



## December 2017 Update



### Now open for registration: Interpreting Climate Change Virtual Course

Tuesday, February 27 - Thursday, March 1, 2018  
12:00pm to 5:00pm EST | 9:00am to 2:00pm PST

We're pleased to announce our next offering of the Interpreting Climate Change online course, providing an overview of the practical knowledge and skills that will enable interpreters to develop effective, engaging programming for both natural and cultural sites.

This course will occur through a distance learning, "virtual" classroom--each day will involve a schedule of WebEx plenary sessions, activities, and group discussions. Students will consider a range of engagement techniques such as facilitated dialogue, skills for dealing with controversy, and presenting multiple perspectives. These and other techniques will be applied to an overview of climate science and audience research. Participants will engage in group discussions to share best practices, build confidence, and identify meaningful site connections.

This course is only available to National Park Service employees. [Additional information and registration instructions](#) are available on the Common Learning Portal. Contact [matt\\_holly@nps.gov](mailto:matt_holly@nps.gov) for more information.

Next Month!  
**Climate Change in America's National Parks  
Webinar Series**

Thursday, December 14, 2pm EST | 11am PST

## Delineating climate refugia for native aquatic species with big crowd-sourced databases

Dan Isaak and Mike Young, US Forest Service, Rocky Mountain Research Station

Register here: <https://attendee.gotowebinar.com/register/3155458020633382658>

Protecting aquatic biodiversity this century will require precise bioclimatic information across broad scales and unprecedented levels of coordination among natural resource organizations and the public. To help guide those efforts, we led collaborative efforts to develop high-resolution climate scenarios and accurate species distribution models to identify climate refuge streams throughout the ranges of bull trout and cutthroat trout in the [Climate Shield project](#).

We are expanding the Climate Shield approach to include many aquatic species by developing a comprehensive aquatic biodiversity database using crowd-sourced sampling of environmental DNA (eDNA). The [Aquatic eDNAAtlas project](#) will be launched in early 2018 and will be updated semi-annually with newly processed samples from those willing to collect and share eDNA data. Data posted to the Atlas website enable efficient use for purposes such as distribution modeling to identify climate refugia, species status and trend assessments, detection and tracking of nonnative species invasions, and assessments of habitat restoration efforts.

Dan Isaak and Mike Young are Research Fisheries Scientists with the US Forest Service Rocky Mountain Research Station where they work on aquatic species conservation and management issues across the western U.S.



## Free Unlimited On Demand Climate Change Training

The Climate Change Response Program invites interested NPS employees, partners, and volunteers to enjoy unlimited access to the Association of Climate Change Officers (ACCO) [library of on-demand and live online training](#) FREE for one full year. This opportunity affords participants unparalleled flexibility to customize training according to their needs and work around busy schedules.

Availability is limited and will be awarded strictly on a first-come, first serve basis. For

instructions on how to register for this opportunity, please contact Larry Perez at [larry\\_perez@nps.gov](mailto:larry_perez@nps.gov) .

## Spotlight on Interns: Future Park Leaders of Emerging Change

### Arroyo Incision and Expansion in Navajo National Monument

by Olivia Beaulieu, University of Minnesota

The southwest United States is trending towards a hotter and drier climate. Major changes, including increases in annual average temperatures, decreases in streamflow, and earlier snowmelt, have been observed within the region. Higher temperatures mean more evaporation, which can lead to more intense precipitation events affecting river flows.



During my Future Park Leaders of Emerging Change (FPL) internship, I worked to document how climate change is affecting Navajo National Monument located on the Navajo Nation in Northern Arizona. [Read more to learn about Olivia's project](#) .

*Editor's Note: Through participation in the FPL program, alumni are afforded two years of noncompetitive hiring status under the DOI Direct Hire Authority. Those with DHA status are afforded two years of eligibility after graduation to be noncompetitively placed in positions for which they are qualified in the NPS and most other DOI agencies. For a listing of alumni currently available under DHA, please visit the [NRSS Internships alumni page](#).*



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