

Photo Credits for Course on Understanding Climate Change Impacts on Water Resources

Photos and graphics used for this course were taken from a number of public domain galleries, reference documents, and U.S. EPA. The sources of the photos used in the course are listed below.

Climate Change 101

Trinity Lake, California in February 2014 - U.S. Geological Survey,
<http://ca.water.usgs.gov/data/drought/images/carousel/Trinity-Lake-drought-04Feb2014.jpg>

What is causing climate change?

U.S. National Park Service, Golden Gate National Recreation Area – What is Climate Change?
<https://www.nps.gov/goga/learn/nature/climate-change-causes.htm>

What is causing this rise in greenhouse gases?

National Climate Assessment; Our Changing Climate -
<http://nca2014.globalchange.gov/highlights/report-findings/our-changing-climate#tab2-images>

What are the indicators of climate change?

Ten Indicators of a Warming World [Image]. National Oceanic and Atmospheric Administration, National Climatic Data Center. <https://nca2014.globalchange.gov/report/our-changing-climate/observed-change>

The Water Cycle

Our Changing Planet: The Fiscal Year 2003 U.S. Global Change Research Program,
<http://data.globalchange.gov/file/d7b7addb-6458-4587-87b4-d82661811e8b>

What are the observed and projected changes in the U.S.?

<https://nca2023.globalchange.gov/downloads/>

Vulnerabilities of Water Resources to Climate Change

Upper: McCall, K. [Flooded cropland in southwest Iowa]. Natural Resources Conservation Service, U.S. Department of Agriculture.

Lower: (2010). [View over Devil's Golf Course in Death Valley National Park, CA]. iStock Photo.
<https://www.istockphoto.com/photo/devils-golf-course-in-death-valley-np-gm146961907-11945953?st=5f50600>

The EPA National Water Program

The National Water Program 2012 Strategy - https://www.epa.gov/sites/default/files/2015-03/documents/epa_2012_climate_water_strategy_full_report_final.pdf

The 2021 EPA CAAP - <https://www.epa.gov/system/files/documents/2021-09/epa-climate-adaptation-plan-pdf-version.pdf>

The 2022 OW CAIP - https://www.epa.gov/system/files/documents/2022-10/bh508-OW-12113_ClimateAdaptatImplementPlan_508final.pdf

Colorado Springs, CO Case Study

Left: Juhan Sonin, www.flickr.com, Creative Commons

Middle and Right: Mary, Monterey Bay Aquarium, www.flickr.com, Creative Commons

Castine, ME Case Study

Drought Response and Recovery; A Basic Guide for Water Utilities
(https://www.epa.gov/sites/default/files/2017-10/documents/drought_guide_final_508compliant_october2017.pdf)

Kansas City, MO Case Study

Kansas City Water Services; <https://www.kcwater.us/>

South Monmouth, NJ Case Study

<http://www.smrta.org/>

Left: (2013). [An esthetically designed portable trailer houses an emergency generator, a successful mitigation project South Monmouth Regional Sewerage Authority (SMRSA) implemented in their Sea Girt pump station before Superstorm Sandy struck.]. Federal Emergency Management Agency.
<https://femacontract.com/news/sewerage-authority-mitigation-plan-reduces-risk-of-environmental-disaster/>

Right: [South Monmouth Regional Sewerage Authority Executive Director Michael Ruppel, systems mechanic Steve Harsin, apprentice Barney Bigley and plant maintenance worker Thomas Valerio (from left) stand behind the portable pump station/trailer in Sea Girt, N.J.]. Municipal Sewer and Water Magazine.

Wailuku-Kahului, HI Case Study

Kahului Wailuku Wastewater Treatment Plant, Juan Rivera, County of Maui, Wastewater Reclamation Division <http://mauinow.com/2012/09/20/shoreline-protection-proposed-at-kahului-wastewater-facility/>

EPA National Water Program Highlight: Healthy Watersheds Program

Photo by Tetra Tech, Inc., Fairfax County, VA

Taunton River, MA Case Study

Left: Taunton River Watershed, USGS,

https://en.wikipedia.org/wiki/Taunton_River_Watershed#/media/File:Taunton_River_Watershed.gif

Right: Railroad Bridge over Taunton River near Dean Street, Taunton, Massachusetts, by Marbela,

https://en.wikipedia.org/wiki/List_of_crossings_of_the_Taunton_River#/media/File:Taunton_River_third_RR_bridge.JPG

San Juan, PR Case Study

http://water.epa.gov/type/oceb/nep/programs_sjb.cfm

<http://sanjuanbayestuary.blogspot.com/>

Casco Bay Estuary, ME Case Study

Left: Sea Snail, Nina Bednarsek, National Oceanic and Atmospheric Administration Pacific Marine Environmental Laboratory, <http://nca2014.globalchange.gov/report/regions/oceans#tab2-images>

Middle and Bottom Right: Landscape photo/little boy photo, <http://www.cascobayestuary.org/about-us/>

Upper Right: People moving pH monitor, Brian Rappoli, USEPA

Explore Your Climate Region

All graphics in the Explore Your Region slides are from the National Climate Assessment unless otherwise indicated: <https://nca2023.globalchange.gov/>

Impacts on Vulnerable Populations

U.S. EPA

You Have Completed This Course!

Streambank willow planting in the Johnson Creek Watershed in Portland, OR. Photo by Tetra Tech.