

Project Category: Cross-Ecosystem

Project Title: Moving from Impacts to Action: Expert Focus Groups for Climate Change Impacts and Adaptation Strategies in Marine and Freshwater Ecosystems of the North Pacific LCC

Project Leader or Principal Investigator responsible for completion of project: Dan Siemann, National Wildlife Federation – Pacific Regional Center, siemannd@nwf.org, (206) 577-7802.

Cooperators/Partners and anticipated project contributions: Dr. Mantua, University of Washington Climate Impacts Group, nmantua@u.washington.edu, (206) 616-5347. Lara would provide assistance in organizing and conducting expert focus groups focused on climate change impacts and adaptation in marine/coastal and freshwater ecosystems. In this role, Lara would be an information portal to people and resources and would help facilitate focus group discussions around research gaps, adaptation responses, funding opportunities, and research/adaptation priorities.

Project Summary (3 sentences target): NWF proposes twelve expert focus groups to meet the need for a comprehensive (multi-taxa, multi-trophic level), cross-disciplinary (linking biological, physical, and ecological data) discussion of the most up-to-date information on climate change effects and adaptation strategies in marine/coastal and freshwater ecosystems across the NPLCC landscape. These focus groups would leverage NWF's existing efforts to summarize climate change impacts in these ecosystems and would especially seek key impacts not yet addressed in the published literature, including information on specific species, habitats, locations and perceived priorities that might not be easily discerned from the published literature. Focus group discussions would allow participants to move from understanding climate change impacts to identifying research priorities and opportunities for coordinated landscape-wide conservation action in marine/coastal and freshwater ecosystems in the NPLCC region.

Project Proposal: This project would connect NPLCC members and stakeholders with information they need in order to identify, support, and coordinate conservation actions that address climate change in marine/coastal and freshwater ecosystems across the NPLCC landscape. Leveraging NWF's existing efforts in outreach and stakeholder engagement, NWF would utilize a participatory, integrative approach to engage experts in focus group discussions of climate change effects and adaptation strategies in marine/coastal and freshwater ecosystems in the NPLCC geography. Information gathered during focus group meetings would be incorporated into existing draft reports and reviewed by focus group participants (as well as others) to produce the first compilation of landscape-wide climate change impacts on marine/coastal and freshwater ecosystems in the NPLCC. With this venue, focus group participants could move from understanding climate change impacts to identifying research priorities and opportunities for coordinated landscape-wide conservation action in marine/coastal and freshwater ecosystems in the NPLCC region. The major activities are:

- **Convene six expert focus groups to confirm, augment, and disseminate the findings of a draft report summarizing the effects of climate change on marine/coastal ecosystems across the NPLCC geography:** NWF would work with federal and state/provincial agencies, tribal/First Nations governments, NGOs, scientists, and academic experts to convene carefully selected science, policy, and management experts working at the nexus of climate science and conservation to confirm and augment the report's findings. This would be done in two stages: first, NWF would organize and facilitate five virtual focus groups, one for each jurisdiction (i.e., five teleconferences with experts specific to Alaska, British Columbia, Washington, Oregon, and California); second, NWF and Climate Impacts Group (CIG) would convene an in-person focus group at an NPLCC-wide meeting (note that NWF will leverage separate funding for convening similar focus groups in Washington and incorporate this information into the report). Focus groups would devote the first half of

the discussion to confirmation and augmentation of climate change impacts described in the draft report. Virtual focus groups would focus on state/provincial impacts and the in-person focus group would focus on NPLCC landscape-wide impacts (we would especially seek key impacts not addressed in the report and information on specific species, habitats, locations and perceived priorities that might not be easily discerned from the published literature). This would inform and improve understanding of the relationship between climate change and marine/coastal ecosystem responses at multiple scales in the NPLCC geography. The second half of the focus group discussions would seek input on adaptation responses, information gaps, and research priorities (e.g. opportunities for coordinated adaptation strategies for resource managers could be identified).

- **Convene six expert focus groups to confirm, augment, and disseminate the findings of a draft report summarizing the effects of climate change on freshwater ecosystems across the NPLCC geography:** These focus groups would use the same approach as that describe above for marine/coastal ecosystems.
- **Produce two final reports incorporating focus group findings:** The final reports will integrate published literature and focus group findings to produce synthetic summaries of climate change effects and adaptation strategies in marine/coastal and forested ecosystems across the NPLCC landscape. The final reports would be provided to NPLCC members for consideration. The Executive Summary could be used as a short, stand-alone document capturing the key findings covered in the report. Thus, this project would be useful for informing planning workshops, conferences, and other NPLCC-wide planning efforts that collaboratively consider priorities and next steps for NPLCC actions and funding.

Background and Need: While it may be useful to include a brief amount of background information in this section, be sure to clearly address the following:

- *Background:* The focus groups on marine/coastal and freshwater ecosystems leverage NWF's existing efforts to provide the first landscape-wide picture of climate change impacts and adaptation strategies for the NPLCC region's major ecosystems (marine/coastal, freshwater, forests). With funding from U.S. Fish and Wildlife Service (Agreement Number 10170AG200), NWF has nearly completed two reports summarizing climate change impacts and adaptation strategies in marine/coastal and freshwater ecosystems in the NPLCC geography. These focus groups would allow NWF to finalize these reports. They also mimic the focus groups on forested ecosystems described in a separate proposal and would inform the production of a regional guidance document described in another proposal.
- *What is the need within the North Pacific landscape?* The nearshore and open ocean environments of the NPLCC region are among the most productive in the world. Freshwater input to the marine environment influences this productivity and supplies water for both human and natural systems. Together, marine/coastal and freshwater ecosystems in the NPLCC support a wide array of plants and animals, including ESA Threatened and Endangered Species (e.g. salmonids, marbled murrelet, Stellar's sea lion, water howellia). Expert focus groups meet the need for a comprehensive (multi-taxa, multi-trophic level), cross-disciplinary (linking biological, physical, and ecological data) discussion of the most up-to-date (often unpublished) information on climate change effects on marine/coastal and freshwater ecosystems across the NPLCC landscape. Such a discussion allows participants to move from understanding impacts to considering action; for example, identifying research priorities and opportunities for coordinated adaptation and conservation in the NPLCC region. When combined with the draft reports, NPLCC members and stakeholders will – for the first time – have access to North Pacific landscape-wide information on climate change effects and adaptation strategies in marine/coastal and freshwater ecosystems informed by experts in the region.
- *Is the need identified in other conservation, management, or other plans?* Since the NPLCC has only recently been established and encompasses a novel geography, the need for expert focus groups that confirm, augment, and build off of draft reports summarizing climate change impacts and adaptation strategies has not been

identified in existing plans. However, Climate Change Strategies in Alaska, Washington, Oregon, and California, as well as the West Coast Governor's Agreement on Ocean Health utilize expert working groups to understand climate change impacts and consider policy and management actions.¹ This proposal uses a similar approach.

- *What landscape-level issue is this work related to and how (e.g. climate, habitat fragmentation):* This project would address climate change at the landscape-level, incorporating expert knowledge on the major effects resulting from climate change in marine/coastal and freshwater ecosystems (e.g. sea-level rise, altered hydrology), the implications for biological communities across taxa and trophic levels (e.g. changes to community composition, species abundance and survival), and adaptive responses to address impacts (e.g. enhanced ecosystem resilience, habitat connectivity) into draft reports to produce the first picture of landscape-wide climate change effects in these ecosystems. Further, focus groups will confirm and revise the adaptation options described in the draft reports to produce a menu of policy and management options that respond to climate change in these ecosystems, and are therefore useful and relevant to management needs across the NPLCC landscape.
- *Why is it important?* NWF's project supports NPLCC partners and landscape conservation delivery. It provides scientific information and expert consultation useful for informing short- and long-term adaptation and conservation in the NPLCC. The project's focus on the relationship between climate change and ecosystem responses in marine and freshwater ecosystems improves understanding of NPLCC-wide, as well as localized impacts. The project's purpose is to build off of a common understanding of climate change effects to help identify science priorities and opportunities for coordinated adaptation strategies for natural and cultural resource managers. Thus, this project helps position the NPLCC for long-term success.
- *What science products will be provided, problem addressed, or what information or other needs will your project provide?* NWF's project will document the discussions, findings, and next steps identified by the focus groups, and incorporate focus group findings into the two reports on climate change effects and adaptation in marine/coastal and freshwater ecosystems.
- *What is the direct management application, if any?* This project would inform direct management activities. Focus group members may use information gleaned from the focus groups to make management decisions.

Objective: What will you accomplish? Define how this project will contribute to provision of one or more of the following elements to support LCC objectives and functions:

- *Decision support tools/systems or science applications for focused resource conservation:* This project is a science application useful for focused resource conservation. Focus group participants, many of whom will be natural and cultural land and resource managers, will apply their knowledge and experience to assess the reports' accuracy, relevance, and usefulness for management and conservation needs. This collaboration will produce reports that integrate expertise in science and management to reflect a landscape-wide understanding of climate change impacts and opportunities for focused resource conservation in marine/coastal and freshwater ecosystems. Thus, focus group participants, as well as others involved in planning in the NPLCC geography, could apply the findings from both reports to collaboratively consider research and adaptation priorities across the NPLCC landscape.
- *Tracking or evaluation of resource management efforts:* The final report would include summaries of existing resource management efforts identified by focus group participants, particularly as those related to climate change adaptation in natural systems. This information would be useful for natural and cultural resource managers identifying opportunities for coordinated conservation action in marine/coastal and freshwater ecosystems.
- *Testing assumptions of model projections:* Testing assumptions of model projections is not included in this proposal. Instead, this project would summarize up-to-date, regionally-specific information gleaned from

expert focus groups on climate change impacts and projected changes in marine/coastal and freshwater ecosystems under various scenarios of climate change.

- *Inventory of resource conditions or trends:* The focus groups would confirm the report's findings, and augment the reports with additional information on specific species, habitats, locations and perceived priorities that might not be easily discerned from the published literature. Overall, this project would provide information for management and conservation relative to current conditions and potential altered future conditions.

Methods:

- *How will the objectives be attained?* NWF's primary objective is to produce two reports on climate change impacts in marine/coastal and freshwater ecosystems in the NPLCC region that are useful and relevant for informing management and planning needs. To do so, NWF will convene twelve expert focus groups to acquire information on climate change impacts that may be unpublished or not easily captured in the literature. NWF, along with Climate Impacts Group (CIG), will also facilitate a discussion of research gaps and priorities, driven by an agenda produced in collaboration with participants. Together, the draft reports (to be completed under separate funding) and expert focus groups will produce final reports that summarize up-to-date, regionally-specific, scientifically-accurate information on climate change impacts and adaptation strategies in marine/coastal and freshwater ecosystems in the NPLCC region in a way that is useful and relevant for informing management and planning needs.
- *What work activities or tasks will be done? Include specific procedures, methodologies, or protocols.* This project will utilize principles of participatory stakeholder engagement to identify and convene experts to participate in focus groups. Production of focus group documentation will be collaborative. Focus group findings will be integrated into the draft report, then reviewed by focus group members and others to produce the final version. The report will be cited as specifically as possible and utilize permalinks where possible to assist readers in accessing information cited in the document. Publications will be stored systematically to build institutional knowledge and ensure intellectual connectivity.
- *Will there be any key cooperators, and what will their role be (identify any in-kind support provided)?* Ms. Whitely-Binder would provide assistance in organizing and facilitating the focus groups.

Geographic Extent: The focus groups are specific to the NPLCC geography, although others may wish to replicate the approach proposed here.

Timeline of Schedules, Products and Outcomes: We anticipate 24 to 72 weeks to complete this project, beginning on or after August 22, 2011 (seventy-two weeks if one or both of NWF's other proposals are funded; twenty-four weeks if this proposal is funded only):

August 2011 to November 2011	Gather information, convene jurisdiction-specific focus groups, and incorporate focus group inputs into draft report.
November 2011 to December 2012	Convene NPLCC-wide focus groups. Produce final report integrating published literature and focus group input. Prepare and present results to NPLCC members & stakeholders.

Budget (please include in a separate file from the body of the proposal): Please see separate file NWF_Siemann_Cross-Ecosystem_Focus_Groups_Budget.pdf

Disclaimer regarding Data Sharing: No known restrictions.

Qualifications

Dan Siemann, Senior Environmental Policy Specialist, Pacific Regional Center, NWF, Seattle Washington

Dan Siemann directs conservation policy for NWF's western region (Washington, Oregon, California, and Hawaii). His work focuses on safeguarding wildlife and natural resources from the effects of climate change. Under a grant from WCS/Doris Duke Foundation, he is leading NWF's efforts with Washington Department of Fish & Wildlife to integrated climate change considerations into the State Wildlife Action Plan. He is also working to ensure that Puget Sound and salmon restoration efforts integrate the impacts of climate change during planning and decision-making. Dan serves on the board of Save our Wild Salmon Coalition and is a steering committee member of the environmental caucus for the Puget Sound Partnership. Dan has more than 16 years experience in environmental policy, natural resource conservation, collaborative problem-solving, and climate change and has worked in the US, Asia, and Africa. He holds a Master in Public Policy degree from the Kennedy School of Government at Harvard University (with a concentration in environmental and natural resource policy), and a BA from University of California Santa Cruz.

Contact info:

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Education:

Master, Public Policy & Administration, University of Massachusetts at Amherst, May 2010
Specialization: Environmental & Science Policy, Role of Expertise in Policymaking

B.S., Chemistry, American Chemical Society Certified, Western Washington University, June 2007
Concentrations: Environmental Chemistry, Spanish minor

Professional Experience (2006-2011):

Research Associate, 2010-present
National Wildlife Federation, Pacific Regional Center, Seattle WA
Position Description: Leading production of two reports summarizing climate change effects and adaptation strategies in marine/coastal and freshwater ecosystems in the North Pacific Landscape Conservation Cooperative region. Interviewing stakeholders to acquire most relevant and recent research on climate change impacts in the region. Collaborating with colleagues on strategic adaptation planning in twice-monthly meetings.

Intern, 2009-2010
Natural Capital Project, World Wildlife Fund, Washington DC
Position Description: Craft strategic reports based on rigorous qualitative analysis of 18 practitioner interviews and extensive literature review. Investigate theory of stakeholder engagement to inform Project strategy and practice.

Research Assistant, 2008-2010
Center for Public Policy and Administration, University of Massachusetts at Amherst, Amherst MA
Position Description: Investigate transfer of scientific expertise to policymakers. Investigate academic network among three distinct academic disciplines.

Science Educator, 2006-2007
GK-12 Fellowship, Western Washington University, Bellingham WA
Position Description: Translate scientific knowledge to non-scientists. Educate and excite 8th graders about math and science. Aid in curriculum design.

Research & Development Technician, Quality Assurance Technician, 2006-2007
Botanical Laboratories, Ferndale WA
Position Description: Communicate scientific research to non-scientists. Advise non-scientists on scientific concepts and FDA regulations. Perform primary research to develop dietary supplements. Implement double-sided printing in work area. Recommend placement of recycling vessels in employee breakrooms.

Research Assistant, 2006-2007
Department of Chemistry, Western Washington University, Bellingham WA
Position Description: Investigate novel synthesis method for noninvasive cancer detection nanoparticles.

Presentations (2006-2011):

- Tillmann, Patricia (lead presenter); McKenzie, Emily. (2010). What Role for Scientists? The Use of InVEST in Ecosystems Services Approaches to Decision Making. Paper presented at Society for Conservation Biology Symposium on Payments for Environmental Services, Edmonton Alberta.
- Tomaskovic-Devey, Anna (lead presenter); Scarnecchia, Daniel (lead designer); Boucher, Stephanie; Brule, Mandy; Duygulu, Sirin; Fleig, Amy; Tillmann, Patricia. (2008). Changing the Rules: Strategies for creating a new international standard for the compensation of civilians unintentionally harmed in conflict. Paper presented to the Campaign for Innocent Victims in Conflict, Washington DC.

Publications & Major Papers (2006-2011):

- Tillmann, Patricia. (2010). Strategic Planning at the Science-Policy Interface: Qualitative Analysis of Interview Data to Support International Conservation Efforts. Capstone report composed to meet the requirements for the degree of Master of Public Policy and Administration. *Presented May 2010 to the Center for Public Policy and Administration, Amherst MA.*
- Tillmann, Patricia. (2010). Emerging Issues in U.S. Policy and Regulation of Nanotechnology. Final term paper for graduate course entitled Political Economy of the Environment (Dr. Jim Boyce) at the University of Massachusetts – Amherst, Amherst MA.
- Tillmann, Patricia; McKenzie, Emily. (2009). InVEST and the Science-Policy Interface: How can scientific and technical information provided by InVEST be better taken up and integrated into decision making processes? Strategic report composed for the Natural Capital Project, Washington DC.
- Tillmann, Patricia; Tomaskovic-Devey, Anna; Boucher, Stephanie; Brule, Mandy; Duygulu, Sirin; Fleig, Amy; Scarnecchia, Daniel. (2008). Changing the Rules: Strategies for creating a new international standard for the compensation of civilians unintentionally harmed in conflict. *Presented December 13, 2008 to the Campaign for Innocent Victims in Conflict, Washington DC.*

Professional Service & Affiliations (2006-2011):

- Member, American Water Resources Association, 2007-present
- Second-Year Representative, Curriculum and Student Affairs Committee, Center for Public Policy and Administration (CPPA), University of Massachusetts – Amherst (UMass-Amherst), 2009-2010
- Chair, Diversity and Social Justice Committee, CPPA, University of Massachusetts – Amherst, 2009-2010
- First-Year Representative, Curriculum and Student Affairs Committee, CPPA, UMass-Amherst, 2008-2009
- Vice-President, Policy and Administration Graduate Council, CPPA, UMass-Amherst, 2008-2009
- Student Member, American Chemical Society, 2007-2008
- Student Member, American Association for the Advancement of Science, 2007-2008
- Fundraising Coordinator, Chemistry Club, Western Washington University, 2006-2007
- Organizer, Earth Day Service Project, Fairhaven Commons, Western Washington University, 2006

Computer & Language Skills:

- MS Office, Macromedia Dreamweaver, relational database management
- Statistical and chemistry software: STATA, Origin, ChemDraw
- Language skills: Proficiency in reading, writing, and speaking Spanish

Scholarships, Fellowships, Awards, & Honors (2006-2011):

- Sulzner Award, Center for Public Policy and Administration, 2009
- Alumni Award, Center for Public Policy and Administration, 2009
- GK-12 Catalysts for Reform Undergraduate Fellow (NSF grant, 2006-2007)
- Harvey Gelder Scholarship (Fairhaven College, WWU, 2004 & 2006), \$500 each

¹ Climate Change in Alaska. <http://www.climatechange.alaska.gov/> (accessed May 2, 2011); Climate Change: Washington State Integrated Climate Response Strategy. http://www.ecy.wa.gov/climatechange/ipa_responsestrategy.htm (accessed May 2, 2011); Oregon Global Warming Commission. February 2011. *Report to the Legislature* (pdf). <http://www.keeporegoncool.org/sites/default/files/ogwc-standard-documents/2011Report.pdf> (accessed May 2, 2011); California Natural Resources Agency. 2009. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008* (pdf). <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF> (accessed May 2, 2011); West Coast Governor's Agreement on Ocean Health: Action Coordination Teams. April 15, 2011. <http://westcoastoceans.gov/teams/#toplist> (accessed May 2, 2011).