

Response to Climate Change

EPA intends to work to update hydrological data and methods in collaboration with federal consortia (e.g., ICCATF, the Office of Science and Technology Policy's Subcommittee on Water Availability and Quality [SWAQ], the USGCRP, the Climate Change and Water Working Group [CCAWWG], the Integrated Water Resources Science and Services [IWRSS]) and engage partners (e.g., ACWI, Water Environment Research Foundation [WERF], the Water Research Foundation [WRF]) and others to develop and standardize a process to revise precipitation, temperature, and storm event data nationwide to incorporate expected changes in commonly used data.

Of particular concern are the storm frequency, duration, and intensity estimates (e.g., 10-year, 24-hour storm events; 100-year, 24-hour storm events) and low-flow conditions in rivers and streams at the Hydrologic Unit Code 12 watershed level.

Updating precipitation records and statistical methods, and developing projections of future precipitation patterns, will enable a fundamental shift in modeling methods, which currently rely on historical data that may no longer be representative of current and future conditions. These efforts will fully consider the uncertainty inherent in predictions of the pace and magnitude of future climate-change related effects, especially at a local level.

Strategic Action 46: The NWP intends to work to enhance flow estimation using NHDPlus.

The NHDPlus is a comprehensive set of digital spatial data that encodes information about naturally occurring and constructed bodies of water, paths through which water flows, and related entities (USGS, 2011). It provides full characterization of the flow network, identification of unregulated and regulated gages and reaches, and network-based interpolation and adjustment of flows. In order to enhance flow estimates in the face of climate change, the NWP intends to support enhancements to NHDPlus as a cost-effective means of providing more accurate flow estimates for permitting, TMDLs, watershed planning, and other uses.

E. Working With Tribes

VISION: Tribes are able to preserve, adapt, and maintain the viability of their culture, traditions, natural resources, and economies in the face of a changing climate.



Native Americans have distinct cultural and spiritual connections to the water and land. The collective wisdom of elders and ancestors has allowed them to carefully use and manage the land for centuries. Changes to the earth's climate provide a new set of challenges for tribes seeking to maintain and protect their resources and the safety and health of their people.

Indian tribes are involved in protecting and restoring tens of thousands of square miles of rivers, streams, and lakes, as well as ground water in over 110,000 square miles of Indian Country in the United States. Because tribes may be regulators for water programs and water resource managers for their communities, it is important that tribes are able to provide ongoing input and participate in NWP strategies and actions on climate change. It will be important

to understand and consider the impact of climate change on Native American communities and their traditional values and cultures, particularly as EPA invests in water management programs in Indian Country.

Tribes often express a holistic perspective in viewing and understanding the environment, and seek to achieve “sustainability” in their lifestyle choices, both environmentally and economically, recognizing that ultimately, it is the environment that sustains us all. Tribal recommendations to EPA include seeing the “big picture” and not compartmentalizing environmental programs into separate media to address threats from climate change.

Much of the work with tribes takes place within the EPA Regions, further described in Chapter V, Geographic Climate Regions. This section broadly describes the kinds of activities the NWP intends to pursue with tribes.

GOAL 15: The NWP incorporates climate change considerations in the implementation of its core programs for tribal nations, and collaborates with other EPA Offices and federal Agencies to work with tribes on climate change issues on a multi-media basis to build sustainability.

Strategic Action 47: Through formal consultation and other mechanisms, the NWP intends to ensure that the revised NWP Tribal Strategy and subsequent implementation of CWA, SDWA and other core programs incorporate climate change as a key consideration.

Principles to observe include:

- Tribes are involved in watershed-based strategies, integrated water resource management strategies, or other geographic strategies that affect tribal resources.
- Tribes participate in the development of EPA multimedia strategies for addressing climate change impacts in Indian Country.
- Actions taken are informed by and consistent with the EPA Tribal Science Council’s climate change priorities and research recommendations.

Strategic Action 48: The NWP intends to incorporate adaptation into tribal funding mechanisms, and will collaborate with other EPA and federal funding programs to support sustainability and adaptation in tribal communities, to the extent appropriate and allowable by law.

Examples of actions for the NWP to pursue include:

Working with Tribes Examples of EPA Adaptation Activities

Region 2 awarded a grant to the Saint Regis Mohawk Tribe to work together with all Region 2 tribal nations to discuss and design adaptation approaches during 2012.

In Region 5, the Great Lakes National Program Office is funding Great Lakes tribes to implement climate change adaptation projects and programs. Specifically, Lake Superior tribes and tribal organizations received Great Lakes Restoration Initiative (GLRI) funding through their tribal capacity grants to initiate priority climate change adaptation projects and initiatives; and tribes have been involved in the Lake Superior Sustainability Committee which is developing a Lake Superior climate change adaptation plan.

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- Provide information on the use of funding programs within the NWP to include mitigation and adaptation planning and implementation as eligible grant activities, as appropriate.
- Work with others in EPA to help clarify for tribes how funding mechanisms can be used for climate planning and implementation, such as the Tribal General Assistance Program managed by the American Indian Environmental Office (AIEO) and Community Action for a Renewed Environment (CARE).
- Work with federal partners to coordinate tribal adaptation planning and to conduct training and education for tribal members and environmental justice communities for building adaptive capacity.

GOAL 16: Tribes have access to information on climate change that they can use to inform and engage their communities for effective decision making.

Strategic Action 49: The NWP intends to collaborate to explore and develop climate change science, information and tools for tribes to understand local climate impacts and risks to inform adaptation solutions, and will incorporate local knowledge where possible.

Examples of information requested by tribes include:

- Information on environmental conditions and long-term trends.
- Risk assessment and management tools to help identify environmental risks and inform adaptation solutions.
- Assessments of watershed conditions and impacts using peer-reviewed summaries of empirical data specific to geographic areas and water resources, to inform local action.
- Perspectives of tribal elders with historic information to inform understanding and adaptation responses.
- Management options that consider climate change factors to protect watershed resources.
- Case studies of Tribal Environmental Knowledge (TEK) incorporated into program delivery, and guidelines for incorporating TEK into science products.
- Opportunities to leverage federal resources that can provide science information to tribes.

Strategic Action 50: The NWP intends to collaborate with others to develop communication materials relevant for tribal uses and tribal audiences.

Examples of materials requested by tribes include:

- Information tailored to different climate regions.
- Information linked to tribal culture and traditions.
- Information for use in elementary, high school, and tribal college and university curricula.