

Climate Change at GOGA 2/15/2007

1. NPS Policy

Management Policies 2006

4.7.2. Parks containing significant natural resources will gather and maintain baseline climatological data for reference.

Coastal Zone Management Act of 1972

(1) Because global warming may result in a substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence.

PWRO Directive: Energy Management and Water Conservation, The Green Energy Parks Program. (PW-047)

<http://classicinside.nps.gov/documents/PW%2D047%2Edoc>

The white house website, section on climate change has related policy. Laura is a good contact for policy.

2. Global Warming Action Plan for GOGA

This draft plan written by Laura Castellini and Brett Bankie expands on the goals the park has in addressing climate change, how each office within the park can contribute, what the park is currently doing and what it plans to do. A vision statement for the park's climate change response is included, as well as a list of impacts that could occur in the park due to climate change. The park wants to implement this plan by summer 2007. The superintendent endorses this plan.

3. Environmental Management System 2007

An Environmental Management System (EMS) is a management tool to help organize and incorporate environmental considerations into day to day operations. As a comprehensive and long term approach to evaluating - and reducing - environmental impacts, EMS promotes continuous improvement. This became a requirement for parks in 2005.

Laura Castellini is working to rewrite the park's EMS with a global warming planning emphasis. The EMS drives the park's environmental management plan, which contains specific goals. Laura is also the contact for FY07 actions.

4. Other actions the park is taking

- Muir Woods and Presidio shuttles, Alcatraz electric shuttle,
- green purchasing program, green ammunition program,
- sustainability program/planning,
- motion detectors for room lights,

- recycling program,
 - transportation planning, using alternative fuel and high mileage cars,
 - park partner organic and sustainable food program,
 - curriculum-based education programs,
 - the Crissy Field Center program.
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- Adding climate change goals to division chief performance standards.
 - Gathering a list of climate change experts.
 - Creating a park task force on climate change, which will also include partners.
 - The park is establishing a science advisory board including anyone of relevance along the coast. This could include state park officials, and other experts. This responsibility will shift to the Chief of Natural Resources.
 - They are also proposing a global warming research center within the park, to be developed by an outside organization. It should be well-known and reputable and bring in funding and research on the park. It would interact with the media to accomplish goals that the park can not.
 - The park plans to undertake training about climate change along the coast and world wide, beginning this year.

5. Potential impacts to the park due to climate change

The park lists many impacts climate change could cause, the following is a summary: coastal vulnerability (beaches, dunes, highways along beaches, and other sites lost or underwater, flooding), vegetation and wildlife affected, streams and seasonal pools affected, wildfires increase in number and severity

6. What the park can do about climate change

- a. 100+ best management practices
- b. Planning: (from PowerPoint presentation for facility managers)
 - i. Protecting facilities from increased fire danger
 - ii. Preparing for water shortages
 - iii. Preparing infrastructure for heat
 - iv. Preparing for extreme climate events, flooding, etc.
 - v. Smaller infrastructure footprint to minimize ecological stress
 - vi. Planning for sea level rise
 - vii. The Climate-Friendly Parks Initiative
(http://www2.nature.nps.gov/air/features/climatechange_parks.cfm)

7. How have other GMP's addressed climate change?

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- a. No completed GMPs with global warming emphasis, but some are in process.
 - i. Ebey's Landing – Affected Environment (PEPC)
 - ii. Ross Lake – Cliff is facilitator next week for alternatives workshop. They will address GW.
 - iii. San Juan Islands – No draft GMP yet, but they did a simulation on sea level rise. Identified resources threatened if it rises as expected.

Canadian parks are required to address climate change.

8. Who are the leaders in NPS on climate change? Have they produced any work that will help guide our efforts?

- a. WASO -
- b. Pacific West Region – ask Laura or Daphne Hatch. Only one person in interpretation in region. Lynne Picada?
- c. Park – Brett, Laura (environmental management team/plan), Craig is dealing with cc. strategic retreat due to water rise.
- d. Natural Resource Program Center –

9. PowerPoint Presentations by the Pacific West Region

a. Climate Change in the National Parks (July 2006)

- i. Temperatures are rising at an accelerated pace, we may be approaching critical point of no return. Effects of climate change: changed species habitats, increased wildfires, earlier snowpack melt, reduced glaciers, sea level rise, intense storms, ocean currents shift, and ocean dead zones.
- ii. It has been estimated that if we take concerted action now, it's possible to make as much as a six-fold difference in the warming that occurs over the next century. This can mean the difference between 2 degrees and 12 degrees – it can mean the difference in whether we reach the threshold that leads to melting of the Greenland ice sheet. Actions parks can take: reduce greenhouse gas emissions, plan for the future, build public understanding,

b. Managing national parks in the era of rapid global changes: the rules have changed and we must deal with it.

- i. In the face of rapid, pervasive global changes, our current approach to natural resources management is inadequate and can even get us in trouble.
 1. Climatic change and its effects are here, now.
 2. We have entered an era of unprecedented environmental conditions.
 3. We can no longer use the past as a target for restoration or management, nor depend on natural processes alone.
- ii. The future will be characterized by massive yet largely unpredictable changes, and some unpleasant surprises.
 1. Threshold responses will lead to surprises.
 2. Species' ranges will shift, and biotic communities will dissociate in space and time – making some parks unsuitable.
- iii. Actions parks can take: Educate, Lead by example, monitor, redefine goals, reduce current stresses, buy time, try different management approaches, practice triage (some will be ok without

help, others need help, and others are doomed no matter what we do), and actively adapt.

10. Park Science.

In the last 5 years of issues, one article relates to climate change. “Response of Western Mountain Ecosystems to Climatic Variability and Change: the Western Mountain Initiative.” The article addresses the effect of climate change on fire, forest, hydrologic process—the areas most effected.

11. Gary Mason – Nat Resource Specialist WASO, DC, 202-513-7204. Park service-wide climate change planning?

12. Events coming up:

Climate Friendly Parks Leadership Training Workshop, February 20-22, HAVO.

United Nations Climate Change report on February 2.

Other Sources:

Inside NPS > Regions > Pacific West Region > Natural Resources > Climate Change
<http://inside.nps.gov/regions/region.cfm?lv=3&rgn=223>