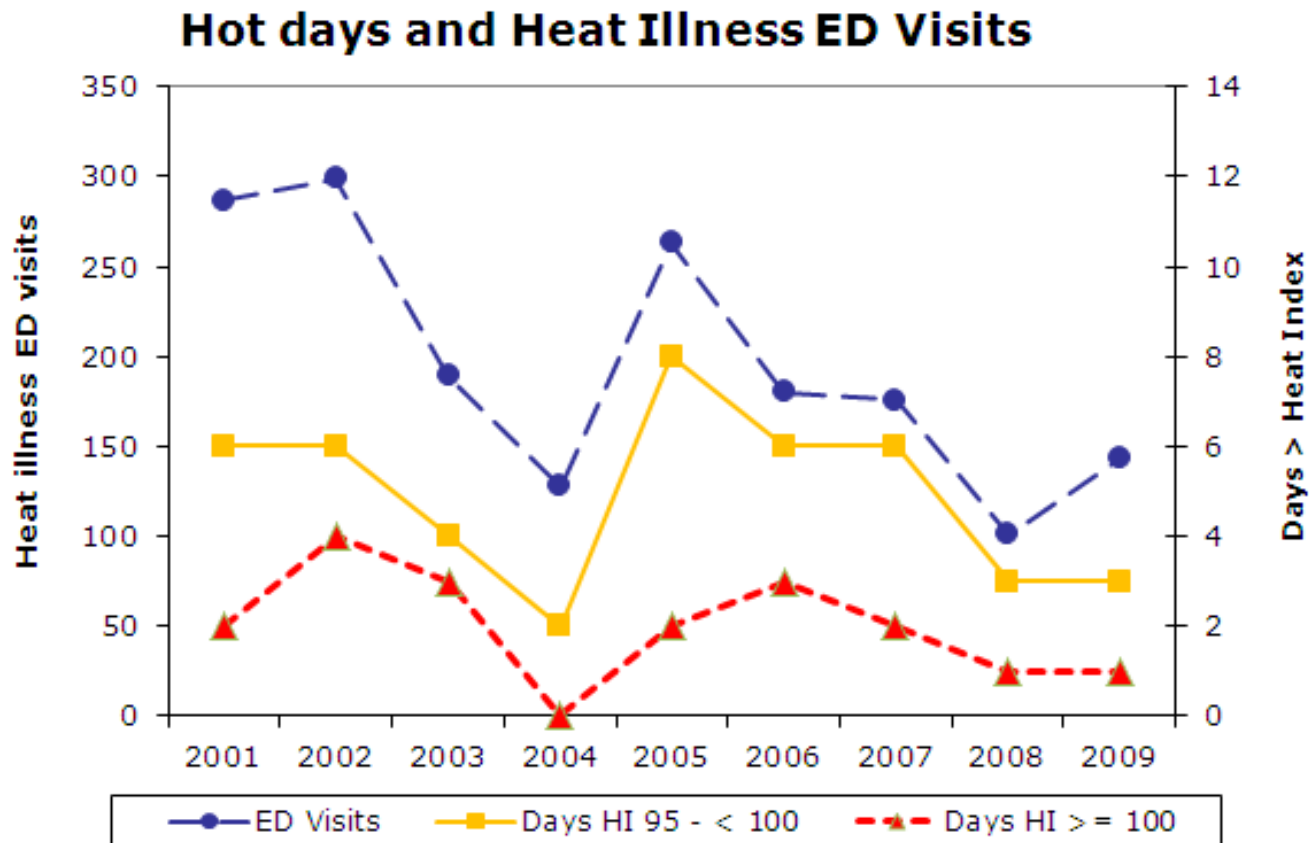
Anxiety, despair, depression, post-traumatic stress



Forced migration, civil conflict

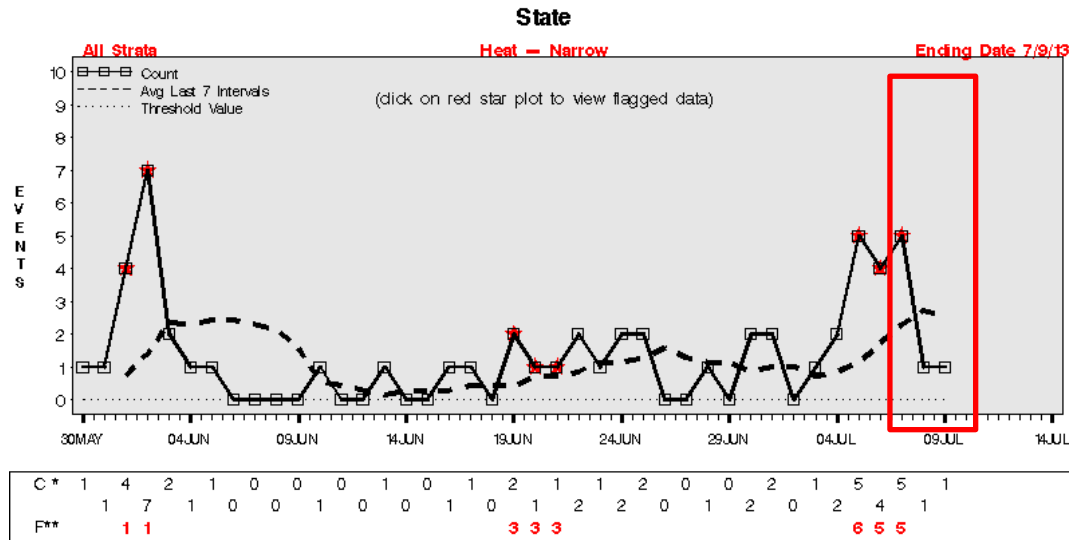


Relationship between High heats and Heat Illness ED Visits

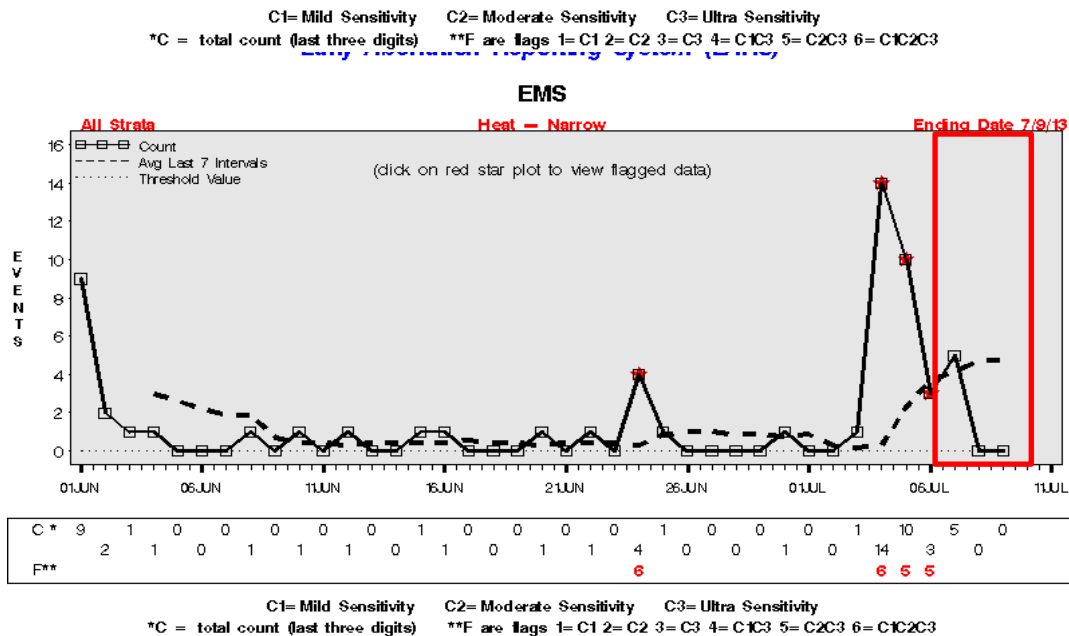


ED and EMS: July, 2013 Heat Event

Early Aberration Reporting System (EARS)

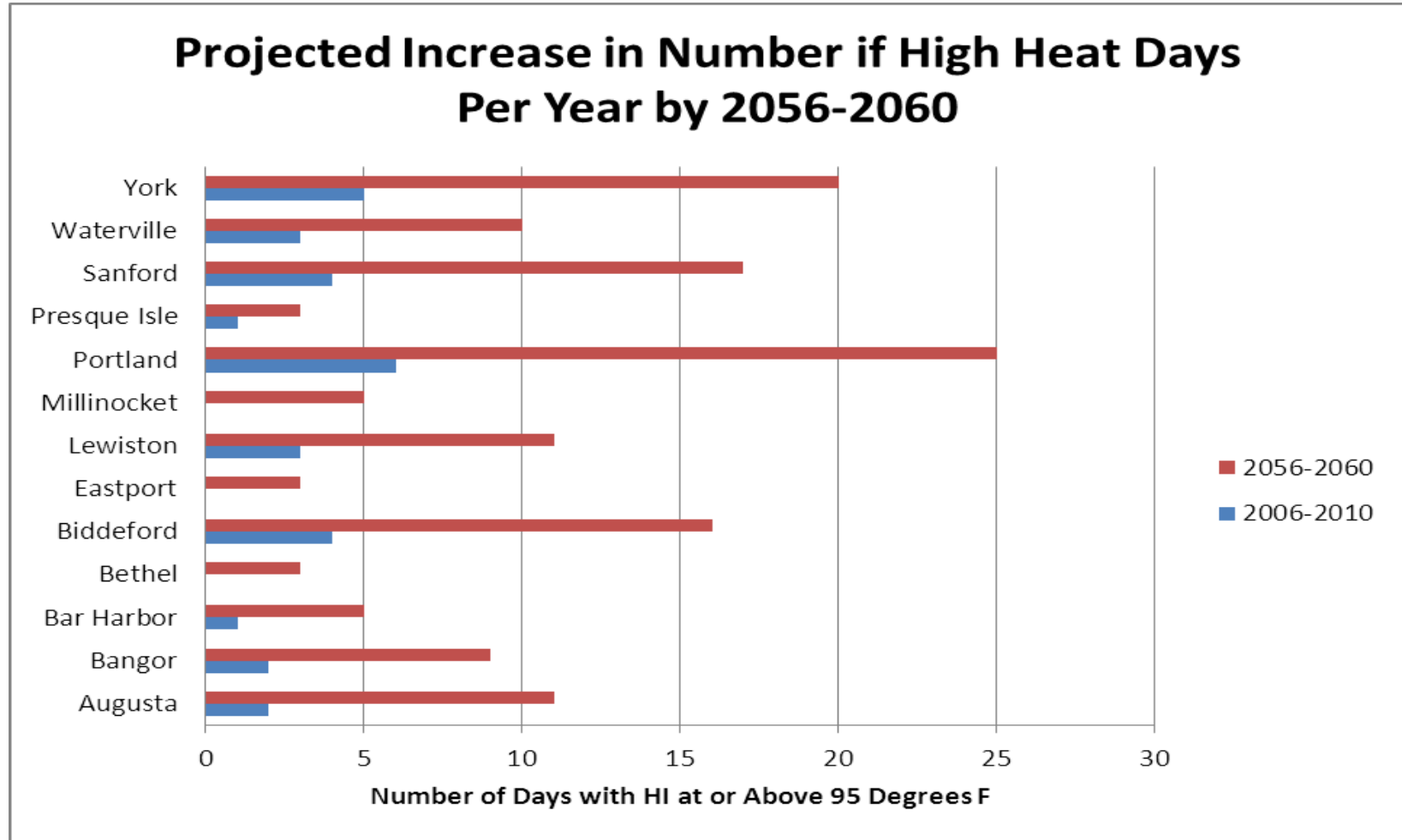


ED Visits

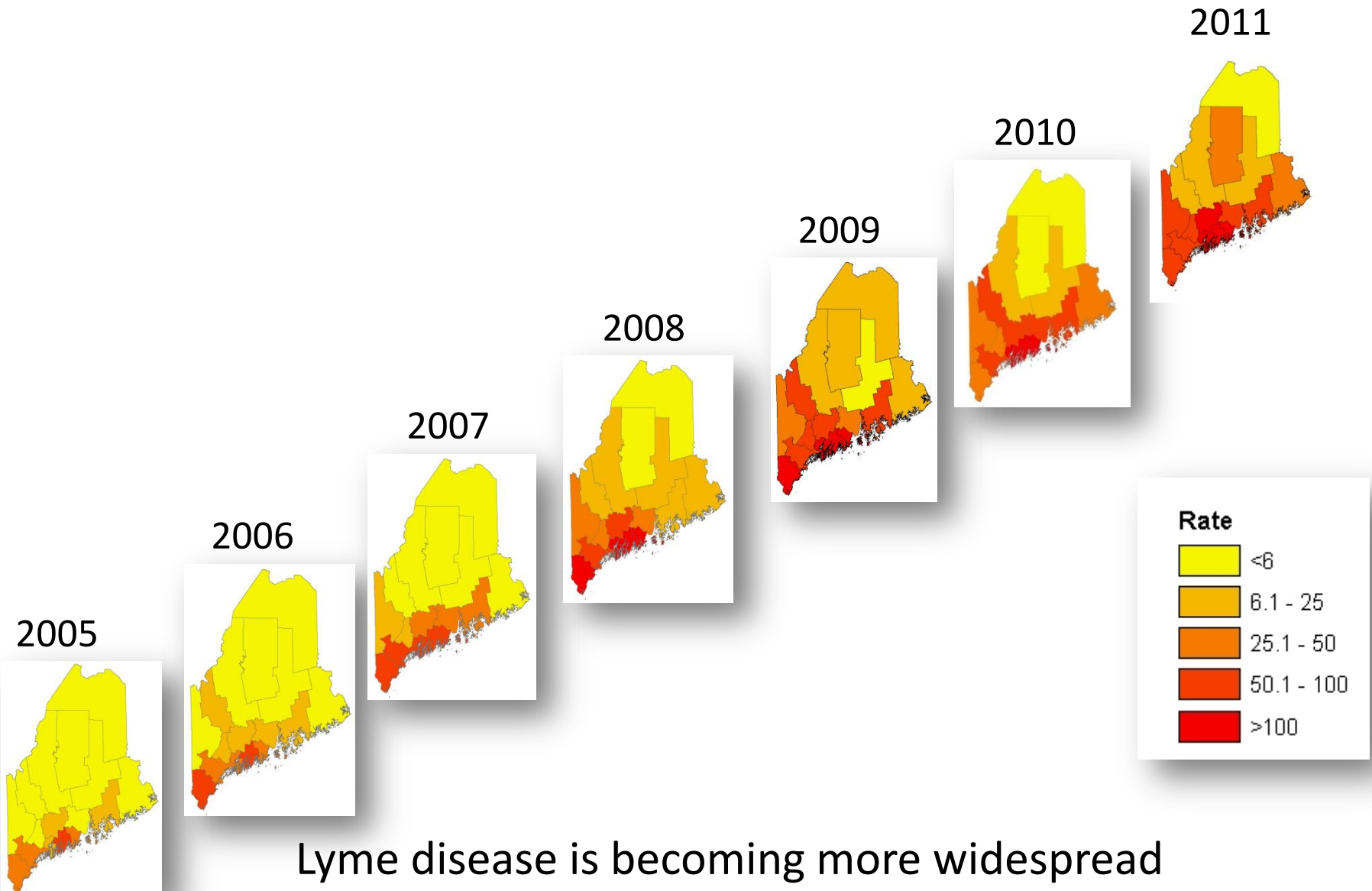


EMS Runs

Projected High Heat Days – Selected Weather Stations



Lyme Disease: Maine Distribution



Lyme disease is becoming more widespread

Correlation between Deer Tick Prevalence and Lyme Disease

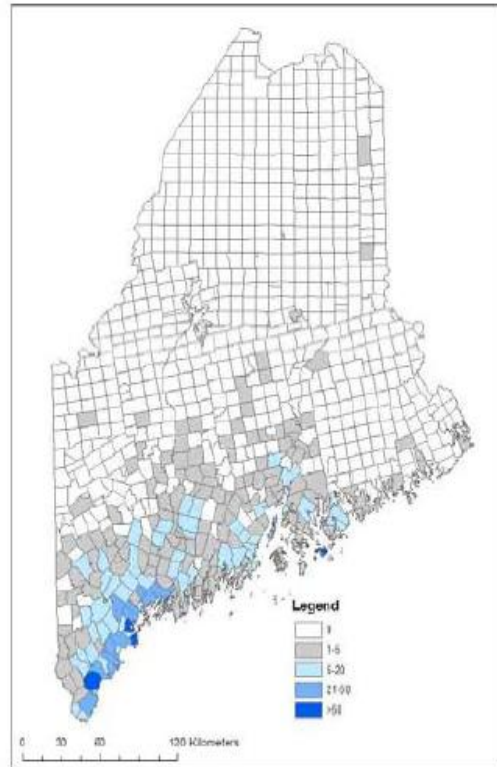


Figure 3. Maine *I. scapularis* nymph submissions by town, 1989-2010.

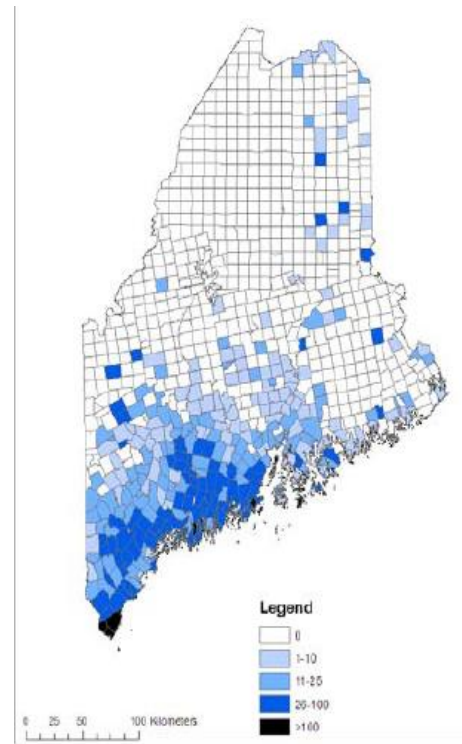
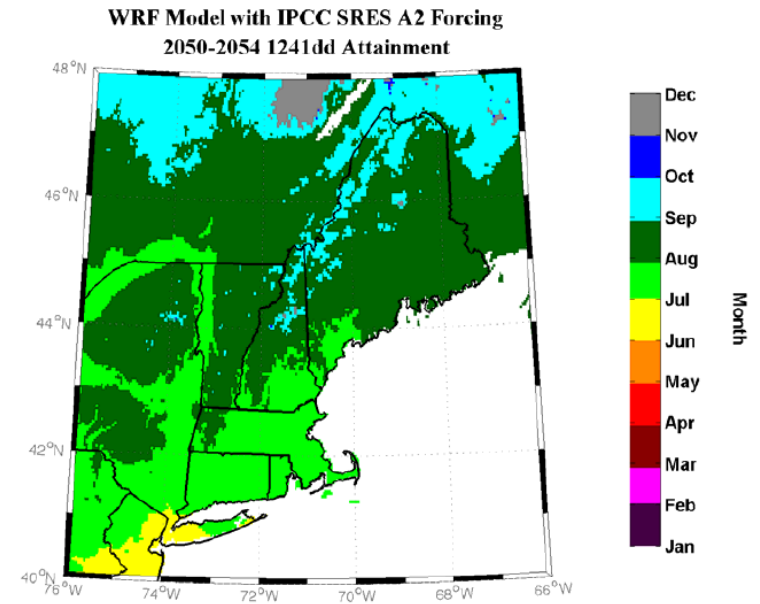
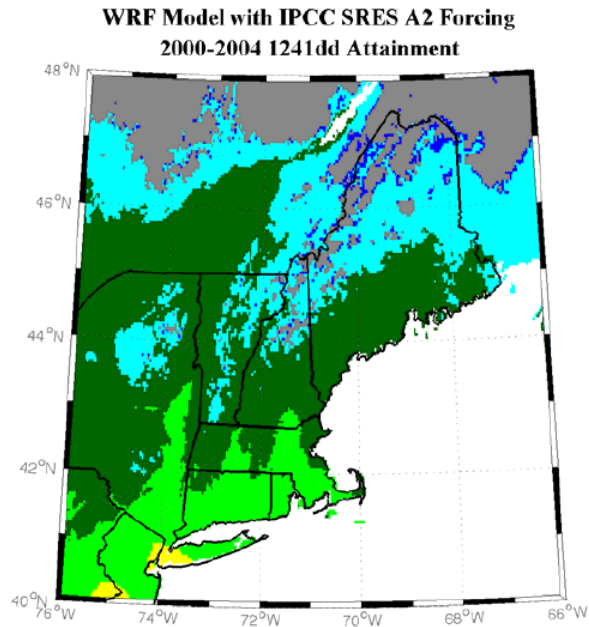


Figure 2. Maine Lyme disease case rates (cases per 100,000) by town, 1983-2010 average.

By Mid Century, Conditions will be favorable to deer tick spread throughout Maine



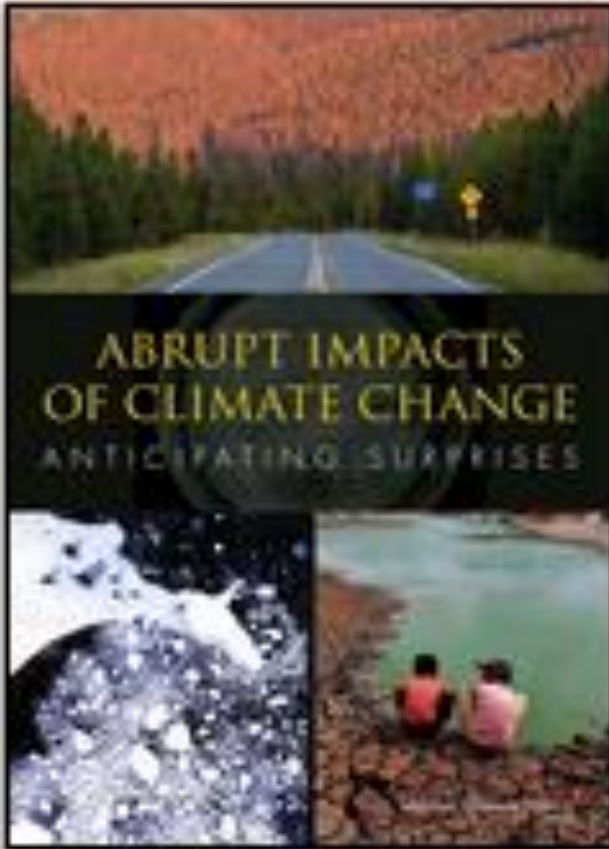
Interventions

- Public Health/Emergency Preparedness
 - Hazard Vulnerability Assessments
 - All hazards planning
- Cumberland County Pilot Heat Response Plan
- Lyme Disease Forums/Needs Assessments
- Educational Interventions Vector borne disease prevention in Maine Schools

Next Steps

- Continue development of heat response and vector borne disease prevention strategies
- Expand scope of project to address impacts of extreme precipitation and pollen
- Increase emphasis on water-borne diseases

National Research Council, 2013



- Significant climate impacts predicted for this century could happen abruptly (e.g., several years)
- Even gradual changes in the physical environment could cross critical thresholds in human and ecological systems (e.g., crop failures, mass extinctions)
- We are not prepared for what lies ahead
 - Recommends an abrupt change early warning system