Informing Strategic Planning

Analysis of Climate-Related Stakeholder Needs for Science and Traditional Ecological Knowledge in the NPLCC Region

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Presented to NPLCC Steering Committee

August 29, 2012

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Project Overview

Phase of Project	Goal/Purpose	Status
Phase I Reports	Climate effects on ecosystems, species	Draft: Aug. 2011 Final: 2013
Phase II Survey & Web-based Focus Groups	Identify challenges, opportunities, and potential strategic science-TEK priorities	Completed May 2012
Phase II Expert Workshops	Begin open-ended and use subsequent steps to refine → priorities	Completed June 2012
Phase II Report	Inform S-TEK planning & prioritization	Review Draft out now; Final: Sept. 2012

Goal of the S-TEK Subcommittee is to provide:

- The right information at the right scale in the right way and at the right time, and
- The tools, perspectives, and support needed to make appropriate use of the information.

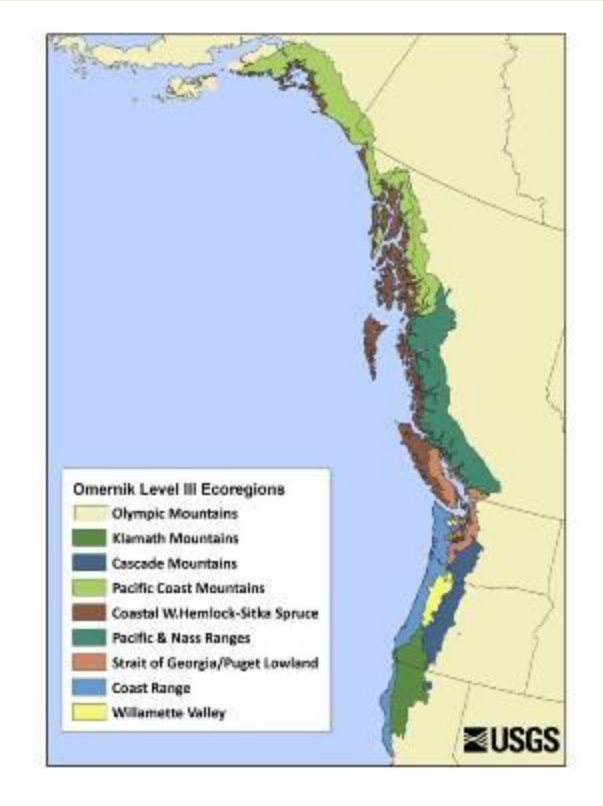
These two areas are the focus of the NWF/NPLCC Focus Groups

Outline

- Methodology
- Findings
- Next Steps

Methods and Data Collection

- ID ~375 NPLCC stakeholders
- Web Survey
  (79 responses; Response rate: ~25%)
- 13 Web-based focus groups
  (107 participants; RR: ~29%)
  - Biogeophysically organized
- 3 In-person workshops
  (108 attendees; RR: ~29%)
  - Portland, OR (Feb)
  - Juneau, AK (April)
  - Arcata, CA (June)
- Overall: 195 participants (RR: ~53%)
- Frequency and strength analysis to identify top focus areas



Primary Research Questions

1. What are the **challenges and opportunities** associated with managing ecosystems, habitats, and species in the NPLCC region in light of current and potential future climate change effects?

2. What is the **decision-relevance, spatial scale, temporal scale, timeline, and sense of urgency** for the challenges and opportunities identified in Research Question #1?

3. Which **partners and ongoing efforts** are currently available to assist with addressing the challenges and opportunities identified in Research Question #1?

Focus Group Questions

1. What are the key challenges you face in your work due to climate change?
2. What are the key science or data gaps that would help you address climate change in your work?
3. What information or support do you need or do others ask you for?
4. What are the key products or roles that you would like to see the NPLCC provide or fulfill?

Major Themes and Concepts

Challenges

1. Difficult to find and apply data, tools, information
2. Insufficient capacity
3. Institutional, political, cultural, and social barriers
4. Lack of coordination, collaboration, communication
5. Difficult to incorporate or address uncertainty
6. Competing or obsolete priorities

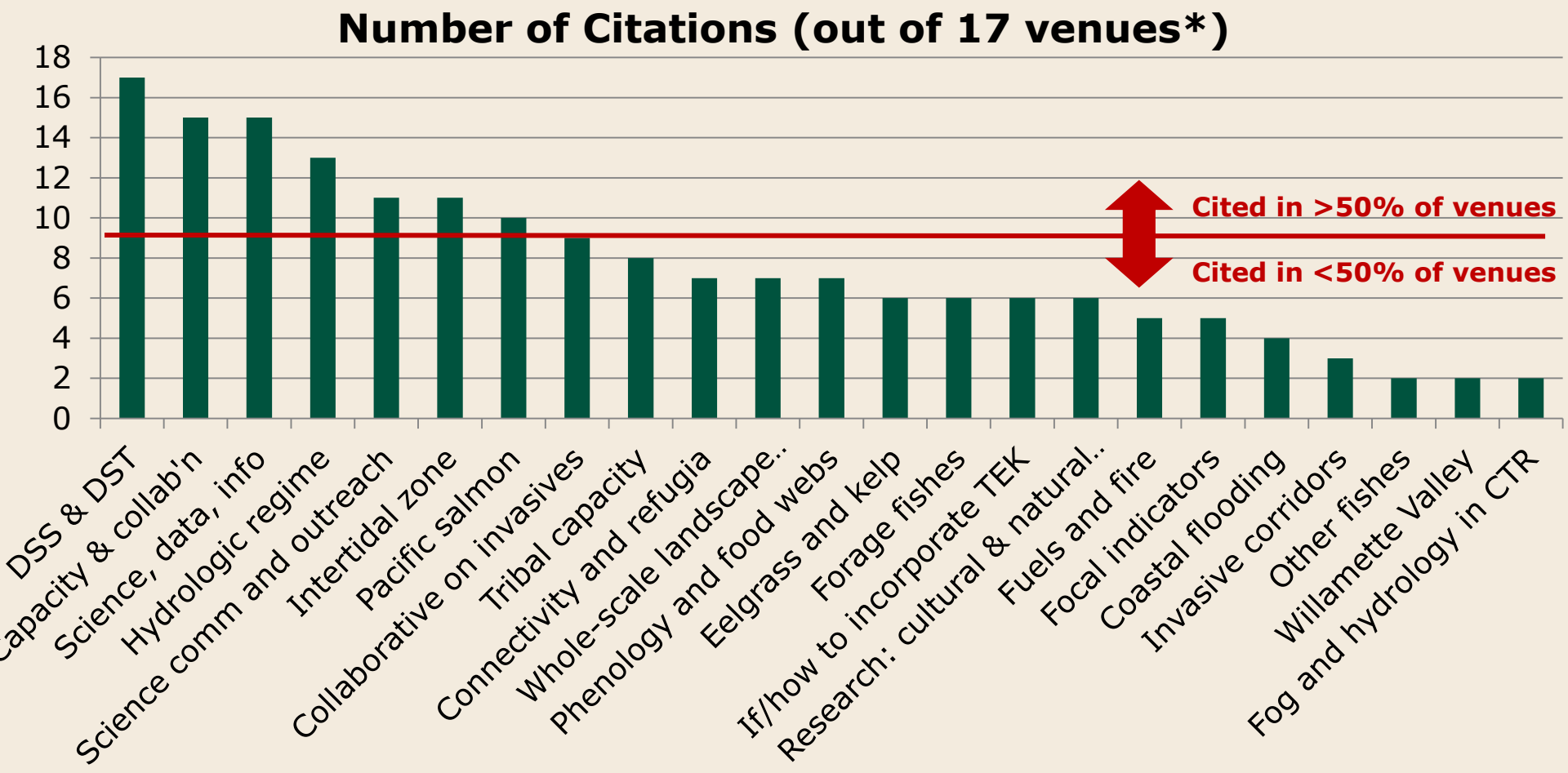
Quotes

I struggle with the amount of information that is out there and my ability to absorb it

A lot of scientists work in their own disciplines but we could certainly benefit from coordination and finding out and tapping into what others are doing

The biggest challenge is the uncertainty associated with how climate change will affect various ecosystems and what the appropriate response is

23 Focus Areas: Frequency Analysis



*Venues = 1 survey, 13 web-based focus groups, 3 in-person workshops

Top 9 Focus Areas (listed in order)

1. Develop decision-support systems and tools
2. Facilitate collaboration and other capacity-building activities
3. Support the generation of new or different science, data, or information
4. Increase the resiliency of the hydrologic regime to climate change and other stressors
5. Engage in science communication and outreach
6. Assess the vulnerability and resiliency of the intertidal zone
7. Assess the vulnerability of Pacific salmon
8. Determine if and how to incorporate TEK and Western science into the NPLCC's work and build capacity for Tribes, Native Alaskans, and First Nations
9. View the NPLCC region as a corridor for wanted and unwanted species movements
   - Determine needed priority assessments and actions as a result
   - Collaborate across ecosystems to address invasive species, pests, pathogens, and disease

Most Requested Support: NPLCC-wide

1. Decision-support systems and tools
2. Collaboration and other capacity building activities
3. New or different science, data, and information
4. Science communication and outreach

1. Develop tailored decision-support systems and tools (Cited in all 17 venues)

I think that visualization tools are the way that most of us understand things the best. Under what scenarios, where will the water be and how can we prioritize? Where can wetlands migrate…?

- Visual Displays
  - Maps
  - 3-D animations
  - Visualizations of current and potential future conditions
- Vulnerability assessments
- Scenarios
- Assess trade-offs, address uncertainty, help prioritize

2. Facilitate collaboration and other capacity-building activities (15 of 17 venues)

The NPLCC should try to bring the different types of science producers together so that they could have a chance to sit down and think out the actions together. I think there is a real facilitation role for the NPLCC.

- Connect and leverage people, institutions, projects, funding
  - Integrate and leverage existing resources
- Convene researchers/managers & Facilitate cross-ecosystem and cross-discipline communication
- Information portal ("Climate Clearinghouse")
- Provide examples of climate adaptation actions (case studies; success stories)
- Compile and synthesize existing info

3. Support generation of new or different science, data or information

(15 of 17 venues)

Principles to guide production:

- Actionable-level info and analysis for decision-making
- Produced in cooperation with decision-makers

Examples

- Fill baseline data gaps, e.g.:
  - Hydrologic data in Alaska and BC
  - Coastal sediment accretion and transport
  - New climate change indicators
- Adaptation actions
- Cost estimates, e.g., coastal flooding impacts
- Models and regional downscaling, e.g.
  - Ocean conditions
  - Invasive species movements and disease relationships

The real product is adaptation actions…that is the really critical piece for us – what kind of management actions can we do to minimize vulnerability of these resources or species

4. Engage in science communication and outreach

(Cited in 11 of 17 venues)

We struggle with communicating effectively with decision makers…Producing those summaries that [make it] clear to decision makers

- Use "good, consistent language" in communication and outreach materials.
- Use visualization tools to communicate impacts and vulnerable areas
- Connect ecological impacts with social and economic impacts.
- Audiences include:
  - Managers, practitioners, and researchers
  - Public and educators
  - Decision-makers

Ecosystem Specific Support

- Freshwater
- Marine
- Terrestrial

Freshwater Ecosystem Requests

- Increase the resilience of the hydrologic regime (13 of 17 venues)
  - Improved sensor and monitoring network
  - Vulnerability assessments
  - Prioritization tools
  - Baseline data for Alaska and BC

Coastal Ecosystems

- Assess vulnerability of the intertidal zone (11 of 17 venues)
- Address changes in phenology and food webs due to acidified and low-oxygen ocean conditions (7 of 17 venues)
- Characterize eelgrass and kelp habitats and identify priority areas (6 of 17 venues)
- Assess costs of altered coastal flooding regimes (4 of 17 venues)

Terrestrial Ecosystems

- Assess CC effects on large landscapes, especially vegetation change (7 of 17 venues)
- Increase resiliency of connectivity and refugia networks to CC effects (7 of 17 venues)
- Study interaction of fire with other disturbance regimes, e.g., pests, disease, drought (5 of 17 venues)
- Support assessments of CC effects on fog patterns and forest hydrology in NW California (2 of 17 venues)

Cross Ecosystem Requests

- Assess vulnerability to Pacific salmon and other anadromous fish and their habitats (10 venues)
- Assess vulnerability of forage fish (6 venues)
- Address invasive species, pathogens, and diseases (9 venues)

I see the NPLCC being the corridor in which invasives will "march on up." There is so much coastline but it is important to know where we should focus on new invasions.

Indigenous Natural and Cultural Resources

We need to know how to include climate change information into our Way of Life and bringing it home for us. We need to understand what is going to happen…Connecting it to our Way of Life so that we can adapt and plan.

- Support efforts of Tribes, Native Alaskans, and First Nations to identify and address climate related priorities (9 venues)
- Address climate change effects on the indigenous Way of Life (6 venues)

Concluding Observations

- Decision-support systems and tools were the dominant request among participants
- NPLCC is uniquely positioned to address cross-ecosystem issues
- While a better understanding of climate change is important, it is also critically important to generate the information needed to apply decision-support systems/tools and build capacity to address climate change effects.

Next Steps

- Finalize stakeholder assessment report (Sept. 2012)
- Finalize Phase I reports and produce similar report on terrestrial ecosystems (Feb-Oct 2013)
- Priority workshops to implement NPLCC Strategy for Science and Traditional Ecological Knowledge (Feb-July 2013)

- *Download Phase I Draft Final reports from "Adaptation Reports" section of www.nwf.org/climate-smart*
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Acknowledgments

- U.S. Fish & Wildlife Service Region 1 Science Applications Program
- North Pacific Landscape Conservation Cooperative
- Mary Mahaffy and John Mankowski, U.S. FWS & NPLCC
- Lara Whitely Binder and Jeremy Littell, UW Climate Impacts Group
- Karen Jenni, Insight Decisions, LLC
- Project participants