



Integrated Marine Protected Area Climate Tool



Pilot study in the Florida Keys to develop climate decision-support tools for MPA managers

Entrusted with stewardship of many of the most ecologically, economically and socially important marine resources in U.S. waters, managers at NOAA’s Marine Sanctuaries need accurate and timely decision-making tools to take proactive steps in facing the threat climate change poses to the resources. Consider that the herculean task of reducing uncertainty in climate models can be rendered more manageable and immediately useful if the scale of effort is reduced to that of a target region that significantly represents the critical role of sanctuaries. Success in such a pilot study then serves as a guide for other sanctuaries and our Marine Protected Area (MPA) colleagues at the local, state and regional level.

The fundamental task ahead, then, is to make basic climate information readily available for these resource managers, and to provide interpreted and derived information that reduces complexity and renders decision making easier, quicker and more successful. Tools which provide this information should include assessments, status, trends and alerts for target regions, and should also provide an easy and satisfying feedback mechanism for developers, managers, and stakeholders.

DESCRIPTION:

Building upon existing partnerships, NOAA will develop a comprehensive set of climate products, including climatologies, for MPAs through a pilot project at the Florida Keys National Marine Sanctuary (NMS).

This multi-year pilot project will involve:

- 1) creating long-term climatologies (current climate conditions, historical averages and extremes, ranges of possible changes) for the Florida Keys NMS;
- 2) assessing expected ecological responses of marine resources resulting directly or indirectly from climate change; and
- 3) evaluating the usefulness of the product in the field.

Through this exercise, the NOAA partnership hopes to

- 1) create a prototype decision-making tool for similar constituents, and
- 2) identify gaps in the data record necessary to refine global climate models to smaller geographic scales and adequately assess climate impacts.

These climate products will integrate historical atmospheric, oceanographic and biological data in order to establish a climatological baseline at the scale of an MPA, and will allow scientists and managers to better understand how marine resources may be affected by climate change within sanctuary boundaries.

Results from this work will be used by resource managers, researchers and policy makers alike as an important aspect of educational and outreach efforts, and will support NOAA’s role in ecosystem-based science and management through marine spatial planning.

These climate products will improve overall management strategies and reduce uncertainty in estimating the effects of climate change on crucial marine resources.

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