

Studying the Impacts of Global Climate Change in Hawaii

The Hawaii Ocean Resources Management Plan (ORMP) Working Group requests endorsement to seek funding for a comprehensive, statewide study on the place-based impacts of global climate change in the State of Hawaii. The Working Group believes that such a study is an essential precursor to an effective and collaborative planning approach to address the impacts of climate change in Hawaii. The Group also believes that a proactive approach to developing appropriate climate change adaptation strategies would reduce the anticipated substantial economic, social, and environmental costs associated with climate change impacts when compared to no action.

With the endorsement to move forward and the acquisition of funding, the ORMP Working Group would define the scope of the study through consultations with key stakeholders, sector representatives, and scientific experts. At a minimum, the scope should include the following tasks:

- 1) A multisectoral and scientific assessment of climate change impacts at a scale relevant to place-based planning; and
- 2) Key recommendations for the State of Hawaii to move forward with planning for climate change.

Desired Outcome:

The State of Hawaii is equipped to define place-based impacts of climate change and provide a comprehensive information base for government agencies, nongovernmental organizations, and the private sector to develop plans and to make informed decisions on mitigating impacts of, and adapting to, climate change.

Background:

The ORMP Working Group has been tasked by the ORMP Policy Group to propose joint initiatives or legislation to improve interagency collaboration and further implement the management goals and strategic actions of the ORMP. One of the Working Group's top priorities is addressing the impacts of climate change on Hawaii. This is important for the future of the ORMP as well as for the future of Hawaii's residents, property, economic vitality, and natural and cultural resources. The Working Group supported a proposal to introduce new legislation requiring state agencies to plan for climate change. However, the Group realizes that before new legislation can be proposed, a comprehensive study on the specific impacts in Hawaii is needed. Knowing that the specific impacts of climate change depends on numerous geographic and atmospheric conditions, the study should focus on place-based impacts. It is imagined that this study and the planning that results from it will serve as a model for action for our Pacific Island neighbors.

The climate change study should be comprehensive and should address the entire state. It should not only include impacts to the shorelines and marine resources, but also to the fresh water

resources, the agricultural sector, the economic sector (such as tourism and fisheries), and key social impacts. Rising population growth and increasing numbers of people living along the shoreline, loss of property and open space, and increased flooding and severity of storms should all be included in the study.

Ocean Resources Management Plan

The ORMP is an integrated, place-based approach to management of Hawaii's natural and cultural resources in the islands, recognizing the ecological connections between the land and sea, the link between human activities and their impacts on the environment, and the need for improved collaboration and stewardship in natural resources governance. This proposal for a climate change study is a demonstration of the collaborative effort among the Working Group's members, and is in clear alignment with the ORMP perspectives to recognize the connections between land and sea, and between human activities and the environment. The plan also provides meaningful context to a number of key issues that will be affected by climate change, such as shoreline erosion, coastal development, coastal hazards, and the preservation of coral reefs and Hawaiian fish ponds. A climate change study will enhance the further development of the ORMP to include more specific recommendations on how to plan for climate change.

Justification

Global climate change due to anthropogenic activities will have detrimental effects on the oceans, and island nations will be particularly vulnerable to the impacts associated with it. The impacts from global climate change are extensive, including increased climate variability and severity of storms, sea level rise, ocean and atmospheric warming, increased flooding and other coastal hazards, and ocean acidification.

Climate change in Hawaii is expected to result in:

- Increased frequency and severity of storms;
- Drought;
- Sea level rise;
- Shoreline erosion;
- Saltwater intrusion;
- Sea surface temperature rise; and
- Ocean acidification.

These changes will result in a range of impacts to communities in Hawaii including:

- Impacts to the economy
 - Agriculture
 - Tourism
 - Other sectors
- Impacts to natural resources
 - Watersheds and water resources
 - Forests and terrestrial biodiversity
 - Coastal resources and marine biodiversity
 - Beaches and shorelines
 - Ecosystem structure and function

- Impacts to society
 - Health
 - Property
 - Recreation
- Impacts to basic service delivery
 - Food supply
 - Land use
 - Water delivery systems
 - Wastewater systems
 - Education
 - Public infrastructure
 - Health services
 - Transportation

A multidisciplinary approach is needed to conduct a comprehensive assessment of the impacts of climate change in Hawaii. The proposed study would be designed to gather input from stakeholders, sector representatives, and scientific experts in climate change impacts and adaptation strategies.

The environmental, societal and economic consequences of climate change for islands as well as the rest of the world are far reaching. An all inclusive study such as the one proposed will enhance the State of Hawaii's ability to prepare for climate change, to enhance coastal hazard preparedness, to reduce CO₂ emissions and find alternative energy sources, and to protect and preserve our natural and cultural resources.