



GrayIsGreen

Who are we?

Gray Is Green is an online gathering of older adult Americans aspiring to create a green legacy for the future. As environmentally conscious elders, we respond to a generational call: to co-create a future of economic justice, ecological sustainability and social justice.

We hold next generations of humans in mind and consider the future of ecosystems and other species. We are alert to the historic challenges facing our planet. And we are aware of the question arising from descendants generations hence:

What did you do, when you knew?

What do we do?

We aspire to embrace our eldership, living beyond consumerism and ageism. **Our Curriculum for Gray-Green Living** offers a variety of ways to join—and re-engage with—this elder movement.

We offer a periodic newsletter, a speaker's bureau, online resources, a [Facebook page](#) for relevant updates. In partnership with congenial organizations, we serve as a central clearinghouse of ideas and communications for older adults interested in greening their lives, learning about sustainability, advocating for sound public policy, being creative stewards or grandparents, emerging as elders, and mentoring young people.

*We invite **you** to get involved!*

www.grayisgreen.org

Community Resilience Water Resources in a Changing Climate

Each town, city, and municipality relies on water, and each has its own ways of collecting, treating, and distributing that water. Water resources are affected by each part of the water cycle¹. Rain is collected in aquifers that in turn feed wells and springs. Reservoirs and rivers can also provide sources of water. As the climate changes in the future, it will affect the water cycle and the water resources² available to our communities.

Changes to the Water Cycle

Climate scientists predict that normal patterns of rainfall, streamflow, and flooding will all change in coming years. The severity and frequency of both drought and flood³ is expected to increase, as the Northeast United States receives more and more precipitation, and the Southwest receives less and less. Spring snowmelts are also moving earlier in the year. The conditions that affect rates of evaporation, such as air temperature, solar radiation, wind, humidity, and water availability, are all undergoing change, which in turn affect soil moisture, groundwater recharge, and runoff⁴.

Municipal Water Supply

The systems of water resources in communities⁵ have been built for the water patterns of that community. Normal precipitation, flooding, and evaporation are all important factors in designing water

storage and treatment. As the water cycle in a given place undergoes changes, facilities need to be changed in order to accommodate those changes. Given that changing water infrastructure⁶ can take more than a decade, local governments need to start thinking about how to adapt to the predicted changes.

Availability of Water

Floods of all kinds are expected to increase across certain regions of the U.S., including flash floods and floods in urban areas. Places that have large areas of impervious surfaces⁷, such as cities, will also have a lot of runoff in floods which can overwhelm old infrastructure and water storage facilities.

On the other hand, areas experiencing drought are already struggling to provide water for their communities. Water shortages cause a wide range of economic affects as well, as farms have difficulty watering their crops. Taking steps like purchasing desalination equipment and thinking ahead about how to prepare for drought situations increases the resiliency of communities in the face of drought.

Water Quality

The changes that affect the supply of water will also affect water quality. Floods and high rainfall, and the increased streamflow that occurs because of them, cause water to be more polluted and have higher

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quantities of sediment. Drought also has a negative impact on water quality⁸, as decreased streamflow and possibly the intrusion of seawater into groundwater lower the quality of water in aquifers.

Impacts of Changing Water Resources

While some impacts of changing water resources are obvious, like the increased difficulty of getting water to residents in a community, there are a wide range of effects that might not be clear at first. Water impacts energy, from the standpoint

of both production and usage. Water is involved in generating energy in hydroelectric dams, is used to produce steam in thermoelectric power plants, and to cool reactors in nuclear power plants. All of these functions will be affected as our access to water changes. Water treatment and distribution also requires energy at all steps of the process, and will require more energy as water becomes more difficult to access in some areas.

Water resources also impact the ecosystems around us that we rely

upon for food, wildlife habitat, protection from flooding, and so much more. Both too little and too much water can have huge impacts on ecosystems as we know them today. As we adapt to new climate conditions, it is important to keep in mind how the environment we live in will change as well.

1 see *Hydrologic Cycle* subtopic

2 <https://toolkit.climate.gov/topics/water-resources>

3 <http://www.epa.gov/climatechange/impacts-adaptation/water.html>

4 see *Watershed* subtopic

5 see *Water Resources in the Community* subtopic

6 <https://toolkit.climate.gov/topics/water-resources/municipal-water-supply>

7 <http://www.prep.unh.edu/resources/pdf/theimpactsof-nhep-04.pdf>

8 <http://ca.water.usgs.gov/data/drought/drought-impact.html>



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