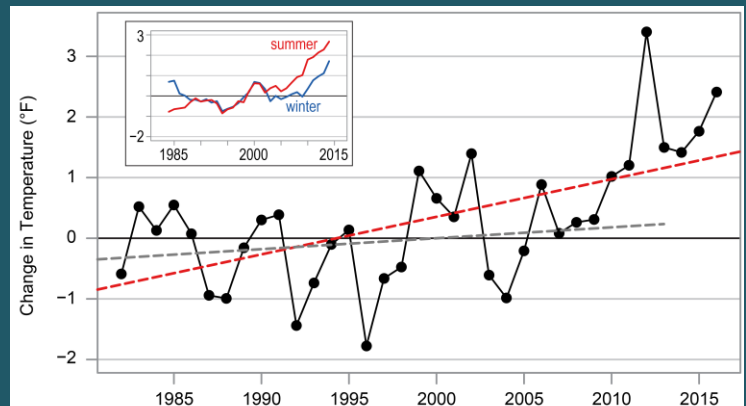


Impacts of Climate Change on the Hudson Valley: Results of the Fourth National Climate Assessment

Ancram Conservation Advisory Council

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Change in Sea Surface Temperature on the Northeast Continental Shelf



Our climate is changing and human activity is a significant driver of that change. An overwhelming majority of climate scientists agree that decades of evidence indicate clearly that we are destabilizing our climate through our release of excessive greenhouse gases into the atmosphere from fossil fuel use, from animal byproducts and from deforestation. Climate change is already altering the face of the planet.

According to the National Oceanic and Atmospheric Administration (NOAA), the last four years have been the warmest since 1880. The world in 2018 was 1.5°F (0.83°C) warmer than the average set between 1951 and 1980. And in 2018, global carbon emissions were on track to set new records.

In November 2018, NOAA released the fourth National Climate Assessment. In 1990, Congress mandated that a report be issued at least every four years that, “analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity...and analyzes current trends in global change...for the subsequent 25 to 100 years.” NOAA is the lead agency for the report. One section of the report breaks down impacts of climate change by region. Chapter 18 looks at impacts on the northeast (<https://nca2018.globalchange.gov/chapter/18/>).

Here are some of the findings of the report that directly impact the Hudson Valley:

- The recent dominant trend in precipitation throughout the Northeast has been towards increases in rainfall intensity, especially during the winter and spring with increases in intensity exceeding those in other regions of the contiguous United States.
- Monthly precipitation in the Northeast is projected to be about 1 inch greater for December through April by end of century
- By 2035, the Northeast is projected to be more than 3.6°F (2°C) warmer on average than during the preindustrial era
- Projected increases in temperature are expected to lead to substantially more premature deaths, hospital admissions, and emergency department visits due to heat across the Northeast. For example, in the Northeast we can expect approximately 650 more excess deaths per year caused by extreme heat by 2050
- Less distinct seasons with milder winter and earlier spring conditions are already altering ecosystems and environments in ways that adversely impact tourism, farming, and forestry. The region’s rural industries and livelihoods are at risk from further changes

to forests, wildlife, snowpack, and streamflow.



Flooding in Ancram. Photo courtesy of Choral Eddie.

The report suggests that while a longer growing season might benefit New York farmers, the increase in precipitation and uncertainties with frosts could result in greatly decreased yields. If this year is any indication, the delay in fields drying means greater soil compaction, delays in planting, and poorer germination, among other problems.



Ancram, with NY State aid, was able to enlarge two culverts to prepare for flooding events. Photo courtesy of Colleen Lutz.

As part of New York State's response to the climate crisis, municipalities have been encouraged to form task forces to use local and state funds to attempt to educate the public, initiate programs to reduce greenhouse gas emissions, and address impacts of climate change. Ancram's Climate Smart Communities Task Force is addressing the energy efficiency aspects of this by securing funds to do municipal building energy audits; organizing a lightbulb exchange program to increase energy

efficiency in residential homes; and conduct public education on energy efficiency.



Increase in number and severity of storms: Storm clouds over Ancram Town Hall. Photo courtesy of Jamie Purinton.

Health Impacts of Climate Change

Climate changes will lead to many different impacts on human health, directly and indirectly. The CDC (Centers for Disease Control), the USEPA (Environmental Protection Agency) and the WHO (World Health Organization) conduct active research into this issue and have extensive information and guidelines on climate change impacts on human health on their web sites. The National Institutes of Environmental Health have identified the following arenas of health as likely to be impacted by climate change and these are by no means all of the physiological and psychological vulnerabilities (National Institutes of Environmental Health: Health Effects of Climate Change, <https://report.nih.gov/nIHfactsheets/ViewFactSheet.aspx?csid=44&key=H>):

- Asthma, respiratory allergies, and other airway diseases (caused by increased heat, ozone and other pollutants).
- Skin cancers from increased intensity and duration of ultraviolet radiation.
- Cardiovascular disease and stroke (caused by physiological and mental stresses).

- Food-borne diseases and nutritional issues (caused by increased heat, flooding and food supply disruptions).
- Heat-related disease and mortality.
- Child and fetal development abnormalities (caused by increased heat, flooding, pollutants, and food supply disruptions).
- Mental health and psychological-stress related disorders.
- Vector-borne and zoonotic diseases (diseases carried by insects and other animals).
- Water-borne diseases.
- Weather-related morbidity and mortality (especially due to increased frequency and severity of storms and flooding).

NYSERDA also provides financial incentives to help offset the cost of improvements. Go to <https://nyserdera.energysavvy.com/start-your-project/hpwes-express-audit/?s=contact>.

3. Seal and insulate your home. Save up to 20 percent on heating and cooling costs with sealing and insulating measures.

4. Lower your thermostat in winter; raise it in summer. Install energy-saving thermostats.

5. Install energy efficient lights and appliances. Get free LED bulbs through Ancram's Climate Smart Communities Task Force program. Buy energy star appliances.

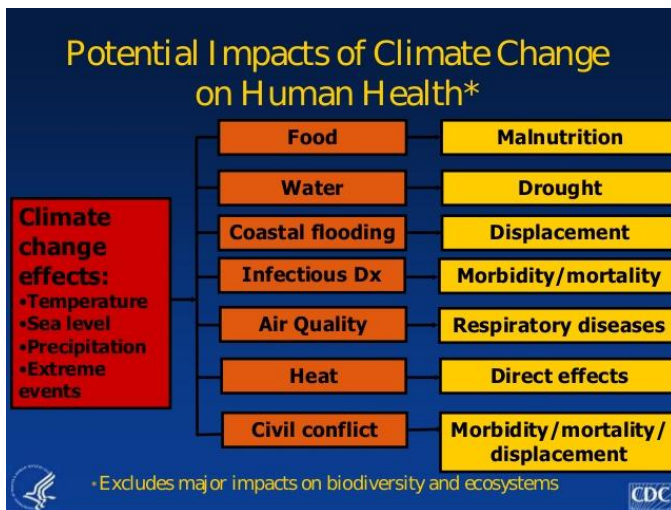
6. Reduce, Reuse, Repair, and Recycle. Consume less to begin with and then reuse and repair what you can. Support your local recycling system. The four Rs of recycling add up to big energy savings. One example: recycled aluminum uses only 5 percent of the energy used to extract and make new aluminum.

7. Eat less red meat and eat more plants. The United Nations estimates that nearly 20 percent of the world's greenhouse gas emissions come from meat production and transportation. Eating less red meat is also better for your health, a double win. Go to this informative site for much more information on diet and climate change: <https://www.nytimes.com/interactive/2019/04/30/dining/climate-change-food-eating-habits.html?action=click&module=Top%20Stories&pgtype=Homepage>.

8. Purchase and promote renewable energy. Take advantage of state and federal incentives and rebates that make adding solar panels much more affordable. For introductory information about installing solar power in New York, go to this website. <https://www.dec.ny.gov/energy/43231.html>.

9. Plant trees. Trees help clean the air and water, take up CO₂, and provide wildlife habitat. Preserve any woods/forests, shrub lands, meadows and stream and lake buffers. Protect native species.

10. Use fewer wood and paper products. Choose 100 percent recycled content paper and use both



Source: U.S. Centers for Disease Control

What You Can Do About Climate Change

All day, every day, we make choices that impact carbon emissions. Small incremental actions to save energy and lower carbon emissions at home, work and school, and on the road add up to big improvements.

1. Drive a fuel-efficient, low-polluting car. This is one of the most important environmental decisions you make. For every gallon of gasoline burned, 20 pounds of CO₂ go into the atmosphere.

2. Get a free or reduced-cost energy audit through NYSERDA. Make a plan to make your home more energy efficient and cut energy waste.

sides. Buy recycled lumber, used goods, or wood certified as sustainably harvested.

11. Mow less, use more energy efficient, less polluting mowers. Reduce lawn size and increase natural plantings. Here is an example where the property owner stopped cultivating/farming right along the trout stream and created a wide biodiverse buffer that reduces stream-side erosion during storms.



Photo courtesy of Jamie Purinton.

What Governments and Groups Can Do

While combined individual actions are important, tackling climate change will also require comprehensive governmental and institutional policies and incentives that will lower greenhouse gas emissions on an even larger scale. Elected representatives and groups can set standards and establish programs that will move us away from fossil fuels and toward renewables and forest preservation.

Here are a few examples of what can be done:

Get more miles per gallon. Set standards that will increase the fuel efficiency of cars and trucks.

Invest more in public transportation. Increase funds for mass transit and modernize our transportation infrastructure.

Phase out federal subsidies for fossil fuels. Increase federal and state funding to increase renewable energy and promote energy efficiency.

Make buildings more energy efficient. Follow the lead of California and revise building codes to promote energy efficiency and renewable energy.

Protect and conserve forests locally and globally.

Work with other countries. Climate change is a global issue that demands cooperation from all countries.

And Finally, What Our Town Government and Its Affiliated Groups/Councils/Committees, etc. Can Do

Encourage multiple Highway Department actions including: continue to update and enlarge culverts so that they are better sized for current storm water predictions; reduce mowing and plowing (subject to public safety needs); purchase energy efficient vehicles; and improve the energy efficiency and pollution controls of the town highway facilities.

Revise zoning to protect our water quality from risks associated with flooding including: prevent agriculture and homeowner runoff of chemicals from polluting wetlands, streams, and rivers; increase vegetated buffers around sensitive streams and all water bodies; and limit building in flood-prone areas.

Support the Climate Smart Communities Task Force initiative to conduct new energy audits for the town's buildings and continue to make the town buildings more energy efficient through the use of energy efficient light fixtures, well maintained heating systems, and efficient temperature controls.

Encourage use of alternative energy throughout the town by educating people about NYS opportunities and incentive programs and simplifying alternative energy permitting.

Support Public Education efforts to reduce our impact on climate change and to make our community more resilient to climate change.

Update the Town's purchasing agreement to emphasize energy efficiency and preference to products/services with reduced carbon footprints and consider providers of green energy for town facilities.