

Working Group Considers Effects of a Changing Climate

A Report to the
Port Orford Community



The Working Group and its Activities

This informal project, begun in 2009, has been locally coordinated and led by the Port Orford Ocean Resource Team. This organization has been assisted by a group of natural and social scientists and practitioners, mainly from Oregon State University, and supported throughout by the Oregon Sea Grant program based there. The aim of the project has been to understand the potential effects of a changing climate in Port Orford and vicinity and to consider what, if anything, the community might want to do to address those effects.

The working group of about 10 interested Port Orford residents had no official capacity; rather, they simply had a shared interest in how the town might adapt to a changing climate. This report summarizes the project activities to date. Three local workshops—in January and March 2009 and August 2010—built on one another and involved the working group in hands-on activities, which followed best practices of group decision-making.

Figure 1 outlines the process that groups typically use in making decisions. The results of this past work have been detailed in a number of diagrams produced by participants, which captured the group's thinking in a visual way. The development of these "concept maps" was intended to provide an equal opportunity for all participants to present, share, and discuss their understanding of the risks associated with environmental change and the responses the community might consider.

Participants' views of the climate risks were then compared to the available information from climate scientists and found to be in very good agreement, as reflected in Figure 2 (under overleaf). This approach was intentional: while it is widely recognized that public decisions should be grounded in sound natural science, community participants should have the opportunity to identify problems about which they want to make decisions rather than being told by scientists what those decisions should be.

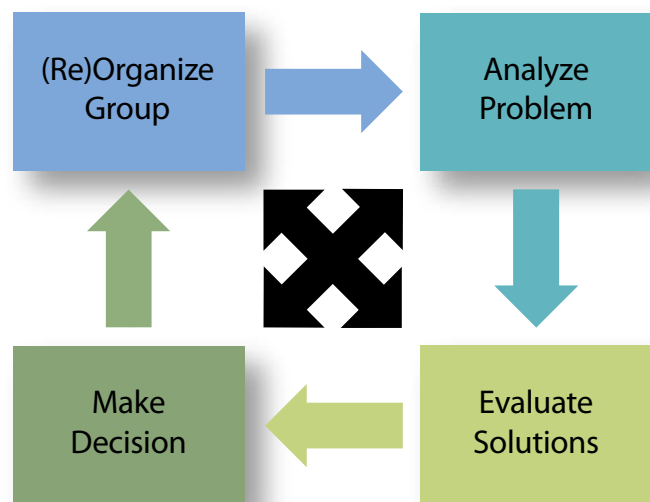


Figure 1.— A simplified model of group decision-making in practice.

Understanding the Working Group's Insights

Figure 2 contains a great deal of information and can be a bit overwhelming at first. But one can see its value by recognizing that the information is organized into a set of ideas that are logically linked and read from left to right in six related columns. The headings of those columns are highlighted in yellow. At the left, in the first column, are the "Broader Climate Effects" identified by the Port Orford working group and also by climate scientists. Arrows from the boxes in this column to boxes in the next column show the "Primary Biophysical Impacts" of those effects—for example, sea level rise (column 1) can have the biophysical impact of increased flooding (column 2). In turn, that impact could have a "Biophysical Risk" (column 3) of increased pollutants and a "Potential Social/Economic Impact" (column 4) of infrastructure destruction (houses, businesses, roads, etc.). The working group didn't stop there, however, but considered what "Potential Interventions" (column 5) could be taken to address the impacts—identifying seven different responses—and, in column 6, who might be responsible for making those responses.

A little time and attention to reading the diagram this way will reveal a rather detailed snapshot, as of 2009, of one citizen-group's overview of what the problems are, what might be done about them, and—importantly—how various factors are related.

It's important to recognize two features of this diagram. First, it's a snapshot of the thinking of one local group and how that group's thinking matched up with that of some climate scientists; it isn't a final, complete, nor necessarily completely accurate account of climate change and Port Orford. Second, the diagram does not really address two other dimensions of risk that reasonable people would want to consider: how big the risk is, and how certain we are about it. These limitations of the diagram should not be thought of as mistakes or fatal flaws. Instead, the diagram can be understood as a kind of roadmap to which the community may refer as it goes forward in refining its understanding and actions regarding the changing climate. What is clear is that the working group was concerned about these key features of a changing climate: sea level rise and increases in extreme weather, water temperature, carbon dioxide levels, and atmospheric temperature. In these concerns, they have the overwhelming evidence of current science to support them.

A Current Focus on Hazard Vulnerability

In summer 2010 the Port Orford working group was surveyed about what they wished to be their focus. They responded, "to determine critical local vulnerabilities in the natural environment" and "to make recommendations about how to respond to these critical local vulnerabilities." Experts in this field say that ideally, priorities would be set among various hazards through a scientific assessment that involves good measurements and an understanding of how probable the hazard's occurrence may

“After hearing the presentation by the Working Group on the Effects of Changing Climate, the Port Orford Planning Commission agreed unanimously that effects of future climate change must be considered when reviewing City Ordinances, the Port Orford Comprehensive Plan, and land-development proposals. No matter what the causes of climate change and its effects are, we must be diligent as a coastal City and be prepared.”

Dave Holman, Chairman
City of Port Orford Planning Commission

be. Unfortunately, such information is not always available at the local level for all hazards. So, until more information becomes available, communities may have to focus on what they do know about existing hazards, and make some provisional decisions.

This is just what the working group did in its August 2010 workshop. In informal discussions, members of the group gravitated away from specifically climate-linked hazards to better-known hazards, such as those associated with a potential tsunami on the southern Oregon coast, or, more locally, with the potential breaching of Garrison Lake during flooding events. Such flooding, which might be triggered by increased winter storminess associated with a changing climate, could break the high-pressure sewer line that runs across the Arizona Street Bridge, causing significant spillage and environmental harm.

Looking to the Future

Having identified the most-probable local hazards, the community group chose to move forward with projects that are already town priorities but that match up with climate concerns.

To begin, in November 2010 the group made a presentation to the Port Orford Planning Commission about their work and the dangers of increased frequency and intensity of storms. The group's presentation was received with interest, and the Commission agreed to consider changes to the climate when making future decisions and to include language to that effect in its comprehensive plan.

One other tangible project the working group identified is to reinforce the Arizona Street Bridge to reduce its vulnerability to natural disasters. The City would need to locate funding for this project, possibly through the Pre-Disaster Mitigation program at FEMA (the Federal Emergency Management Agency).

Likely Climate Changes

While Port Orford residents might like to know exactly how a changing climate will affect where they live, the best information currently available is not nearly so specific. Instead, scientists can describe regional trends and projections based on their best knowledge, in reports such as two published in December 2010.* Some excerpts follow.

Future regional climate changes in Oregon likely include:

- Increases in average annual air temperature (equal to 0.2–1 degrees F/decade)
- Warmer and drier summers
- Forests west of the Cascades more vulnerable to fire
- Increased frequency of extreme precipitation events and flooding
- Increased coastal erosion and risk of inundation from rising sea levels and storm surges
- Increases in frequency and magnitude of coastal flooding events
- Shift of plant and animal species upward or northward on land, and deeper or northward at sea
- Increases in water temperatures in the ocean
- Ocean waters that are more acidic and corrosive to certain species, potentially affecting recruitment and survival of shellfish species, and affecting tiny organisms at the base of the food chain, with related additional effects

**(1) Oregon Climate Change Research Institute (2010), Oregon Climate Assessment Report, K. D. Dello and P. W. Mote (eds). College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR; (2) Oregon Department of Land Conservation and Development (2010), The Oregon Climate Change Adaptation Framework. Salem, OR.*

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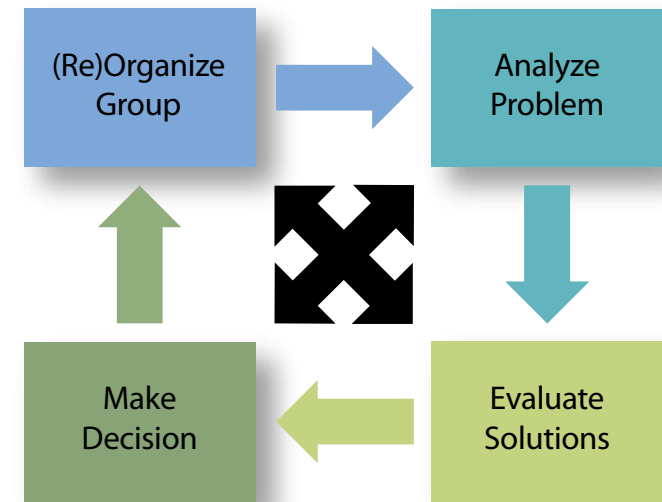


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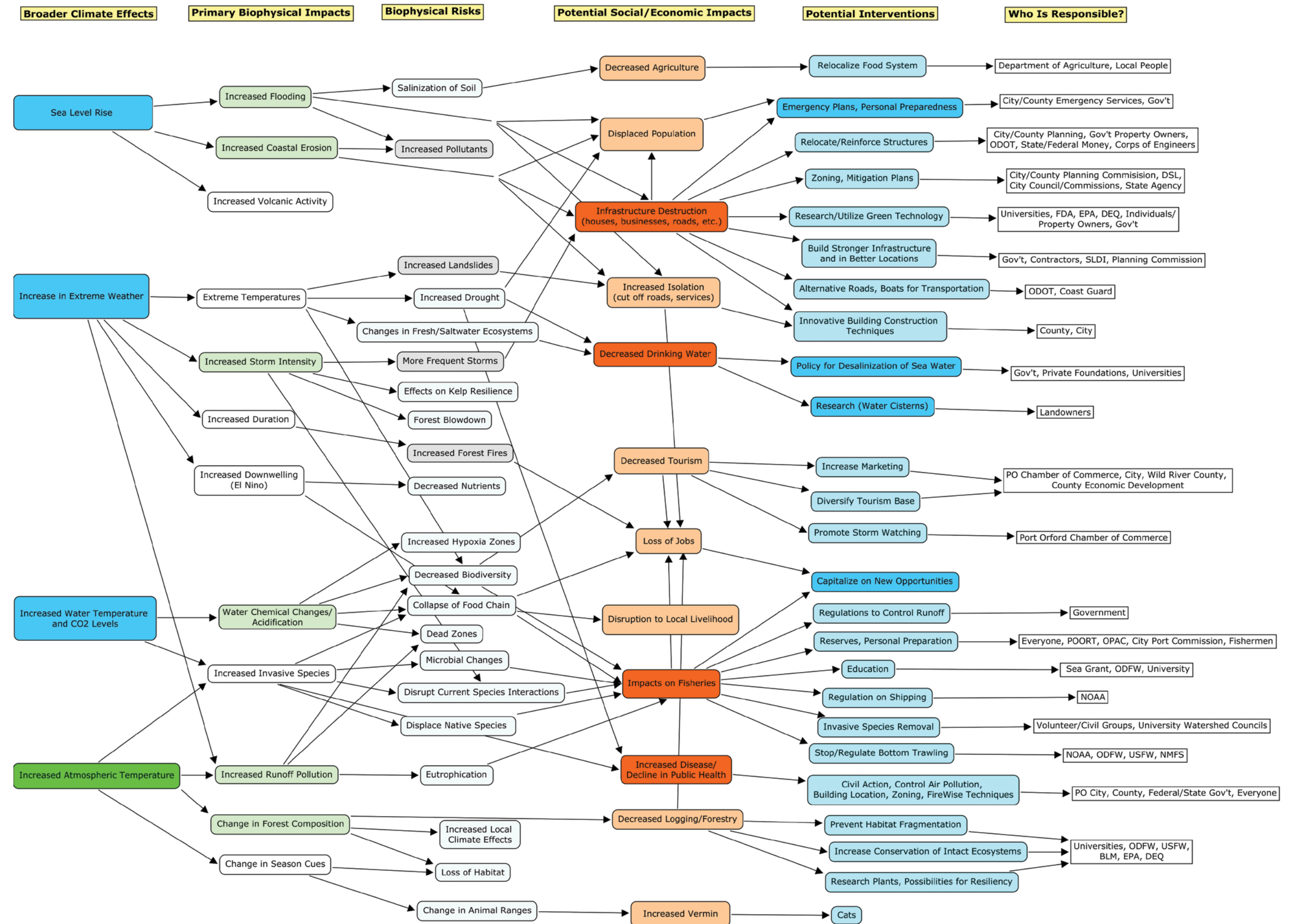
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Figure 2.

Port Orford Community Model: Climate Change Effects, Risks, Potential Social Impacts with Potential Interventions and Actors, circa 2009-2010

(darker colors in each column indicate impacts/interventions similar to the Climate Expert Model)



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