CDFW Climate College

Brief Summary (Abstract): The Climate College initiative is a lecture series intended to provide a basic foundation of knowledge for all CDFW staff and partners on climate change science and its impacts to fish, wildlife, and habitats in California. Courses topics range from political context to science, management options, and on-the-ground case studies.

Thus far, the Climate College courses have varied from a 10-month lecture series to a 7-month series. All lectures are provided in-person and via webex to maximize accessibility to CDFW staff. All course materials, including recommended readings, presentations, and lecture recordings are archived on CDFW's public website.

Project Location: California. Lecture locations vary.

Partners: The Climate College is facilitated by CDFW, however many partners were involved in the original development of the initiative and have participated as guest speakers. Partner organizations include Point Blue Conservation Science, USGS, USFS, NOAA, USFWS, California Landscape Conservation Cooperative, CalEPA, California Governor's Office, NPS, AFWA, PG&E, Delta Conservancy, California Department of Water Resources, Tijuana River National Estuarine Research Reserve, Coravai LLC, Scripps, Ocean Protection Council, Monterey Bay Aquarium Research Institute, and the Farallones Institute.

Background: As stewards of the state's natural resources, CDFW is committed to minimizing the negative effects of climate change on the state's fish, wildlife, and habitats; however, limitations related to staffing and climate change-specific expertise can make it difficult to effectively address the challenges posed by climate change. Early on, it became evident that there was a great need to provide educational opportunities to staff in order to build internal capacity to address these issues and increase our ability to mainstream climate considerations into Department activities.

Project Goals: Increase staff climate literacy and build capacity to address climate change in our daily work at the Department where appropriate. The course is also intended to help build a CDFW community around the issue of climate change that includes our partners.

Strategy Goals Implemented:
Goal 3: Enhance capacity for effective management in a changing climate.
Strategy 3.1: Increase the climate change awareness and capacity of natural resource managers and other decision makers and enhance their professional abilities to design, implement, and evaluate fish, wildlife, and plant adaptation programs.
Action 3.1.7: Increase scientific and management capacity (e.g., botanical expertise) to develop management strategies to address impacts and changes to species.
Action 3.1.8: Develop training materials to help managers and decision makers apply climate knowledge to the administration of existing natural resource and environmental laws and policies

Climate Impacts Addressed: Impacts to biodiversity.

Status of Project Implementation (Timeline, Milestones, Next Steps): The first iteration of the Climate College (Climate 101) took place from September 2012 through June 2013. The second iteration of the

course began in February 2014 and will conclude in July 2014. The second course is focused specifically on climate impacts to the marine environment. Future iterations will also be topically focused on habitat types and/or geographic regions (e.g. forest ecosystems, desert ecosystems, etc.).

Project Outcomes: Generally, the Climate College initiative has increased awareness and understanding of climate change issues as they relate to Department responsibilities. The first course (Climate 101) also resulted in a series of projects completed by course participants. These projects varied from written reports to oral presentations and more, and demonstrated how staff are thinking about the various climate change impacts as they relate to their individual work.

Funding Sources: None; there is no cost associated with the course.

Photos/Attachments:
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Example Submission

Project Title: "Assessing the vulnerability of species and ecosystems to projected future climate change in the Pacific Northwest"

Headline Title (2-5 words): Pacific Northwest Vulnerability Assessment

Brief Summary (Abstract): A collaborative project to assess the vulnerability of species and ecosystems to future climate change impacts in the Pacific Northwest.

Project Location: Washington, Idaho

Partners: This project is a collaboration among researchers, managers, and planners at the University of Washington, U.S. Geological Survey, The Nature Conservancy, the National Parks Service, the U.S. Forest Service, the Washington Department of Fish and Wildlife, the University of Idaho, the National Wildlife Federation, the Oregon Department of Fish and Wildlife, and Idaho Fish and Game.

Background: In the Pacific Northwest temperatures have increased by about 0.8 °C and models project warming of 1.8°C by the 2040s and 3.0°C by the 2080s . Precipitation is also projected to change, with general increases projected for the Pacific Northwest, and with a more intense seasonal precipitation cycle - autumns and winters may in fact become wetter and summers may become drier. Further, regional climate models indicate that extreme precipitation in western WA will increase and the snowpack in the Cascades will decrease. Although the trend in direction of change is broadly recognized, there is uncertainty associated with what actual extent of changes may occur through time and in local areas.

Project Goals: The goals of this project are to incorporate climate change information into management planning and implementation efforts by providing: (1) downscaled regional climate models (~1km), (2) simulated shifts in vegetation, (3) an extensive database of documented species vulnerabilities, (4) models of species range shifts for selected species, (5) summaries of the extent of uncertainty in the climate, vegetation, and species changes, and lastly (6) a collaboration of resource managers working to incorporated climate change information into management planning and implementation efforts.

Strategy Goals Implemented: Goal 2, Strategy 2.2, Action 2.2.1 Use vulnerability assessments to design and implement management actions at species to ecosystem scales.
Goal 2, Strategy 2.1, Action 2.1.3Identify species and habitats particularly vulnerable to transition under climate change

Climate Impacts Addressed: Impacts on species and habitats

Status of Project Implementation: Project is ongoing. Currently, over 570 species are in the database and nearly 200 are complete.

Project Outcomes: The Pacific Northwest vulnerability assessment includes two distinct components; first, a database that highlights and details the sensitivity of species and habitat in the study region. The estimated sensitivity of individual species will be based on the ability of the species to disperse and whether dispersal barriers exist, dependency on disturbance regimes (e.g. fire or flood), physiology (e.g., temperature, salinity), dependency on climatically-sensitive habitat requirements (e.g., alpine areas, shallow wetlands), whether the species is a generalist or specialist, and whether the species existence is tied to other specific species. The second component of the assessment involves modeling the potential effects of climate change on species and habitats. This includes: 1) downscaling the climate change projections, 2) simulating potential changes in vegetation, and 3) modeling potential effects on the distribution of 12 focal wildlife species using a hierarchical approach.

Funding Sources: USFWS, TNC, University of Washington, National Park Service, National Wildlife Federation, USGS

Photos/Attachments: www.climatevulnerability.org

Photo/Figure Credits (do we have permission to print):
Suggested Photo Caption: