

Briefing on Chapter 5: Key Considerations for Moving Forward with Adaptation in OCNMS¹
in
Climate Change and the Olympic Coast National Marine Sanctuary:
Interpreting Potential Futures (edited by Miller et al. 2013)

Olympic Coast National Marine Sanctuary Advisory Council
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Makah Marina, Neah Bay, Washington

The 2011 OCNMS Management Plan includes a Climate Change Action Plan (starting on page 82) with **Strategy CLIM1: CLIMATE-SMART SANCTUARY PROGRAM** - Participate in the Office of National Marine Sanctuaries Climate-Smart Sanctuaries program in order to become certified as a climate-smart sanctuary.

Activity A: Conduct an audit of OCNMS' carbon footprint and determine what changes are needed to ensure OCNMS meets the minimum green operating standards outlined in the Climate-Smart Sanctuary guidelines.

Activity B: Develop a Climate Change Site Scenario for OCNMS synthesizing the best available information on climate change impacts to present a picture of what the sanctuary might look like in 50 to 100 years.

Activity C: Work with the AC and IPC to review (and revise if necessary) this Climate Change Action Plan based upon the findings of the Climate Change Site Scenario.

Activity D: Brief the AC and IPC on OCNMS' Climate-Smart Sanctuary certification process, and ensure information compiled for Climate Smart Sanctuary certification is widely distributed to OCNMS partners and the public.

The 2013 publication edited by Miller et al. completes Strategy CLIM1, Activity B. This report includes Chapter 5: Key Considerations for Moving Forward with Adaptation in OCNMS, which “introduces some of the fundamental questions and concepts that arise when adapting natural resources to climate change, and summarizes how climate change affects existing management priorities and stressors in OCNMS.” The scientific synthesis in the report helps address the question “what does OCNMS need to adapt to?” In essence, the adaptations planning chapter initiates the dialog on “what to do with this information.” This chapter outlines basic elements of a structured adaptation planning process (p. 156) and reviews six guiding principles or tenets for adaptation planning for “climate-smart conservation” (beginning on p. 157). These tenets are 1) protect adequate and appropriate space; 2) manage for uncertainty, expect surprises; 3) reduce non-climate stresses; 4) mainstream climate adaptation; 5) plan for both climate variability and climate change; and 6) reduce the rate and extent of climate change.

Beginning on page 161, the adaptations planning chapter provides a brief summary of climate change impacts (based on the report's scientific synthesis) on water, habitats, living resources, and maritime archaeological resources, then summarizes related current activities conducted by

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OCNMS, and identifies possible actions to be undertaken by OCNMS as adaptation responses. These possible actions are listed below.

Water

1. Evaluate the suitability of current water quality monitoring parameters for supporting climate change adaptation. Develop a long-term monitoring plan to collect and analyze water quality data likely to be affected by climate change. These data should be added to a long-term model that allows for temporal and spatial analysis.
2. Begin to analyze historical water quality data sets (adapted from Gulf of the Farallones National Marine Sanctuary Ocean Climate Summit Report, 2010).
3. Continue to support and collaborate with agencies and institutions on the deployment of oceanographic monitoring devices with a focus on long-term temporal and spatial data collection and analysis that can be used to inform climate adaptation (adapted from the OCNMS 2008 Condition Report and OCNMS 2011 Management Plan).

Habitats

1. Create an inventory of baseline habitat status (adapted from OCNMS 2008 Condition Report).
2. Complete habitat mapping and characterization efforts for the entire sanctuary area to establish a comprehensive and informative baseline (adapted from OCNMS 2011 Management Plan).
3. Evaluate how the location and function of different habitat types may be affected by climate change.
4. Where relevant, reduce non-climate stressors that may limit the ability of habitats to adapt to a changing climate.

Living Resources

1. Use findings from this report to prioritize key management areas and/or species that are likely to be significantly affected by climate change. (see Strategy CLIM3, OCNMS Climate Change Action Plan in OCNMS 2011 Management Plan)
2. Continue partnerships to monitor changes in the biological community over time. Identify key “indicator species”, those species likely to display the first signs of climate change effects, and focus monitoring efforts on these species (adapted from OCNMS 2011 Management Plan).
3. Develop or partner in the development of long-term management plans for key ecological and economically important species that incorporate climate-related information, as needed.

Archaeology

1. Establish priority areas most likely to be compromised by rising sea levels (adapted from OCNMS 2011 Management Report).
2. Partner with local tribes to continue to inventory resources and to develop appropriate preservation efforts with a focusing on areas likely to be most compromised by sea level rise (adapted OCNMS from 2011 Management Plan).

3. Establish education and volunteer programs that will allow for a more “rapid” inventory of high priority areas (adapted from Channel Islands National Marine Sanctuary – 2009 Management Plan).

At the May 17 Advisory Council meeting, we are beginning to address the OCNMS Management Plan Strategy CLIM1, Activity C: Work with the AC and IPC to review (and revise if necessary) this Climate Change Action Plan based upon the findings of the Climate Change Site Scenario. Goals of the Advisory Councils discussion include:

1. to review the possible actions identified above and recommend adjustments and additions
2. to review (and revise if necessary) this Climate Change Action Plan based upon the findings of the Climate Change Site Scenario (Strategy CLIM1, Activity C)
3. to consider how possible actions by OCNMS support or integrate with other strategies in the OCNMS Climate Change Action Plan.

Other strategies in the OCNMS Climate Change Action Plan are provided here.

Strategy CLIM2: SANCTUARY AS SENTINEL SITE

Work to establish OCNMS as a sentinel site for long-term climate change research and monitoring in the Pacific Northwest.

Activity A: Propose to NOAA leadership that OCNMS be identified as a sentinel site for climate change research and monitoring.

Activity B: Work with the AC to establish a climate change working group to help 1) develop a climate change research prospectus describing specific climate change research priorities for the sanctuary, and 2) identify marine chemical, physical, and biological indicators of climate change that OCNMS and partners should consider monitoring.

Activity C: Provide relevant scientific and technical information to the Washington Department of Ecology to support the State’s central climate change information clearinghouse and utilize this clearinghouse to support OCNMS research and planning efforts.

Strategy CLIM3: RESILIENT ECOSYSTEMS

Work with natural resource managers and local communities on the Olympic Peninsula to improve the resiliency of ecosystems in the face of climate change impacts.

Activity A: Work with the AC to establish a climate change working group to provide recommendations to ONMS, and to collaborate with tribal, federal, state and local governments on potential joint management responses to climate change impacts.

Activity B: Participate in the state of Washington’s integrated climate change response strategy as well as in other regional efforts to develop and understand climate change impacts to natural and cultural resources.

Activity C: Host workshops and provide training for OCNMS staff and local communities on the outer coast on planning, mitigating for, and managing climate change impacts.

Strategy CLIM4: COMMUNICATING CLIMATE CHANGE

Communicate information about climate change and its potential effects on the sanctuary and Washington’s outer coast to OCNMS partners and the public.

Activity A: Ensure information and data collected by OCNMS on climate change and its effects on the sanctuary are readily available to other resource managers and interested parties.

Activity B: Provide local communities and the public with information about potential climate change impacts on the Olympic Coast and local, tribal, state and regional efforts to plan for climate change.

Activity C: Work with tribal communities to develop public outreach materials that convey tribal perspectives on climate change and its potential effects on tribal communities.

Activity D: Promote education and outreach elements in climate change research projects that occur within OCNMS.

Activity E: Develop a Climate Literacy education and outreach plan and incorporate it into OCNMS' Ocean Literacy Action Plan.