Strategies for connecting science & decision-making

... when you don’t want what I have to offer, but I don’t have what you want

Amy Snover
Director, Climate Impacts Group
University Director, NW Climate Science Center
University of Washington

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The University of Washington Climate Impacts Group supports the development of climate resilience by advancing understanding and awareness of climate risks & enabling action to manage those risks.
Coproduction Challenges

+ You need a different type of information than I (or anyone else) can provide

You want information about something currently unknowable

You want straightforward information about something very uncertain

You don’t know what you need (and neither do I)
You want actionable information about something unknowable
What is the impact of climate change on wildfire risk in western Washington?
How can management reduce that risk?
Like much of the western US, eastern Washington is characterized by fire-adapted forests with frequent (10-30 year) fire return intervals & clearly increasing risks under climate change.
Coastal Oregon & Washington are characterized by dense, moist forests with fire return intervals of hundreds of years. Fire models are of limited use in projecting future risk because of relative lack of fires in the recent historical record & importance of extreme weather.
Managing Western Washington Wildfire Risk in a Changing Climate

A science-practice symposium supporting peer-to-peer learning, networking & a cross-disciplinary knowledge regarding approaches to preparing for wildfire

Discuss state-of-the-science
Identify risk-reduction strategies
Identify information, research, partnership, and coordination needs

Organized by the Puget Sound Climate Preparedness Collaborative, the University of Washington Climate Impacts Group, the Northwest Climate Adaptation Science Center, and the Tulalip Tribes
Coproduction Challenge #1

What worked?

• Clear articulation of state of knowledge

• Limits to adaptation communicated by respected practitioners

• Collaborative definition of information needs & response options
You want straightforward information about something very uncertain
How will climate change affect flood risk?
Climate Change = More Floods, Bigger Floods

Sea Level Rise

Heavy Rains

Snowpack
Snoqualmie River floods, 2080s

Change in Annual Max 3-hour Flow (%)
What worked?

• Ongoing forthright discussion of likelihood & consequences of inconclusive results
• Bracket new uncertainty & compare to previous
• Reframing results: what do we know?
You don’t know what you need (and neither do I)
Investing in Outdoor Recreation and Preserving Habitat

Washington Wildlife and Recreation Program

To date, RCO has awarded more than $861 million which has funded 1,427 projects in nearly every county.
Finally, the board has a **fiduciary responsibility** to ensure wise investment of grant funds. At a minimum, a funded project should not significantly add to greenhouse gas emissions and **the impacts of climate should not negatively affect the state’s investment.**
Mission

Develop an approach to address climate change in the Urban Wildlife Habitat and Riparian Protection categories of the Washington Wildlife and Recreation Program.

Courtesy of Ben Donnatelle, WA RCO
WWRP Habitat Conservation

Riparian Protection
Provides funding to:
• Purchase land
• Restore habitat
• Develop passive recreation

Urban Wildlife Habitat
Provides funding to:
• Purchase land
• Develop passive recreation

Courtesy of Ben Donnatelle, WA RCO
The Challenge

Summarized by two questions:

1. How might a changing climate impact projects the board funds; and

2. Can the board direct funding to future projects that increase landscape or community resiliency and mitigate climate stressors better than they already do?

Courtesy of Ben Donnatelle, WA RCO
Climate Policy Options

**Board Resolution**
- Acknowledge Risks
- Recognize Partners
- Commit to Learning and Sharing Resources
- Integrate Climate Change

**Vulnerability and Risk Assessment**

**Curate Planning Tools, Resources, and Design Considerations**

**Develop Policy Priorities to:**
- Direct funding towards or away from specific impacts, threats, risks.
- Include climate change considerations in comprehensive planning eligibility
- Develop evaluation questions addressing specific impacts, threats, and vulnerabilities
- Develop new project reporting metrics and requirements
- Threat to Habitat
- Site Suitability
- Sustainability and Stewardship
- Greenhouse Gas Reduction
- Landscape Characteristics

Courtesy of Ben Donnatelle, WA RCO
Coproduction Challenge #3

What might work?

• Iterative discussion about state of knowledge, potential approaches
• Phased implementation
• Repeatedly showing up

Cowiche Watershed (WDFW WWRP application)  
Source: David Hagen
Honest & frequent discussion on knowledge limits

Begin by bracketing, progress to probabilities

Focus on co-producing understanding, not just knowledge

Arthur Taber, New Yorker
WA is already burning and that could mean another smoky summer

When 51 wildfires broke out in one week in March, scientists and firefighters alike began preparing for a busy summer fire season.

by Hannah Weinberger / April 2, 2019
You need a different type of information than I (or anyone else) can provide
How big should culverts be to account for increased streamflow under climate change?
~20,000 culvert barriers in Washington state
Culvert Width = 1.2 \times BFW + 2 \text{ ft}

Measuring a stream channel cross section. Determination of bankfull stage and related measurements in the field are especially important for correct Level II classification.
Peak Flows

Source: CMIP3
- Historical
- Medium Emissions (A1B)
- Median

Flow (cfs)
120000
100000
80000
60000

Return Interval (years)
10
50
100

10 Global Climate Models:
Future temp. and precip.

VIC hydrologic model predicts runoff

Estimate bankfull flow

Estimate bankfull width

1.2 * BFW + 2 ft
What’s working?

- Facilitated collaboration between scientists & engineers
- Address variability in results by focusing on clear problems
- Ongoing refinement of analysis & delivery