



SCIENCE • ADAPTATION • MITIGATION • COMMUNICATION

Restoration at Jean Lafitte Promotes Ecosystem Resilience

In the context of climate change, resource managers are seeking and engaging in adaptation projects to promote the long-term resiliency of park resources. One important element of climate change adaptation is to reduce the risk of adverse outcomes by increasing the resilience of systems and supporting the ability of natural systems and species to adapt to change. These adaptation projects focus on making adjustments in natural or human systems that limit harm or exploit beneficial opportunities in response to change.

Coastal, marine, and riverine systems are priority regions for climate change adaptation in the NPS, where measurable impacts from climate variability and change are expected to affect stressed resources and ecosystems in the near future. In coastal Louisiana, canal dredging in sensitive wetlands for oil exploration was one of the major causes of wetland loss. Spoilbanks, the linear piles of spoil created as the canals were dredged, are barriers to water, nutrient and aquatic species movement. The canals are conduits for saltwater intrusion and amplify the volume and velocity of storm tides. Together, canals and their spoilbanks stress about 23,000 acres of freshwater wetlands at the Preserve.

In June 2010, park managers at Jean Lafitte National Historical Park and Preserve began reclaiming dredged canals within the Baratara Preserve Unit. This project will eventually restore twenty miles of abandoned canals. Healthy wet-

lands provide a host of benefits that can reduce sensitivity to climate change. Because of their ability to form buoyant peats and accrete soils, the Preserve's wetlands can even keep pace with sea level rise. They also buffer more than 20 miles of the Greater New Orleans federal levee system, providing additional protection from storm surge.

This on-going reclamation project will improve hydrology and visitor experience, and restore marshes, swamps, and habitat for aquatic species, including some species of commercial importance. The Preserve's wetlands include globally rare floating estuarine freshwater marsh, tidal baldcypress swamp forest, bottomland hardwoods on natural levees, and submerged aquatic vegetation. This project will result in the removal of invasive species habitat and reduce the effects of saltwater intrusion, increasing the resilience of Preserve ecosystems to disturbance from climate change. Benefits of these restored waterways will extend far beyond the park boundary, strengthening the corridors that connect healthy habitats. The park has completed reclamation of 3.5 linear miles of canal to date, and is seeking funding for the remaining 16.5 miles in the project. This project at Jean Lafitte is a good early example of how canal restoration can aid in efforts to adapt to climate change by promoting long term ecosystem resilience across the landscape.

Contact: David_Muth@nps.gov
Or Haigler_Pate@nps.gov

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Above: Tarpaper Canal at Jean Lafitte National Historical Park and Preserve. The spoilbanks on both sides of the canal have now been returned to the elevation of the surrounding wetlands, in this case, freshwater marshes, and are already starting to support similar vegetation. NPS photo by Dusty Pate.

Monthly Climate Change Webinar Series

2nd Thursday of every month
2:00 pm - 3:30 pm EDT

Upcoming Webinars:

Oct 14th, 2010

Dr. Patrick Gonzales the new servicewide Climate Change Scientist will share his work in climate science, specifically touching on how climate change is shifting vegetation upslope and towards polar areas and the Equator.

Nov 10th, 2010

November's presentation will feature the Climate Change Response Program team. This is an opportunity to provide an update on the development of this new servicewide program, both to be introduced to the staff that has been hired and to share the work they are involved in.

Dec 9th, 2010

Jason Kenworthy of the NPS Geological Resources Division will share the work of his current master's thesis on interpreting climate change through the geologic record.

Note: November's webinar will be held on the second Wednesday, since Thursday is a federal holiday.

The Climate Change Response Program can be found on the web at: <http://www.nps.gov/climatechange>

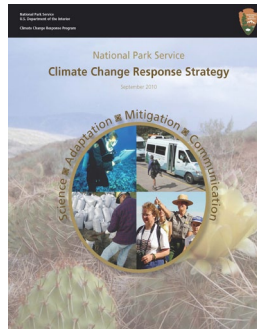
We are also on InsideNPS at: <http://inside.nps.gov/waso/waso.cfm?prg=125&lv=2>

Climate Change Response Program Updates

Climate Change Response Strategy Released

On September 9th, 2010 Director Jarvis released the service-wide Climate Change Response Strategy document which provides direction to our agency and employees for addressing and lessening the effects of climate change. It describes goals and objectives to guide our actions to protect the natural and cultural resources under our care through four integrated components: science, adaptation, mitigation, and communication. Over the past year the climate change steering committee led the development of this document.

The strategy can be found on the program webpage at: <http://www.nature.nps.gov/climatechange>



Workshop Summary

Patrick Malone, Natural Resource Specialist at DSC-Planning and scenario planning detailee with the CCRP, attended an agency workshop in

CCRP Featured Staff

Patrick Gonzalez

The National Park Service and the CCRP is pleased to announce Patrick Gonzalez, Ph.D., as the new Climate Change Scientist. Patrick is conducting applied research to help NPS staff integrate climate change science into natural resource management and translating climate change data into forms usable by land managers. A forest ecologist and climate change scientist, Patrick has conducted research on climate change impacts, adaptation, and vulnerability and on forest carbon solutions, at field sites in Africa, Latin America, and the United States. He most recently worked as a research scientist at the University of California, Berkeley, and previously worked for the Nature Conservancy and the U.S. Geological Survey. He is also a returned Peace Corps Volunteer from Senegal. Patrick has served as a lead author for the Intergovernmental Panel on Climate Change, the organization awarded a share of the 2007 Nobel Peace Prize, and as author of numerous peer-reviewed scientific publications.



June that the Bureau of Land Management (BLM) held to discuss climate change impacts. BLM staff from across the country gathered in Park City, UT to discuss climate change issues and identify how the agency would respond. Patrick participated in a panel discussion about landscape-level change and gave a presentation on the National Park Service's use of scenario planning.

Contact: Patrick_Malone@nps.gov

Climate Change Training Module for Field Interpreters

On August 23-27th, a group of Interpretation and Education professionals from across the service, who are leaders in the field for interpreting climate change at the park level met at Harper's Ferry, WV to kick-off the development of a new competency for interpreters, "Interpreting Climate Change." Over the course of the next 6 months this group will develop a training module for the field interpreter to give them the tools they need to communicate and educate about climate change in their park. This is a partnership between the National Education Council, the Climate Change Response Program, the NRPC Office of Education and Outreach, and the Epply Institute for Parks and Public Lands.

Contact: Angie_Richman@nps.gov

Matt Rose

The CCRP has hired Matt Rose as a Natural Resource Specialist and member of our scenario planning team. He will help to make scenario planning more relevant and applicable to resource managers by developing guidance and training documents that support the CCRP goals with respect to climate change planning. Matt received his Bachelors in Environmental Studies from the University of Richmond and his Masters in Environmental Management from Duke. Matt previously worked as an intern at the United Nations Headquarters in NYC, where he assisted with energy resource and human development research in Western Africa for the Department of Economic and Social Affairs. He most recently worked in the Pacific West Regional Office in Seattle, WA where he oversaw the Climate Friendly Parks Program for the Region. As an avid skier, hiker and fishermen, Matt is looking forward to all the outdoor adventure he can handle in the Rockies!

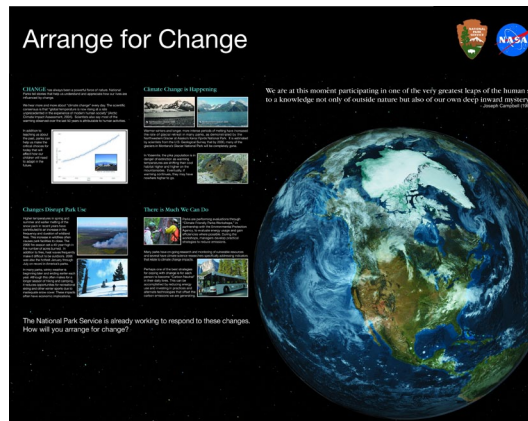


Alaska Scenario Planning Training - A Success

On August 17-19 the NPS Climate Change Response Program (CCRP) and the Alaska Regional Office (AKRO) hosted the first in a series of Climate Change Scenario-Planning Workshops. This first session will help build capacity to develop plausible scenarios and plan for climate change effects in Alaska national parks and adjacent lands. The training was facilitated by the Global Business Network, the world's largest consultancy integrating scenarios and strategy over the past two decades and workshops participants included representatives from various state and federal agencies (e.g. FWS, BLM, USGS, NOAA, and the State of Alaska), the University of Alaska Scenario Network for Alaska Planning (SNAP), and AKR personnel from the regional office, parks, I&M networks, and the fire program.

Scenario planning is a proven process, used in both the private and public sector, to manage for uncertain futures. These training workshops provide an overall understanding of this process as it applies to protected area management and climate change, with hands-on application.

The next step for Alaska after the training is application of the scenario planning process. An Alaska Climate Change Scenario Planning Core Team, selected from training workshop partici-



The "Arrange for Change" display was set-up in the lobby at the Alaska Regional office to welcome the participants.

pants, will lead the application of climate change scenario planning for all four NPS Alaska Networks. This will be accomplished through a series of five workshops over the next two years. This project, primarily funded by the NPS Climate Change Response Program's Servicewide Call, will be facilitated by the Scenario Network for Alaska Planning (SNAP).

Contact: Don_Weeks@nps.gov

Climate Change Intern Highlight

As a George Melendez Wright climate change intern, Natalie Perez spent her summer working for the National Capital Region and the Latin American Youth Center's Art and Media House program. Her days were spent facilitating a connection between inner city youth (ages 14-21) and the natural environment, as well as educating about climate change. Each summer the youth who engage in the Art and Media House program create art based on a theme and this summer's theme was Climate Change.

They began the program by engaging each student in a one-on-one assessment to determine their carbon footprint and explore possibilities for why it might be as high or low as it was. Next they explored the role climate change may play within the community and discussed how everyday actions, such as leaving the television on and letting the water run while you brush your teeth contribute to climate change. Additionally, they explored why recycling is important and how it can help reduce the overall impact.

Next they reviewed their everyday food choices and discussed why some foods contribute more than others to climate change. The students were able to make the connection to the importance of buying locally grown foods. They took a trip to a local supermarket where they searched the

aisles to find the item they thought would have the lowest carbon footprint (without turning to the produce section!). This proved to be an effective activity to learn about the associated energy costs of food.

Lastly, the students were able to participate in an overnight camping trip at a local national park. There they learned about climate change in a natural environment and the role parks play in protecting our resources and educating about climate change. For many of the youth, this was their first overnight camping trip and a very powerful experience. Many of the youth left the National Park with special memories and a desire to return.

This summer's program concluded with a final project where the youth drew on the experiences and teachings about climate change, as well as their associated thoughts and feelings about climate change to develop their final creative piece of art. They produced powerful and motivating poetry, music and media about climate change in their community.

Contact: Laura_Illige_Harvey@nps.gov

For more information about the George Melendez Wright Climate Change Internship program, go to: <http://www.nature.nps.gov/climatechange/internshipsresearch.cfm>

Upcoming Workshops & Meetings

The Wildlife Society hosts its 17th annual conference in Snowbird, UT on October 2-6, 2010.

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

The White House Council on Environmental Quality will hold the first GreenGov Symposium at George Washington University in Washington, DC on October 5-7, 2010.

<http://www.whitehouse.gov/greengov/symposium>

The 10th Biennial Scientific Conference on the Greater Yellowstone Ecosystem titled, "Questioning Greater Yellowstone's Future: Climate, Land Use, and Invasive Species," will be held in Mammoth Hot Springs, Yellowstone NP on October 11-13, 2010.

<http://www.greateryellowstonescience.org/gyesci-conf2010>

The Association of National Park Rangers (ANPR) will hold its annual meeting in Bend, OR on October 31 - November 4, 2010. This year's meeting will feature sessions on climate change.

<http://www.anpr.org/anpr.htm>

The annual meeting of the National Association for Interpretation will host several sessions on Climate change in Las Vegas, NV on November 16-20, 2010.

<http://www.interpnet.com/workshop/>

The American Geophysical Union Fall meeting will be held in San Francisco, CA on December 13-17, 2010.

<http://www.agu.org/meetings/fm10/>

More Information

This newsletter is a monthly forum to share the latest news relating to NPS efforts to manage our parks in a changing climate.

Leigh Welling - Coordinator
Climate Change Response
Program
Leigh_Welling@nps.gov

Comments, Submissions:
Angie_Richman@nps.gov



Climate Friendly Parks Update

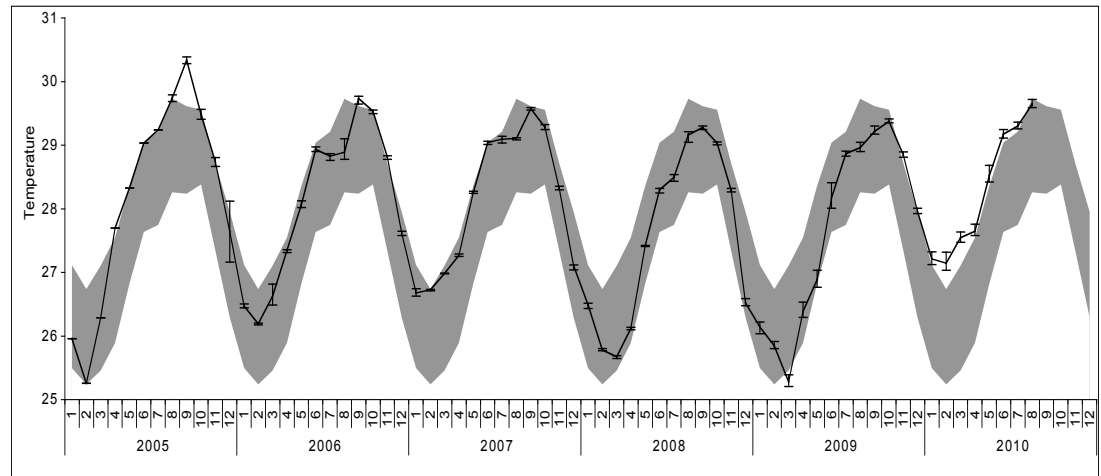
The Climate Friendly Parks (CFP) program welcomed twelve new Pacific West Region parks into the fold during the month of August. Congratulations to Eugene O'Neill National Historic Site, John Muir National Historic Site, Joshua Tree National Park, Manzanar National Historic Site, Mojave National Preserve, Nez Perce, Grand Canyon-Parashant National Monument, Pinnacles National Monument, San Francisco Maritime National Historic Park and Whitman Mission National Historic Site for finalizing their Climate Leadership in Parks greenhouse gas emissions inventories and for completing Climate Action Plans. The Pacific West Region will continue to add parks to the Climate Friendly Parks program through the fall until all appropriate parks in the region become CFP Member Parks. For more information, visit our website: <http://www.nps.gov/climatefriendlyparks>
Contact: Julia_Corby@nps.gov
Or: Julie_Thomas_McNamee@nps.gov

Virgin Islands National Park

Water temperatures surrounding Virgin Islands National Park have been at or above the 15 year historical range since October 2009 (see figure). This warm water is not only a primary source of energy for tropical storms and hurricanes, but also can be very damaging to coral reefs, causing bleaching events and potential coral disease outbreaks.

Data loggers sampled at 5 locations at reef depth in mid-August 2010 showed the average temperature for mid-august to be 29.65°C. The mean temperature for August in 2005 was 29.74°C, and peaked in September 2005 at 30.34°C. (Historically, September is the warmest month of the year for seawater temperatures.)

Contact: William_J_Miller@nps.gov



Caption: St. John ocean temperatures at reef depth in 2005-2009 compared with 1988-2004 data. Solid line represents average, minimum, maximum of monthly average temperatures recorded at St. John from 2005 - mid-August 2010 (HA, NF, MB, TK, YZ). Grey shows range (minimum-maximum) of monthly average temperatures recorded at 3 reefs (HA, NF, YZ). Number of sites with data varied by month and year. Horizontal line shows mean value for mid-August 2010 of 29.65C.

Useful Resources Related to Climate Change

On September 1, 2010 the Rocky Mountain Climate Organization and Natural Resources Defense Council released a report titled, *Virginia Special Places in Peril: Jamestown, Chincoteague, and Shenandoah Threatened by Climate Disruption*. The profile details how human-caused climate change threatens Jamestown, Chincoteague National Wildlife Refuge; and Shenandoah National Park. The full report is available at: http://www.rockymountainclimate.org/programs_10.htm

NOAA Climate Services hosts an online magazine, *Climate Watch*, that is a good source for climate change stories, information, interactive maps, images and videos. It can be found online at: <http://www.climatewatch.noaa.gov/>

The August issue of the Ecological Society of America's *Frontiers in Ecology and the Environment* is a special issue called "Effective Communication of Science in Environmental Controversies." This issue has

numerous articles that have general relevance to communicating about science. Available at: <http://www.esajournals.org/toc/fron/8/6change-&catid=16:economic-policy-perspective&itemid=19>

A newly released book titled, *The Social and Behavioural Aspects of Climate Change: Linking Vulnerability, Adaptation and Mitigation*, is suggested for social science researchers and policy managers in the area of climate change, as well as for those who want to know what the social and behavioural sciences can contribute toward coping with climate hazards. This book can be ordered online from Greenleaf Publishing at: http://www.greenleaf-publishing.com/add_getquantity.kmod?productid=3093

