

Climate Smart Communities Actions Related to Water

This is a list of actions from the [Climate Smart Communities Certification Manual \(Version 2.0\)](#) that directly relate to water quality and aquatic ecosystem health. Each of these actions has been identified because of its benefit to reducing greenhouse gas emissions or other climate-related targets. Action numbers and point tallies are from the certification manual, which also explains why each action is important for climate change. The Climate Smart Communities guide explains why each of its actions is important for climate change. This guide is meant as a supplement, and uses the same format to explain why each action is important for a healthy Hudson River.

Note: The Climate Smart Communities program promotes hydropower; Riverkeeper's position is that, with few exceptions, dam removal is desirable for restoring connectivity, and preferable to hydropower installation due to the harm that hydropower infrastructure causes to aquatic ecosystems and organisms.

3.9 Upgrade water or wastewater treatment facilities and infrastructure (7 points)

Why is this action important? With New York's Pure Waters Bond Act in 1965, and the Clean Water Act in 1972, many communities built wastewater treatment facilities, and this led to huge water quality gains. These facilities and their collection systems are costly, and many have outlived their useful lives or haven't been adequately maintained. This can result in overflows and leaks of raw sewage. In addition to rehabilitation, some facilities require upgrades to reach modern treatment standards. Very few facilities are designed to remove nutrients, which degrade water quality and harm aquatic habitats where they are present in excess. Further, many facilities in the Hudson Valley are at risk from flooding, sea-level rise or both, and these risks are increasing due to climate change.

6.17 Develop a natural resource inventory (5 points)

Why is this action important? Many of the existing, publicly available maps of water resources are created at the state or federal scale to serve specific regulatory programs. As a result, they exclude many small or intermittent streams and many wetlands, which are often important to maintaining water quality, mitigating flooding and providing wildlife habitats. A natural resource inventory can be a way for municipalities to identify and map these resources, so that master plans, zoning codes and other municipal rules and regulations can be updated to better protect streams and wetlands.

6.19 Preserve natural areas through zoning or other regulations (6 points)

Why is this action important? Ecosystems throughout the landscape are connected. The water that flows in streams and rivers comes from runoff and groundwater flow associated with the lands in their watersheds. Changes to natural areas, such as replacing forests or grasslands with parking lots, rooftops or other impervious surfaces, can alter the water quality and quantity downstream. Healthy waterways and their buffer zones provide multiple benefits to people and communities, such as flood control, natural water filtration, and recreational opportunities.

7.10 Create or update a watershed assessment to identify flooding and water quality priorities (4 points)

Why is this action important? Water bodies are most effectively managed at the watershed scale. Yet, watershed boundaries rarely align with municipal boundaries, and this creates challenges for municipalities to manage the natural infrastructure that produces water-related services and resources. Watershed-scale assessment can help neighboring municipalities work together and, either alone or in tandem, identify projects that benefit residents and the environment in multiple ways. Higher precipitation intensity due to climate change will create new challenges associated with preventing damage from flooding and improving or maintaining water quality.

7.11 Adopt a floodplain management and protection ordinance to reduce vulnerability to flooding and erosion (3 points)

7.12 Conserve, revegetate and reconnect floodplains and buffers in riparian areas (7 points)

Why are these actions important? Floodplains are flat areas on one or both sides of a stream or river channel that are inundated during times of high flow. Riparian buffers include floodplains, and also higher lands that are directly adjacent to a stream or river. These areas are part of the river system and often provide valuable wildlife habitat. They are hydrologically connected to the streams and rivers that they border, and are an integral part of the nutrient, carbon and water cycles that create a healthy river system.

7.16 Use green infrastructure to manage stormwater in developed areas (7 points)

6.8 Adopt green parking lot standards (4 points)

Why are these actions important? By preventing rainwater from infiltrating into the ground and placing it instead in pipes, impervious surfaces alter the timing and quantity of flow in nearby streams, as well as its quality and temperature. As water flows over pavement, it picks up pollutants such as salt, oil, and sediment, and carries them into surface waters. Green infrastructure is designed to promote rainwater infiltration, reducing the impact of development. Increased precipitation intensity due to climate change will make managing runoff more difficult and more important.

7.18 Use natural, nature-based or ecologically enhanced shoreline protection (8 points)

Why is this action important? Shorelines that are [designed according to ecological principles](#) can offer the same flood and wave protection as traditional armored banks (such as bulkheads or rip rap), but also provide wildlife habitat and reduce water pollution.

7.20 Require consideration of sea-level rise in planning coastal development (3 points)

Why is this action important? Climate change is already affecting water levels in the Hudson River Valley, and levels are expected to rise an additional [1.5 to 4 feet by 2100](#). Increased intensity of precipitation should also affect planning decisions. Conserving natural areas in zones that are expected to be inundated will provide space for wildlife as they adapt to changing conditions, and act as a buffer for upland developed areas.

7.21 Right-size bridges and culverts and remove unnecessary and hazardous dams (5 points)

Why is this action important? Many fish species use tributaries to the Hudson River as pathways to move between feeding, nursery, and spawning grounds. Unfortunately, thousands of dams, many built in the 19th and 20th centuries, are blocking those pathways and dramatically shrinking accessible habitat area, causing declines in fish and other wildlife. As the years have passed, these dams often no longer serve the purposes for which they were originally built and many have fallen into disrepair. Hundreds of obsolete dams now serve only as impediments for the river's fish and for terrestrial species that use riparian areas to move through the landscape. Dam removal is critical to restoring biodiversity and the abundance of life in the Hudson. Improving fish passage and connectivity will help

replenish the Hudson River's native fish populations and restore the resiliency of the river and its natural functions.

7.23 Implement a water conservation and reuse program (6 points)

3.4 Install water-efficient fixtures (4 points)

7.24 Encourage xeriscaping (2 points)

Why is this action important? Thanks. While precipitation is increasing overall, [summer precipitation is decreasing in New York State, and precipitation is becoming more variable from year to year.](#) Water conservation of any sort helps to preserve our finite freshwater resources. Less water used means less water down the drain, which means less wear and tear on infrastructure, less treatment volume and cost, and less effluent. In cases where water is withdrawn from a different watershed than treated water is discharged into, water conservation also helps to maintain stable and adequate streamflow.

7.25 Implement a source water protection program (6 points)

Why is this action important? While the robust programs to protect New York City's reservoirs are world renowned, many smaller cities, villages and towns in the Hudson Valley lack adequate programs to ensure their drinking water supplies remain free of contamination. As crises in Newburgh and elsewhere have shown, the costs – to public health and public budgets – of treating water after it's contaminated are steep. Drinking Water Source Protection is a proactive strategy for preventing contamination before it happens. Protecting water quality at its source involves watershed-based projects such as eliminating or treating pollution sources, protecting or restoring forested buffers along streams that naturally filter water, and reducing stormwater runoff from streets and farms, among other strategies. These strategies also provide many benefits for aquatic wildlife and water quality.

Innovation Bonus Points

Why is this action important? Water is central to many facets of municipal governance. Numerous regulations, programs, and policies have been enacted at all government levels to protect water resources. These often address narrowly defined issues such as stormwater, flooding, wetlands, or water quality. Yet, thinking comprehensively about water resource protection and management quickly leads to possible scenarios that provide multiple benefits – to human health, economic growth, tourism, recreation, wildlife – and more, while streamlining municipal operations.