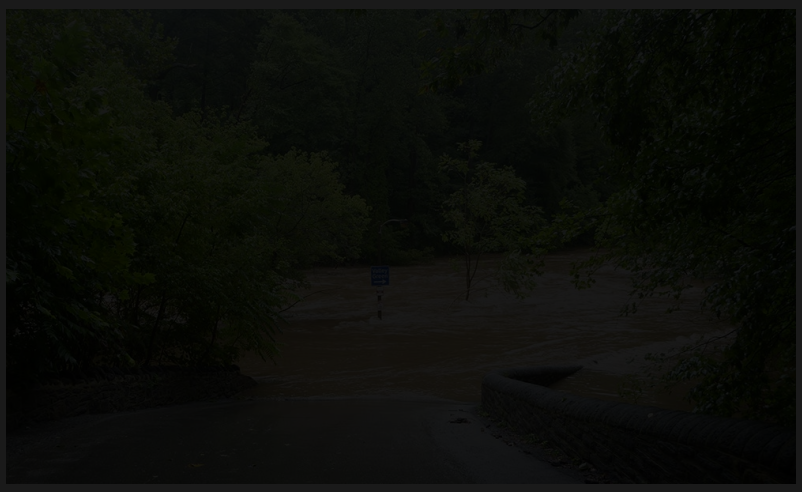
Philly Has Much to Gain—and Lose—from Paris Climate Talks

Dec 1, 2015

posted in CCAP Chris Crockett Climate Change Climate Change Adaptation Program drinking water Drought Flooding Planning salt line



Flooding from Hurricane Irene in 2011 raised the Schuylkill River to levels not seen in 140 years. Climate change is projected to bring more extreme storms to the region. Credit: Philadelphia Water

Chances are, you've already heard a little bit about the Paris climate change talks—formally, the "21st Conference of the Parties" or COP21—that kicked off yesterday with world leaders calling for action.

While those talks might seem a world away, there are more than a few good reasons for Philadelphians to pay attention.

Many of those reasons were outlined in a great State Impact Pennsylvania report that aired on WHYY on Monday and featured an interview with our Deputy Commissioner, Chris Crockett. One issue Crockett addressed is the challenge that engineers (like him) and others face in planning for a future climate that looks different from what we've experienced historically.

In order to adapt our infrastructure and ensure our water systems remain viable, Crockett says, we need to know what we're facing. (Listen to the NPR story here)

> Via @NPR: Philly Planner: With Climate Change The Past Doesn't Predict The Future https://t.co/nTu1UUxpp4
>
> — StateImpact PA (@StateImpactPA) December 1, 2015

And, while the precise impacts of climate change on our city remain somewhat fuzzy, a study published in the *Proceedings of the National Academy of Sciences* in September establishes some pretty clear stakes for Philadelphia when it comes to taking action on climate change.

Completed by Climate Central, a research group based in Princeton, N.J., the study found that Philadelphia is one of 10 U.S. cities with the most to gain from big

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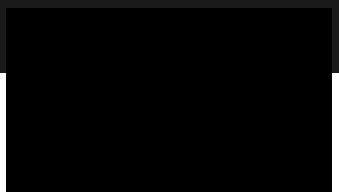


Green City, Clean Waters: The Full Story (28 min)

Green Infrastructure Project Map

Click the map and we'll show you the green

PWD Links
Office of Watersheds Home
Official PWD Homepage
CSOcast
Green City, Clean Waters Plan
Schuylkill RiverCast
PWD Development Review
Drinking Water Quality
Fairmount Water Works Interpretive Center

Watershed Friends & Partners
Academy of Natural Sciences
Cobbs Creek Community Environmental Education Center
Community Design Collaborative
Department of Parks and Recreation
Philadelphia Streets Department
PennDOT
Drexel Smart House
EPA
Friends of Dickinson Square
Friends of Fox Chase Farms
Friends of the Manayunk Canal
Friends of the Pennypack

Green City, Clean Waters (3 min)

Green Homes

Greener, Healthier Playgrounds

The Watershed Connection: East Falls

Creating Community: Columbus Square Park

Keeping Water on Site: Waterview Recreation Center

Green Schools: Albert Greenfield Elementary

Solving Runoff Block by Block

Rain Barrels: Preventing Water Pollution

global cuts in greenhouse gases—and one of the cities with the most to lose if the world does nothing.

In the picture that Climate Central paints of a future where carbon emissions remain at about current levels, Philly experiences drastic changes during the lifetime of a kid born in 2015.

How drastic? According to a WHYY report on the study, about 10 percent of the city's population is currently living in areas that would be below the high-tide mark at some point in the next century if we do nothing to cut carbon emissions.

That's some 156,000 Philadelphians that will have to find somewhere else to live.

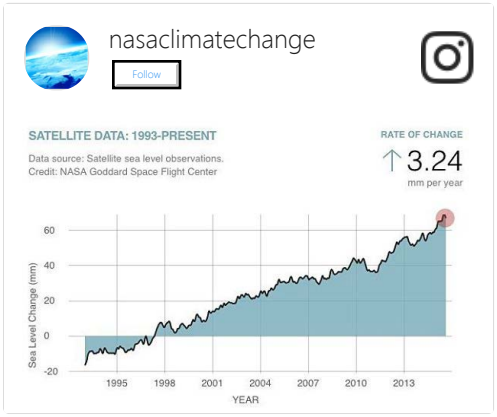
> Excited for tonight's @Greenworksphila launch of "Growing Stronger: Toward a Climate-Ready Philadelphia" https://t.co/SGj99epAje @Eventbrite
>
> — Alex Dews (@alexanderdews) December 1, 2015

Benefits of Going Big on Greenhouse Gas Cuts

At the same time, WHYY reported, "that number would be reduced by more than 90 percent to about 14,000 if 'massive and prolonged' carbon emission cuts were made, a policy that would reduce global warming, slow the melting of polar ice sheets and mitigate the expansion of ocean waters that would come with higher global temperatures."

That's still a huge number of displaced people, but far better than the do-nothing option, the report's authors say.

"Philadelphia has a really big problem under the worst-case scenario but a very small problem under the best case scenario," Ben Strauss, vice president for sea level and climate impacts at Climate Central, told WHYY. "That's why the stakes for Philadelphia are higher than almost any other American city."

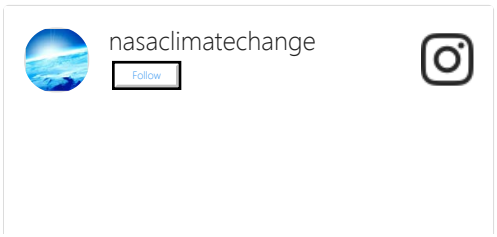


At Philadelphia Water, we're doing our part to reduce carbon emissions by investing in technology that could transform us from energy consumers to energy producers. Already, our Biogas Cogeneration Facility at the Northeast Water Pollution Control Plant uses energy within wastewater to create about 85% of the electricity needed to power the plant.

Tap water itself is also a far more climate friendly beverage when compared to packaged drinks like those sold by the bottled water industry, which creates carbon emissions during the manufacturing, delivery, refrigeration and (occasional) recycling of plastic bottles.

Planning for a Future with Climate Change

The message in Paris is clear: we urgently need to act now to prevent truly catastrophic climate change impacts.



Friends of the Wissahickon
Jefferson Square Park
John Heinz National Wildlife Refuge at Tinicum
Lower Merion Conservancy
Office of Sustainability
Office of Transportation & Infrastructure Systems
PA DEP
Partnership for the Delaware Estuary
Pennsylvania Fish & Boat Commission
Pennsylvania Horticultural Society
Philadelphia Anglers Club
Philadelphia Canoe Club
Philadelphia Green
Philadelphia Streets Department
Philly Eco City
Rebuilding Together Philadelphia
Schuylkill Action Network
Schuylkill Center for Environmental Education
Schuylkill Banks
Stormwater PA
Tookany/Tacony-Frankford Watershed Partnership
University City Off The Grid

Resources and Media

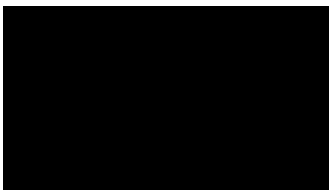
Philly H2O
Grid Magazine
Plan Philly
PA Environment Digest
The Dirt
AWRA Water Blog
Next American City
Alltop Water News
Cool Green Science
WaterWired
Riparian Rap
Hydro-Logic
Switchboard

Green City Clean Waters

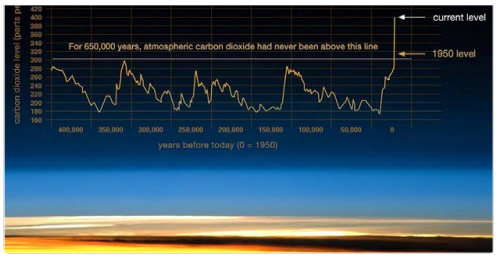
DrinkTap.org

What's your water footprint? Click on the calculator below to find out your household's water usage.

Starts at Home



Green City, Clean Waters (9 min)



However, Philadelphia Water cannot simply hope the world heeds climate warnings. Fresh, clean drinking water is the most essential resource we have, and it's our responsibility to make sure that water will be available, no matter what happens.

Climate change and its potential to impact our waterways and water infrastructure is an issue that has been on our radar for a very long time. But we've also recently begun work that will help create a more detailed picture of the challenges we face—a crucial step toward forming concrete plans that we'll need to be resilient in the face of whatever global warming throws our way.

How Will We Need to Adapt?

Our Climate Change Adaptation Program (CCAP), founded a little over year ago, has already made significant progress toward identifying the primary needs for climate change adaptation planning here at Philadelphia Water.

In spring 2015, the CCAP completed a department-wide vulnerability survey that documents potential consequences from climate change, as perceived by Philadelphia Water staff. The CCAP has also developed a thorough understanding of the climate change science and projections that will inform a new comprehensive risk assessment study—currently underway— that looks at impacts to our drinking water, wastewater and stormwater systems.

"We have many critical assets near the rivers that could be impacted by rising sea levels, for one thing," CCAP Manager Julia Rockwell says. "We're also looking at how sea level rise will influence the location of the tidal Delaware River salt line in relation to our Baxter drinking water treatment plant intake."

(The location of the "salt line"—how far brackish and salty water from the Delaware Bay extends up the river—is something that could change with rising sea levels. Read more here.)

Rockwell says the risk assessment study, which just started, will be technical in nature and take at least a year to complete. The effects of multiple climate impacts will be evaluated, including sea level rise, increased precipitation and increasing air temperatures.

"We're working to directly apply climate change projections to our models and other methods of analysis to assess how our systems will respond in a changing climate," Rockwell explained.

> A global agreement to #ActOnClimate can help keep #CleanEnergy growing, both here and abroad. #COP21 pic.twitter.com/orwPoRVbZd
>
> — U.S. EPA (@EPA) November 30, 2015

Over a period of about three years, the CCAP aims to thoroughly characterize the climate-related risks facing Philadelphia Water and develop appropriate strategies to reduce those risks and increase resilience. CCAP recommendations will inform major capital investments, operational and design standards, and long-term plans, including the Water and Wastewater Master Plans.

Building a Water System for the Year 2100

That said, Deputy Commissioner Crockett noted that it's important to recognize that climate change is incremental, "taking place over 50-100 years."

"We are incrementally replacing and changing infrastructure over that time so we can adapt," Crockett added. "Remember, right now, we are working with pipes built 50-100 years ago…and we will renew all of that in the next century. We just need to make good decisions. Someone in 1890-1915 laid out what we have now; we are doing the same for 2100, just with climate change in mind."

And remember: while we're preparing for the worst, the Paris climate talks are all

about making sure the worst doesn't happen. We've seen a glimpse of what the worst might look like here in Philly, and we hope the leaders who can make a difference are taking those warnings to heart.

More: Click on the image below to see a fact sheet and timeline of goals for our Climate Change Adaptation Program.
To see what other Philadelphians are saying about the Paris talks, check out #PhillyClimateTalks on social media.

The Climate Change Adaptation Program

PHILADELPHIA WATER EST. 1801

Philadelphia Water is a combined drinking water, wastewater, and stormwater utility that provides drinking water to approximately 1.6 million customers and wastewater services to 2.2 million people in Philadelphia and its surrounding suburbs. As part of its effort to be America's model 21st century urban water utility, Philadelphia Water employs innovative technologies, leading research and adaptive management strategies. In 2014 Philadelphia Water developed a Climate Change Adaptation Program (CCAP) to better understand the impacts that climate change will have on its water systems and how it needs to plan and invest for a future that will look different than the past.

WHY? Impacts from climate change are now inevitable. There is scientific consensus that climate change impacts in Philadelphia will include:

- **more rain**
- **extreme storms**
- **higher air temperatures**
- **rising sea levels**

These impacts will challenge the functioning and reliability of Philadelphia's water systems.

HOW? CCAP will identify the most urgent risks to Philadelphia Water and adaptation strategies to address these risks. This will help ensure that climate change is addressed proactively, and that investments are made cost effectively and with the best information available. The CCAP will proceed in four phases:

1. Vulnerability Survey
2. Technical Risk Assessment
3. Adaptation Strategy Development
4. Adaptation Strategy Implementation

Adaptation is the alteration of human systems in response to or in anticipation of shifting climate conditions in order to minimize harm and exploit opportunities resulting from climate change impacts.
- IPCC AR4, 2007

WHEN? The process is estimated to take at least three years. This timeline will allow the CCAP to thoroughly characterize the climate-related risks facing the utility and develop appropriate strategies to reduce those risks and increase resilience. Current adaptation strategies include the Green City, Clean Waters program.

OUTCOME: A series of climate change adaptation strategies will inform what Philadelphia Water must do to effectively plan for and adapt to climate change. Recommendations from the CCAP will inform major capital investments, operational and design standards, and long-term plans.

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