SB 202 Task Force
Briefing Materials

SB 202 Task force Meeting
Portland State University
Market Place Building
1600 SW 4th Avenue
Room MCB123

8 February 2016
9:00am-4:00pm
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Meeting Agenda

Task Force on Independent Scientific Review for Natural Resources
Monday, 8 February 2016, 9:00am-4:00pm
Portland State University, Market Center Building (Map) (Parking options map)
1600 SW 4th Ave, Room MCB123
Portland, OR 97201

The public is invited to attend this meeting. For assistance and questions please contact Jeff Behan at Jeff.Behan@oregonstate.edu.

Facilitator: Jane Barth

Primary Meeting Objectives

− To agree on a work plan and methods for accomplishing Phase 1 of the task force charge: 1) evaluate whether agencies, legislators and the public would benefit from independent scientific reviews; 2) evaluate whether existing resources are meeting the needs of agencies and other policymakers; and 3) assess the mechanisms and structures in place in other states and federally for independent scientific review.

− To have a governance structure in place (e.g., roles and expectations of the task force team, task force Chair, agreement on how decisions will be made).

− To determine action items and deliverables for the next meeting.

NOTE: Morning refreshments and lunch will only be provided for the SB202 task force members, the facilitator, INR staff support, and SB202 representatives from the Governor’s Office. All other meeting participants are responsible for their own lunches.

<table>
<thead>
<tr>
<th>TIME</th>
<th>ITEM</th>
<th>PURPOSE</th>
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<tbody>
<tr>
<td>9:00am</td>
<td>1. Welcome, Introductions, Agenda Review/ Additions</td>
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<tr>
<td>9:15am</td>
<td>2. What Success will be for the SB202 Task Force</td>
<td>Affirm</td>
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<tr>
<td></td>
<td>• Discuss responses to INR’s introductory questions 1-3 that were</td>
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<td>completed by the task force via phone or email</td>
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<td>9:30am</td>
<td>3. Task Force Governance and Decision Making</td>
<td>Clarify, Agree</td>
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<td></td>
<td>• Discuss the “Draft Task Force Team” roles and expectations</td>
<td>Lay out options</td>
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<td></td>
<td>• Roles and expectations of the Chair</td>
<td>to decide by end</td>
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<td></td>
<td>• Discuss decision making options</td>
<td>of meeting</td>
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<tr>
<td>10:30am</td>
<td>BREAK</td>
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<td>Time</td>
<td>Agenda Item</td>
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<td>11:45am</td>
<td><strong>4. Review Task Force Basic Work Plan</strong></td>
<td><strong>Affirm</strong></td>
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<td></td>
<td>• Goals &amp; objectives</td>
<td><strong>Initiate &amp;</strong></td>
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<td></td>
<td>• Straw proposals for work plan and methods for Goal 1 (Objectives 1.1-1.3)</td>
<td><strong>illustrate work</strong></td>
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<td></td>
<td>• Examples of other review processes</td>
<td><strong>to be done</strong></td>
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<td>5.</td>
<td><strong>Public Comment</strong></td>
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<td>12:15pm</td>
<td><strong>WORKING LUNCH</strong></td>
<td><strong>Edit, Revise</strong></td>
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<td>• Small group discussions of how to organize and carry out Goal 1 (Objectives 1.1-1.3)</td>
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<td>6.</td>
<td><strong>Full Group Discussion</strong></td>
<td><strong>Revise, Affirm</strong></td>
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<td>• Work plan and methods for Goal 1 (Objectives 1.1-1.3)</td>
<td><strong>Set deadlines &amp;</strong></td>
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<td>• Overall work structure, sequencing, schedule</td>
<td><strong>milestones</strong></td>
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<td>7.</td>
<td><strong>Discussion of Key Terms</strong></td>
<td><strong>Seek common</strong></td>
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<td></td>
<td>• Independent, science, benefit, public</td>
<td><strong>concepts</strong></td>
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<td>8.</td>
<td><strong>Decide on Task Force Governance</strong></td>
<td><strong>Fill key role</strong></td>
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<td></td>
<td>− Decision making</td>
<td><strong>Agree on how</strong></td>
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<td>− Roles and expectations</td>
<td><strong>will operate and</strong></td>
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<td>− Chair</td>
<td><strong>make decisions</strong></td>
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<td>9.</td>
<td><strong>Next Steps, Action Items</strong></td>
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<td>• Building in social mixers into future meetings</td>
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<td>• March meeting date <em>(though this was the most selected date; please note that the current date is the day after Spring Break and Easter)</em></td>
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<td>• Key agenda items for March meeting</td>
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<td>4:00pm</td>
<td><strong>Adjourn</strong></td>
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SB202 Overview and Purpose

The Oregon legislature found, in Senate Bill 202, that policy and program decisions made by natural resources agencies, boards and commissions can benefit from independent scientific review that: (a) reflects a balance of representation from various research sectors, academic and nonacademic, public and private; (b) is performed by distinguished scientists from a range of disciplines; and (c) is clearly communicated to the public and to state and local officials.

Senate Bill 202 establishes the task force on Independent Scientific Review for Natural Resources (task force) to “evaluate and assess the need for independent scientific reviews in Oregon and make appropriate recommendations” to the Governor and appropriate Legislative committees no later than September 15, 2016.

Task Force

Members of the task force shall be appointed by the Governor in consultation with the Vice Presidents of Research, or their designees, at Oregon State University, the University of Oregon, and Portland State University. Task force members shall include members from the forestry, agriculture, manufacturing, conservation, academic and research sectors, and representatives of the three universities. At least one member shall have previously served on the Independent Multidisciplinary Science Team, or on another state or federal scientific review body such as the National Academy of Sciences.

Task Force Staffing

Senate Bill 202 directed the Institute for Natural Resources (INR) at Oregon State University to provide staff support to the task force.

Goals

Goal 1: Assess the need (and capacity) for independent scientific review for natural resources in Oregon.

Goal 2: If the task force determines that there is a need for independent scientific review in Oregon, it shall make recommendations on one or more entities that are best situated to conduct or coordinate independent scientific review.

Goal 3: Make recommendations on whether the entity or entities identified would need legislative authority to act as independent scientific review bodies for Oregon.

Goal 4: Make recommendations regarding the structure, function and processes of the scientific review entity or entities and the process for conducting reviews. Senate Bill 202 requires the task force to consider a number of questions in forming its recommendations.

From the legislation: “Independent scientific reviews are not intended to replace internal agency reviews of natural resources policy and program decisions; and agencies are not required to use an independent scientific review panel as recommended by the task force.”
List of Task Force Members

Allison Aldous
Freshwater Scientist
The Nature Conservancy

Jennifer Allen
Sustainable Solutions and Associate Professor of Public Administration
College of Urban & Public Affairs
Hatfield School of Government
Portland State University

Adell Amos
Clayton R. Hess Professor of Law and Associate Dean for Academic Affairs
School of Law
University of Oregon

Barbara Bond
Emeritus Professor
College of Forestry
Oregon State University

Tim Deboodt
Associate Professor
College of Agricultural Sciences
Oregon State University Extension

Dan Edge
Associate Dean
College of Agricultural Sciences and Professor of Wildlife Ecology
Oregon State University

Linda George
Professor of Environmental Sciences and Management
College of Liberal Arts and Sciences
School of the Environment
Portland State University

Sara Gray
Senior Corporate Counsel
Precision Castparts

Michael Harte
Professor
College of Earth, Ocean and Atmospheric Sciences
Oregon State University

Cassandra Moseley
Associate Vice President for Research
Research Professor and Director, Institute for a Sustainable Environment
University of Oregon

Maryanne Reiter
Hydrologist
Environmental Forestry Research Group
Weyerhaeuser Company

Mark Sytsma
Professor and Director, Center for Lakes and Reservoirs
Portland State University

Jason Younker
Assistant Vice President and Advisor to the President on Sovereignty and Government-to-Government Relations
University of Oregon
### SB202 Estimated Timeline (DRAFT)

<table>
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<tr>
<th>Item</th>
<th>Timeline</th>
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<tbody>
<tr>
<td><strong>Task Force</strong></td>
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<tr>
<td>Task force meetings <em>(locations TBD)</em></td>
<td>Feb, Mar, May, Jul</td>
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<tr>
<td><strong>Phase 1</strong></td>
<td></td>
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<tr>
<td><strong>Goal 1:</strong> Assess need and capacity for independent scientific review in Oregon.</td>
<td>January - June 2016</td>
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<tr>
<td>Objective 1.1: Evaluate whether natural resource agencies, legislators, and public would benefit from independent scientific reviews.</td>
<td>Jan – May/Jun</td>
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<td>Objective 1.2: Evaluate whether existing state, federal, and academic resources for conducting reviews are meeting agency and policy maker needs.</td>
<td>Jan – Apr</td>
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<tr>
<td>Objective 1.3: Evaluate mechanisms and structures that are in place in other states and at the federal level for natural resource policy science reviews.</td>
<td>Jan – Mar</td>
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<td>If it is recommended to move forward, move on to Phase II (Goals 2-4). If not, write required legislative report.</td>
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<tr>
<td><strong>Phase 2</strong></td>
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<td><strong>Goal 2:</strong> Make recommendations on entity/entities best situated to conduct or coordinate independent scientific review.</td>
<td>May – June 2016</td>
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<tr>
<td>Objective 2.1: Identify and review/assess the candidate existing scientific entities.</td>
<td>May - Jun</td>
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<tr>
<td>Objective 2.2: Make recommendations regarding necessary changes to the entity, if a particular existing scientific entity is recommended.</td>
<td>May - Jun</td>
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<tr>
<td>Objective 2.3: Make recommendations regarding how to structure a new independent scientific entity, if developing a new independent scientific review entity is suggested.</td>
<td>Jun</td>
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<td><strong>Goal 3:</strong> Make recommendations on whether the entities identified would need legislative authority to act as independent scientific review bodies for Oregon.</td>
<td>June-July 2016</td>
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<td><strong>Goal 4:</strong> Make recommendations regarding the structure and function of the process to be used by the recommended entities in the course of independent scientific reviews.</td>
<td>June-July 2016</td>
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<td>Submit report to the Legislature</td>
<td>on or before 15 September 2016</td>
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Task Force Team Roles and Expectations (DRAFT)

Expectations

- Prepare for and attend all scheduled meetings.
- Be timely and responsive with task force communications.
- Be actively engaged in ensuring the fairness and transparency of the process.
- Actively participate in productive exchanges.
- Work collegially to produce quality deliverables.
- Openly acknowledge any potential conflict of interest.

Roles

Task Force Members

- Submit a report of findings and recommendations to the Governor and appropriate committee of the Legislative Assembly no later than September 16, 2016.
- The task force shall elect one of the voting members to serve as chair.
- The task force may adopt rules necessary for the operation of the task force.
- The task force shall meet at times and places specified by a majority of the voting members of the task force. The first meeting shall occur on or before January 1, 2016.
- A majority of the voting members of the task force constitutes a quorum for the transaction of business. Official action by the task force requires the approval of a majority of the voting members of the task force.

Task Force Chair

- Serve as the primary liaison for the task force with the Governor’s Office, INR, and the facilitator
- Work with the facilitator, Governor’s Office and INR Director to design task force meetings.
- Take the lead in resolving disagreements and seeking consensus among task force members on substantive issues.
- Take the lead in enforcing timelines for task force deliverables.
- Take the lead in reporting to the Governor and/or Legislative Assembly, as necessary.
- Serve as the point of contact, with the INR Director, regarding stakeholder interactions and communications.

State Agency Representatives (Nonvoting)

- Attend task force meetings.
- Participate in task force discussions.
- Respond to task force requests for information.

**Governor's Office Representative**
- Appointment of task force members, including any vacancies.
- Attend task force meetings.
- As needed, work with the chair, task force members, INR Director, and INR staff.

**Institute for Natural Resources Director**
- Attend task force meetings.
- Oversee task force process, communications, and development of products.
- Hire and work with task force facilitator.
- Provide guidance to task force staff in their logistical, research, and product delivery tasks.
- Work with the chair, task force members and Governor’s Office to help resolve any issues that may arise in the implementation of the project.
- Serve as the point of contact, with the task force chair, regarding stakeholder interactions and communications.

**Institute for Natural Resources Task Force Staff**
- Support for task force (scheduling meetings, meeting notes, other).
- Support task force communications including website, meeting notices, announcements, etc.
- Conduct research, information gathering, and documentation of task force findings.
- Work with task force members and Chair to help produce intermediate and final products including writing and editing the final report to the Legislature.

**Facilitator**
- Work with the task force chair, Governor’s Office and INR Director to design task force meetings.
- Design processes that will achieve the group's goals and provide fairness and transparency for the process.
- Use group facilitation competencies to add value to the task force's work – use time and space intentionally, evoke participation and creativity.
- Facilitate all task force meetings.
- Responsible for the stewardship of the process and assuring impartial content.
- Report directly to the INR Director.
- Maintain confidentiality of information.
Task Force Decision Making (DRAFT)

Proposed Rules *(these are general rules proposed in the “Legislative Task Force Staff Guide” document)*

Meetings will operate in accordance with the Oregon Constitution, applicable statutory provisions and general parliamentary law.

1. In the absence of a Chair being selected by the appointing authority as set forth in statute, a majority of the appointed members of the (name of task force) shall elect a Chair.
2. Rules may be amended by affirmative vote of the majority of members, but at least one day’s notice shall be given in writing to each task force member.
3. No seconds are required to a motion.
4. A quorum shall be comprised of a majority of the appointed members. In the absence of a quorum, the Chair may assign fewer members to receive public testimony.
5. The Chair shall call meetings, set agendas and cause notice of the time and place of meetings. *[Note (specific to the SB202 Task Force): Meetings have been set. Additional meetings shall be called by the Chair. Meeting agendas shall be set by the Chair, facilitator, Governor’s Office, and INR Director]*
6. All meetings are open and shall comply with public meetings law.
7. Upon request of one member, a roll call vote shall be taken and recorded on any question placed before the task force.
8. A majority of the appointed members shall be required to approve recommendations.
9. *(optional rule for discussion)* Votes will be allowed from members attending the taskforce via phone.

Other Considerations for Decision Making

- Majority vote, consensus, use of minority reports, other?

In the SB202 legislation

- Section 2 (8). A majority of the voting members of the task force constitutes a quorum for the transaction of business.
- Section 2 (12). The task force shall meet at times and places specified by a majority of the voting members of the task force.
- Section 2 (13). The task force may adopt rules necessary for the operation of the task force.
Straw Proposals for Work Plan and Methods

Objective 1.1: Benefits to the state

Description of Research

The purpose of Goal 1, Objective 1.1 is to evaluate whether natural resource agencies, state legislators, and the public would benefit from independent scientific reviews.

Proposal: Use one or more of the methods below to solicit information from Oregon natural resource agencies, state legislators, and the public to evaluate whether they would benefit from independent scientific review.

➤ QUESTIONS TO THE TASK FORCE
  ▪ What should be the central question of this objective?
  ▪ How can/should “benefit” be characterized and evaluated?

Possible methods: Invite testimony to the task force (in writing and/or at task force meetings); confidential online survey; in-person or phone interviews; task force visit to legislative committees during May 2016 Legislative Days; Other?

➤ QUESTIONS TO THE TASK FORCE
  ▪ Which method or methods should we use to collect data/information?
  ▪ Are these methods feasible within the limited time and budget of task force?
  ▪ Should different methods be used with different subject populations?

Subject Population

Natural resource agencies, state legislators, and the public.

Suggested target number: Key staff within the 14 state natural resource agencies; key legislative natural resource committee members and/or other state senators or representatives.

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<th>State Agencies</th>
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<td>Oregon Department of Agriculture</td>
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<td>Oregon Department of Energy</td>
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<td>Oregon Department of Forestry</td>
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<tr>
<td>Oregon Department of Fish and Wildlife</td>
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<td>Department of Environmental Quality</td>
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<tr>
<td>Governor’s Natural Resource Office</td>
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<tr>
<td>Department of Geology and Mineral Industries</td>
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<tr>
<td>Department of Land Conservation and Development</td>
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<td>Oregon Watershed Enhancement Board</td>
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<td>Water Resources Department</td>
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<tr>
<td>Columbia River Gorge Commission</td>
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<tr>
<td>Department of State Lands</td>
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<td>NW Power Planning Council</td>
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<td>Marine Board</td>
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Legislative Committees

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<th>Chair</th>
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<tr>
<td>Senate Committee on Environment and Natural Resources</td>
<td>Senator Chris Edwards (Chair)</td>
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<tr>
<td>House Committee on Agriculture and Natural Resources</td>
<td>Representative Brad Witt (Chair)</td>
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<tr>
<td>House Committee on Energy and Environment</td>
<td>Representative Jessica Vega Pederson (Chair)</td>
</tr>
<tr>
<td>House Committee on Rural Communities, Land Use and Water</td>
<td>Representative Brian Clem (Chair)</td>
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QUESTIONS TO THE TASK FORCE

- Though the legislation points only to “natural resource agencies, state legislators, and the public”, should the subject population also include tribal and federal government, municipalities, counties, etc.?
  - If so, how does this impact the types of data/information collection methods used for this objective?
- How should the public be characterized for the sake of this objective?
  - Any citizen? Key stakeholder groups/organizations?
  - How does this characterization influence the use of the data/information collection method(s) mentioned above?

Questions to Consider (for interviews/survey/testimony)

- What is the central question(s) that should be asked of the subject populations to evaluate the “benefit”?
- What other questions should be asked to evaluate “benefit”?

Other Considerations for this Objective

- What role should INR and/or the task force take in the planning, implementation, and reporting on this objective?
- What role are you interested in regarding the planning, implementation, and reporting on this objective?
Objective 1.2: Natural resources agency and policymaker needs

Description of Research
The purpose of Goal 1, Objective 1.2 of task forces' work is to assess whether existing state, federal and academic resources for conducting independent scientific review are meeting the needs of natural resources agencies and other policymakers.

− **Proposal:** Use one or more of the methods below to solicit information from Oregon natural resource agencies, state legislators, and policymakers with tribal and local governments on the following question: “What is your need for independent scientific reviews to inform natural resources policy decisions?”

  ➢ QUESTIONS TO THE TASK FORCE
  ▪ What should be the central question of this objective to the agencies and policymakers?
  ▪ What types of existing state, federal, and academic resources should be looked at (for example, capacity, funding, etc.)?

− **Possible methods:** Invite testimony to task force; confidential online survey; in-person or phone interviews; task force visit to legislative committees during May 2016 Legislative Days; Other?

  ➢ QUESTIONS TO THE TASK FORCE
  ▪ What should be the central question of this objective to the agencies and policymakers?
  ▪ Which methods should we use to collect data/information?
  ▪ Are these methods feasible within the limited time and budget of task force?

Subject Population
The natural resources agencies and other policymakers.

− **Suggested target number:** Key staff within the 14 state natural resource agencies; and 5-10 legislative natural resource committee members and/or other state senators or representatives.

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/questions to the task force

- Who should be included as the “subject population? (What should the inclusion or exclusion criteria for the subject population be?) For instance, should the subject population be limited to state natural resource agencies and policymakers, or should city-, county-, federal-, and tribal-level also be considered?

Draft Questions to Consider (for interviews/survey/testimony)

- Draft questions regarding agency and policymaker needs
  1. What is your agency's natural resource management and policy decision making processes? In what ways does your agency utilize scientific knowledge? [How does your agency incorporate science knowledge into its policies?]
  2. When in that process does your agency use scientific reviews? What are your agencies top needs/priorities for scientific knowledge?
  3. Does your agency support its policies with a generalized body of science knowledge, or with more specific “packages” of science knowledge for different policy or regulatory areas? How often is the science knowledge that your agency uses reconsidered and updated to account for new, emerging science?
  4. How do you go about finding and synthesizing this new science knowledge? If your agency uses “packages” of more specific or targeted science knowledge, how often and for what purposes?
  5. How do you define the scope of science that is “relevant” to the issue, and then find and synthesize it?
  6. How much internal capacity does your agency have for finding, reviewing and utilizing the best available, policy relevant science knowledge?
  7. In your opinion, is this internal capacity adequate? Under what conditions could your agency benefit from external science review?
  8. What form of external science review do you think would work best for your agency?
9. What have been some of the most successful scientific review processes that your agency has used and why?

- QUESTIONS TO THE TASK FORCE
  - What questions should be asked regarding state agency and policymaker needs for independent scientific review?

- Draft questions regarding agency and policymaker needs

- QUESTIONS TO THE TASK FORCE
  - What questions should be asked regarding the types of existing state, federal, and academic resources?

Other Considerations for this Objective

- QUESTIONS TO THE TASK FORCE
  - What role should INR and/or the task force take in the planning, implementation, and reporting on this objective?
  - What role are you interested in regarding the planning, implementation, and reporting on this objective?
Objective 1.3: Other review process examples

Description of Research
The purpose of Goal 1, Objective 1.3 of task forces' work is to assess the mechanisms and structures that are in place in other states and at the federal level for independent scientific review related to natural resources policy.

Subject Population
State-level and national-level independent review boards.

- **Target number:** 10-15
- **Inclusion or exclusion criteria:**
- **Examples:**
  - California Council on Science and Technology
  - National Academies of Sciences' National Research Council
  - Washington State Academy of Sciences
  - U.S. Environmental Protection Agency Science Review Panel
  - FEMA Scientific Resolution Panel
  - Independent Multidisciplinary Science Team
  - NW Power and Conservation Council
  - Fisheries and Oceans Canada, Canadian Science Advisory Secretariat (CSAS)

Methods and Procedures
- **Secondary Documents:** Collect background information on state- and federal-level scientific review programs, boards, and panels to describe and characterize how they operate.
  - Year established
  - Reason why established
  - Governance structure
  - Funding sources
  - Program authorities (legislative)
  - Types of reviews
  - Scope of reviews (subject matter)
  - Review committee selection criteria and structure
  - Review process
  - Relationship with review sponsor
  - Impacts
  - Timeline
Interviews: Based on this information, interview directors or program managers of the identified state and federal independent review boards to further understand how their programs are being implemented and evaluated.

Draft Questions to Consider (for interviews)

1. How did the review program you direct/manage come about?
2. What is the program's governance structure including key documents?
3. How is the program funded?
4. Do you fund reviewers?
5. How do you find and vet scientific reviewers?
6. What is your cradle-to-grave process for conducting a review?
7. What has been the impact of your scientific reviews?
8. How has that impact changed over time?
9. How do you evaluate the success and impact of individual reviews and the program overall?
10. What process improvements have you made with regard to conducting reviews?

Other Considerations for this Objective

➢ QUESTIONS TO THE TASK FORCE

- What role should INR and/or the task force take in the planning, implementation, and reporting on this objective?
- What role are you interested in regarding the planning, implementation, and reporting on this objective?
Appendix A. Task Force and Other Definitions of Key Terms

**Independent**

What does “independent” mean? (Responses from SB202 task force members)

- To me, independent means free of bias and self-interest. Everyone has some personal bias or agenda, so it is foolhardy to expect people to make truly "independent" assessments and recommendations. In order to produce a useful product for the legislature I think it is important that everyone understands the perspective that people bring to the task force and that personal bias be clearly understood. Perhaps the diversity of viewpoints of task force members will even out potential bias and result in an objective assessment of the need for scientific review and how it might be conducted.

- Independent of agency, organization, or industry influence in review product or conclusion.

- In this case, I’d say that “independent” means that authors of the scientific review are free to come to whatever conclusions their inquiry leads them to. The process is constructed to keep any potential cultural, financial, social (etc.) pressures or expectations for particular outcomes to an absolute minimum.

- Without obvious bias toward any one constituency or political perspective.

- That there is no conflict of interest between those conducting the review and the interested parties calling for a review. Also, that the decision about who conducts the review and what scientific expertise is relevant is not colored by particular interests who would benefit or be harmed by review outcomes.

- Based on my experience with scientific peer review, "independent review" means that the reviewers are able to assess the material at hand with minimal bias towards one outcome or another. Usually this means that a reviewer has minimal stake in the outcome, i.e. it will not impact their livelihoods or significant relationships. The desired level of distance from the topic at hand can be difficult when the relevant field of science is very narrow and can best be understood by a handful of specialists, most of whom know each other. In these cases, and probably in any case, it is prudent to be transparent about background influences and relationships so that the impact of potential biases can be considered.

- It means a person’s views, positions or associations do not impair their ability to objectively consider data and information in a scientific manner.

- Free of those who want/need the information.
Independent is a source that feels credible and responsible for those that are impacted by the decision. I have a little nervousness about creating another layer of bureaucracy which can be frustrating. Independent is offering to have the mechanism that can be a credible, reliable entity.

- Free of outside influence. The review process needs sufficient checks and balances to ensure that conflicts of interest are recognized, and process is viewed as defensible as independent. It is especially important that the funding stream is independent, i.e. not channeled through entities subject to outside influence, or competition with other budgetary needs.

**Other definitions of “independent”**

- “Independent advice: external sponsors have no control over the conduct of a study once the statement of task and budget are finalized. Study committees gather information from many sources in public and private meetings but they carry out their deliberations in private in order to avoid political, special interest, and sponsor influence.”- California Council on Science and Technology

- “The prerequisite for independency of peer review or scientific assessment is avoidance of conflict of interest. The rule governing the criteria of independency (ASME/RSI 2002) is: Those who have a stake in the outcome of the review may not act as a reviewer or participant in the selection of the reviewers.” – International Center for Regulatory Science (2013) Manual for Independent Peer Reviews, Independent Scientific Assessments, and other Review types. George Mason University: Arlington, VA.

- “What constitutes an Appropriate “Independent Reviewer”?

A qualified independent reviewer is one who (1) has little personal stake in the nature of the outcome of decisions or policies, in terms of financial gain or loss, career advancement, or personal or professional relationships; (2) can perform the review tasks free of intimidation or forceful persuasion by others associated with the decision process; (3) has demonstrable competence in the subject as evidenced by formal training (e.g., an advanced degree in the appropriate discipline) or experience (e.g., research and publication within their field); (4) is willing to use his or her scientific expertise to reach objective conclusions that may be discordant with his or her value systems or personal biases; and (5) is willing and able to help identify internal and external costs and benefits both social and ecological-of alternative decisions. Typically, such a person is associated with a recognized scientific society or is otherwise an established professional in a particular field as evidenced by independent scholarly achievement and the respect of peers.”

- **Merriam Webster.** not dependent: as a (1): not subject to control by others: self-governing (2): not affiliated with a larger controlling unit <an independent bookstore> b (1): not requiring or relying on something else: not contingent <an independent conclusion> (2): not looking to others for one's opinions or for guidance in conduct (3): not bound by or committed to a political party c (1): not requiring or relying on others (as for care or livelihood) <independent of her parents> (2): being enough to free one from the necessity of working for a living <a person of independent means> d: showing a desire for freedom <an independent manner> e (1): not determined by or capable of being deduced or derived from or expressed in terms of members (as axioms or equations) of the set under consideration; especially: having linear independence <an independent set of vectors> (2): having the property that the joint probability (as of events or samples) or the joint probability density function (as of random variables) equals the product of the probabilities or probability density functions of separate occurrence.

**Science**

**What does “science” mean? (Responses from SB202 task force members)**

- Science is the study and understanding of the world that is based on observable information and testable hypotheses.

- At times, science is only an agreement derived from what we know today. We must keep an open mind about the credibility of science...at one point, Kennewick Man was “scientifically proven” to be a Caucasoid.

- Information that is based on scientific method and validated by peer review.

- Science is a process that, ideally, leads to new knowledge. One of the best ways to understand the scientific process is to contrast it with other ways of “knowing”. In an idealized scientific process, the results are not influenced by “feelings” or “preconceived notions” or “opinions of authorities” – i.e., the scientific process should be inherently “independent” of all other influences, even of the inherent biases of the scientist. (Note, then, that the concept of “independent science” is redundant, unless one is talking about a team of scientists). No scientist is ever really free of inherent biases, but the scientific process should minimize these externalities when the science is conducted well.

- The scientific process is often presented as a series of steps that lead from a question to hypotheses to evidence that tests hypotheses to new knowledge. This seems so droll and “lock step” that many non-scientists get an impression that there is little room for error in the process (unless a scientist deliberately manipulates the process or data) and therefore the “knowledge” that comes out at the end should be considered “truth”!
In the case of science as applied to problems in natural resources, one of the biggest pitfalls is the translation of a natural resource “problem” into a “question” that is amenable to scientific exploration without trivializing the complexity of the original problem. As I hope the TASK FORCE will explore, it is imperative for scientists to work closely with policy makers and natural resource managers – and probably even the public – to make sure that important policy problems are translated into meaningful but addressable scientific questions.

[Science is] true to the scientific method, and conclusions are not based on anecdote or untested hypotheses. Hypothesis testing is independently vetted (such as in the peer-reviewed literature). Uncertainty is clearly articulated and means to reduce uncertainty are proposed.

UK Science Council: “Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence”. The important parts for me are “systematic” and evidence-based. Science involves not just the development of knowledge but its application, and it includes the social and natural world.

Science is domain of knowledge about the natural world that is gained through a particular methodology (scientific method) that is supported by certain social and political values. These values influence the questions that are asked (and funded) as well as which scientific findings get more attention. The scientific enterprise has been very successful in gaining understanding of the natural world but it is not without significant challenges and limitations. Some of these challenges are in full view when the science is "unsettled", i.e. there are significant unresolved and potentially conflicting understandings of the phenomena in question. While the process of "settling" or coming to consensus is a well-worn path in science, this process does not mesh well with social and political processes.

Science is a systematic, reproducible and testable method to gather or access information.

Supported by research, vetted within the appropriate research group, follows the scientific method.

I assume that in the context of this task force we are talking about the underlying data and information that affects the decision making process and policy. In my experience, in a lot of decision making processes there can always be more science used. It would make the science better and stronger, but the policy doesn't have that flexibility of time. So there is often a tension between what is considered the most complete science and what is available currently to public officials that need the information to make a decision on a specific timeline. This is where adaptive management is important.

Supported by objective evidence that supports logical inference, e.g. gathered under reliable, repeatable methods. If the study was repeated, would you get similar results?
Definitions of “Scientific Evidence”

Most experts agree that scientific evidence is more than just data and hard facts. It involves contextual information and interpretation. Scientific evidence consists of:

- Scientifically guided empirical observations combined with background information, logic, and scientific expertise.
- Assertions that are supported by results observed as a result of sound and rigorous research design.
- Observations coming from both manipulative and observational experiments designed to test a particular theory, or designed to look at something potentially interesting.
- Information that is considered valid because it has been tested and shown to accurately describe what it purports to describe.

Many observers note that it is not necessary that evidence be quantitative. It does not have to be gathered by a scientist. The key is that the information was collected and interpreted as objectively as possible and can somehow be verified. An observation can be considered scientifically guided even after the fact by subjecting it to the same scrutiny and skepticism accorded to observations within a scientific study.

Somewhat broader definitions of scientific evidence:

- Knowledge based on credible investigation, calculation, or analysis.
- Information collected in a manner that is as free as possible from personal or vested interest or belief.

The totality of evidence concerning a particular question or topic is the evidence base. The evidence base:

- Is all observations plus background information, plus the logical relationship among all of this information;
- Is dynamic, not static;
- Evolves as understanding develops, as new information emerges and as relationships between issues previously thought to be unconnected come to light; and
- Maintaining the evidence base requires working with advisors and stakeholders to assess its robustness and how it should be updated, and by constantly asking whether there is any uncertainty, how much uncertainty scientists and stakeholders can live with, and then working to understand the uncertainties better.

Benefit

What does “benefit” mean? (Responses from SB202 task force members)

(As in “whether natural resource agencies, legislators, and public would benefit from independent scientific reviews?”)

- In this context, benefit means to inform policymaking decisions, so that they are made with full understanding of the likely consequences.
- High quality, unbiased information is important to the public in a policy making context.
- Social science is coming into its own as a powerful tool to address questions about human conditions and values, such as “benefits”. I hope that someone (or “some ones”) on the TASK FORCE have a more solid background in social science than I do and can provide a more useful definition than I can. As a starting point, to me these groups would “benefit” from independent scientific review if, collectively, their overall well-being (economic, cultural, aesthetic ...) would be improved WITH as opposed to WITHOUT scientific review. But I expect this would be almost impossible to measure, so it probably isn’t a useful definition.
- Natural resource policies reflect the best available science to ensure that taxpayer dollars are spent on policies and practices that reflect the most rigorous science.
- Benefit in this case to me means that better decisions would be made with such review process in place – that these decisions would be based on more comprehensive, balanced and less biased information than would otherwise be the case.
- I would take the word "benefit" in this context to mean that independent scientific reviews would be beneficial if they improve stakeholders’ understanding of the science, trust of the process and confidence in moving forward.
- I consider benefit, as indicated by the phrase above, to mean that agencies, legislators and public would gain unbiased knowledge and understanding into a particular issue.
- Find the information useful, timely, and incorporated.
- This is the foundational question: is this a process that helps all of those involved feel stronger and more trusting as the decision is being made?
- First, “benefits” are not just financial. Benefits occur if, as a result of ISR, the policy is more defensible as scientifically valid, robust, based on “best available science”, rigorous. Benefits occur if the policy is more cost effective. Independent scientific review should help ensure that policy is more likely to achieve its objectives and be accepted by stakeholders.
Other definitions of “benefit”

There are numerous benefits in having an independent, multidisciplinary scientific review panel focused on natural resource conservation and management. Here we group those benefits under four somewhat overlapping headings: scientific process, ethics, institutional limitations, and policy.

Scientific Process

• Science forms a major foundation of western culture, and thus it is critically important that it be conducted as effectively as possible. An independent, multidisciplinary review is an established process for increasing scientific accuracy, reliability and usefulness.
• The scientific approach to knowledge and decision-making depends on the free and open exchange of information dependent on open review and disagreements (Bella 1992). An independent, multidisciplinary review process can help expose those differing scientific opinions and perspectives.
• Frequently a natural resource agency lacks all the necessary expertise needed for sustainable resource management. A scientific review panel can invite review by outside experts and disciplines (including from other states and other countries) to provide a more robust analysis of the success of state management strategies and to suggest alternative approaches that have worked elsewhere.
• As science and technology evolve and yield new scientific understanding and impose emergent environmental hazards, and as climate changes and population and economic pressures mount, an independent scientific review panel can assist agencies in identifying new, forward-thinking strategies to cope with these new pressures and threats to ecosystem condition.

Ethics

• Resource agency employees should consider themselves as fiduciary trustees of a natural trust, protecting those resources for current and future generations, as opposed to mere permitting agents (Wood 2014). An independent, multidisciplinary review process can help ensure that those trust resources are considered and protected.
• Employees in resource management agencies have ethical obligations to the managed resources, to the public, to future generations, and to their employers. Sometimes, however, employer obligations (e.g., short term priorities, avoiding offending a supervisor and losing a job) trump the other, longer-term obligations to the overall integrity of a given ecosystem (Hughes 2014b). An independent, multidisciplinary review process can help reduce that apparent or actual bias.
• When knowledgeable scientists remain silent, despite having scientific knowledge that supports an alternative resource management position, it can result in continued resource degradation (Hughes 2013). An independent, multidisciplinary scientific review process can help ensure that those alternative positions are considered. Institutional Limitations
Like most people, agency scientists and managers are basically honest and dedicated; however, their perspectives, viewpoints and scientific and management expertise are constrained by their disciplinary foci and agency missions. Therefore, their perspectives and expertise often are formed without a robust understanding of how to measure resiliency, disturbance magnitude, and sustainability of natural resource systems. An independent, transdisciplinary scientific review process can help broaden those perspectives.

Resource agencies often focus on a single ecosystem component and a limited number of stressors and pressures leading to depleted ecological condition. An independent, multidisciplinary scientific review process can help ensure that those various components, stressors, and pressures are considered.

Resource agency programs and positions are developed, sustained, and promoted that tend to select information favorable to those agencies. Contrary information is often filtered out (Bella 1992). An independent, multidisciplinary review process can introduce and examine alternative information.

Politicians and resource managers occasionally misrepresent, ignore, or are unaware of scientific findings and conclusions. An independent, multidisciplinary scientific review process can help ensure that those findings and conclusions are represented.

Institutions tend to manipulate and/or selectively represent scientific information that supports their extant policy positions (Bella 1992). An independent, multidisciplinary review process can help expose misrepresentation of scientific information to the public.

There is a strong tendency for resource agency employees to focus on their immediate job responsibilities, versus ethical or resource obligations or multidisciplinary ecosystem perspectives, leaving them little time to think---let alone think and act ethically or broadly (Bella 1992). An independent, multidisciplinary scientific review process can help ensure that those ethical or resource or ecosystem obligations and perspectives are considered.

Mutually beneficial relationships (a.k.a. “iron triangles”) can develop among legislators, civil servants, and private interest groups that hinder or bias the science that is released by civil servants (Hughes 2014a). An independent, multidisciplinary review process can help reduce that apparent or actual bias.

Most natural resource commission and board appointees are typically oriented towards exploitation, rather than conservation, of natural resources. An independent, multidisciplinary scientific review process can help ensure that other perspectives are considered.

Resource scientists, managers, and analysts are often encouraged to avoid explicitly conveying unpleasant facts or trade-offs to the public, senior bureaucrats, or elected officials (Lackey 2013). An independent, multidisciplinary review process can help expose those unpleasant facts or trade-offs.

**Policy**

Resource agency recommendations are usually based on both science and policy. An independent, multidisciplinary review process can help reveal those based on policy versus those based on science, both to avoid confusing the public and to better separate political decisions from scientific decisions.
• Increasingly, resource scientists are taught that science should be policy neutral, with no preference for any particular ecological condition (Lackey 2007), despite having an ethical responsibility to protect those resources (Karr 2006). An independent, multidisciplinary scientific review process can help ensure that those resources are protected.

• Resource agencies often attempt to separate natural and social sciences, humans and nature, and values and science thereby leading to narrowed knowledge and reduced ecological condition (Cairns 2011). An independent, multidisciplinary scientific review process can help ensure that those various disciplines are represented.

• Most major resource management issues combine ethics, policy, and science—making them ethical and value based choices (Wilson 1998; Holsman 2001). An independent, multidisciplinary scientific review process can help ensure that those various aspects of human knowledge are represented.

• Adaptive management is needed to solve complex environmental problems. An independent scientific review panel is an important component of an adaptive management strategy at the state level.

• Science-based approaches including scientific review can be used to facilitate negotiations among stakeholders regarding policy decisions that involve environmental conflict (Ozawa 1996). An independent scientific review panel provides an important feedback mechanism between the practice and discoveries of science, and the policy negotiations and decisions that rely on an understanding of that evolving science.

• Sensitivity analysis or equivalence tests (McGarvey 2007) can be used to assign the burden of proof and who pays for assessing it. The general hypothesis to be continuously examined is that anthropogenic change will have an impact on ecosystems, and often that impact results in a degradation of the integrity of those systems. We generally hypothesize that people damage ecosystems and if that is proven true under examination, then the burden of proof and its attendant costs are the responsibilities of the initiator and supporters of the anthropological change (whether purposefully implemented or unintentionally caused). This is usually the opposite of what we do now with our permits, projects, regulations, and laws—producing chronic destruction as a result of thousands of small changes or acute destruction as a result of major “job-creation” projects. An independent scientific review panel provides a mechanism for ensuring accountability for both intentional and unintentional human actions.


Public

What does “public” mean? (Responses from SB202 task force members)

(As in “whether natural resource agencies, legislators, and public would benefit from independent scientific reviews”.)
- Public = all Oregonians
- All citizens of the State of Oregon, especially including the 9 federally recognized tribes of Oregon.
- Any individual, organization or business within the state.
- In this context, I’d consider the “public’ to be everyone except the members of other groups that are explicitly called out – i.e. all of the citizens of the State of Oregon except for natural resource agencies, legislators, and reviewing scientists. Actually the “public” would include members of those groups when they are not acting in a professional capacity. There will be special interest groups who naturally have heightened interest in natural resource issues, and they are important, but it is important also to especially consider school children (who inherit the economic and ecological environment of the future), educators, and community leaders (perhaps especially in rural communities that are most closely tied to natural resources).
- Taxpayers and their families, in Oregon.
- The citizens of Oregon.
- The idea of public is, of course, a very complicated notion. We are democratic society with significant marginalized groups with limited voice in the public sphere that can be disproportionately impacted by public policy decisions. In an ideal world, we would not just be talking about "independent science review" for the physical sciences, but we would also considering "independent social science and policy review" to generate the same "beneficial" effect discussed above (i.e. improving stakeholders’ understanding of the science, trust of the process and confidence in moving forward).
- I consider the public to mean citizens including those interest groups and stakeholders associated with a particular issue.
- Oregonians, the constituents, those being affected.
- The public here refers to the people of Oregon. It is defined very broadly, not restricted to a select group that is interested in a particular field, but on behalf of all of the people of Oregon.
- Tricky question…you can contrast “public” with “stakeholder”…in one sense, the public includes anyone who is NOT a stakeholder; anyone who does not have and explicit vested interest in the outcome. But ultimately, the public includes stakeholders although stakeholders may not encompass the public. Does the state have a working legal definition for the “public”? Maybe we should use that.
Appendix B. SB202 Detailed Goals, Objectives, and Tasks

Goals

Goal 1: Assess the need (and capacity) for independent scientific review in Oregon.

- **Objective 1.1**: Evaluate whether natural resources agencies, legislators and the public would benefit from the incorporation of independent scientific review in the making of policy decisions.

- **Objective 1.2**: Evaluate whether existing state, federal and academic resources for conducting independent scientific review are meeting the needs of natural resources agencies and other policymakers.

- **Objective 1.3**: Evaluate the mechanisms and structures that are in place in other states and at the federal level for independent scientific review related to natural resources policy.

Goal 2: Make recommendations on one or more entities that are best situated to conduct or coordinate independent scientific reviews, if the task force determines that there is a need for independent science review in the state.

- **Objective 2.1**: Identify and review/assess the candidate existing scientific entities.

- **Objective 2.2**: Make any recommendations regarding necessary changes to the entity, if a particular existing scientific entity is recommended.

- **Objective 2.3**: If developing a new independent scientific review entity is suggested, the task force shall make recommendations regarding how to structure this new independent scientific entity.

Tasks

- **Task 2.1**: Consider whether the entity should provide reports to the Legislative Assembly or otherwise be subject to special legislative oversight.

- **Task 2.2**: Consider whether organizational safeguards must be established or changed within the entity to ensure that the entity is free from bias and that a wide variety of natural resource disciplines and interests are represented.

- **Task 2.3**: Consider how to develop or change the structure or processes of the entity’s advisory board or other governing body in order to support the independence of scientific review panels convened by the entity, which shall include consideration of the entity’s advisory board or other governing body directing or participating in the scientific analysis and review conducted or coordinated by the entity.

- **Task 2.4**: Consider how the entity’s funding structure should be created, altered or supplemented to ensure that there is no perception of bias in the funding of independent
scientific reviews and to ensure that adequate funds are available to conduct robust reviews.

- **Task 2.5.** Consider how to develop processes for conducting or coordinating independent scientific review in order to encourage balanced, broad and diverse participation among the scientific disciplines that may be called upon in the course of independent scientific review.

- **Task 2.6.** Consider how to develop procedures for the selection and deliberation of scientific experts to participate in independent scientific reviews, taking into consideration lessons learned from the processes used by the former Independent Multidisciplinary Science Team and other processes for independent scientific reviews.

**Goal 3:** Make recommendations on whether the entities identified would need legislative authority to act as independent scientific review bodies for Oregon.

**Goal 4:** Make recommendations regarding the structure and function of the process to be used by the recommended entities in the course of independent scientific reviews.

**Tasks**

- **Task 4.1.** Consider whether the entity should respond to inquiries from the Governor’s office or the Legislative Assembly, the citizen boards of natural resources agencies or from other appropriate parties.

- **Task 4.2.** Consider whether the entity should independently select science issues to review.

- **Task 4.3.** Consider whether a state agency should be required to respond in writing to a report issued by an independent scientific review panel, explaining how the agency intends to implement the panel’s suggestions or why the agency does not plan to implement the suggestions.

- **Task 4.4.** Consider how to enhance involvement of the University of Oregon, Oregon State University, Portland State University and other universities in the independent scientific review process.

- **Task 4.5.** Consider how to provide a scientific review process that is open to the public and that inspires public confidence in, and understanding of, the review process without compromising the independence of the review.

**Anticipated Outcomes**

- Determine if there is a need for independent science reviews in the state of Oregon.

- Recommendation of an entity or entities best situated to coordinate or conduct independent science reviews.

- Recommendation on whether the entities identified would need legislative authority to act as independent scientific review bodies for Oregon.
Recommendation regarding the structure and function of the process to be used by the recommended entities in the course of independent scientific reviews.

**Anticipated Deliverables**

**Intermediate Products**

- Summary notes of all task force meetings.
- Summary report and PowerPoint presentation on whether natural resources agencies, legislators and the public would benefit from the incorporation of independent scientific review in the making of policy decisions.
- Summary report and PowerPoint presentation on whether existing state, federal and academic resources for conducting independent scientific review are meeting the needs of natural resources agencies and other policymakers.
- Summary report and PowerPoint presentation on the mechanisms and structures that are in place in other states and at the federal level for independent scientific review related to natural resources policy.
- Summary assessment report and/or comparative chart of the characteristics of the candidate entities.
- Documented changes needed by the entity/entities, if recommended’ to coordinate or conduct the independent scientific reviews.
- Summary report and PowerPoint presentation of the recommendations regarding the structure and function of the process to be used by the recommended entities in the course of independent scientific reviews.

**Final Product**

- Final report for the Legislature due on or before 15 September 2016.
Appendix C. Task Force Member Responses to Introductory Questions

1. How would you define success for the SB202 Task Force?

- This seems pretty clearly spelled out in the legislation that established the task force: to determine the need for scientific review and, if there is a need, propose how to implement a review that informs policymaking.

- Reach the milestones by deadlines.

- Proposing a system that will provide the state with comprehensive science review across a range of policy issues.

- The task force achieves the goals articulated in SB202. Task force recommendations are achievable (i.e. they can be realistically implemented) and useful (i.e. they lead to development of a scientific review process that is beneficial to Oregon citizens and natural resources.) All/most members of the task force feel that they have made significant and useful contributions to task force work and that their time was well spent.

- We have outlined a clearly articulated framework for a scientific review process that has been vetted with key constituencies prior to completion so that it can be adopted and implemented immediately upon completion of the task force.

- Offering clear guidance in terms of how a science review process could be beneficial (what kinds of conflicts it can and cannot resolve, how it might improve decisions), or, if Phase I comes down against establishing a process, clear guidance on why having Oregon develop one doesn’t make sense. If a review process is recommended, it would be helpful if the task force provided clear input on key characteristics and attributes needed to make such a process effective (e.g. how it is invoked, what kinds of issues it would be most useful for, what kind of platform can make it both impartial and responsive, how funding mechanisms can help it be independent [or not] etc.) It would be helpful if the task force could provide information to help legislators and agencies understand how scientific review can be most helpful – i.e. what roles a review process can play in laying out what is known, helping them understand what “uncertainty” means in science, and recognizing that, while science can and should inform decisions, it cannot take the place of political and value judgments that will still need to be made. This may be beyond the scope, but would be a good reference to have for decision makers to refer to.

- I would define success for the SB202 task force when not only are we satisfied with our work, but when external entities recognize its value as well. Thus having natural resource agencies, legislators and the public recognize our work as thorough, objective and compelling would be success.

- Accomplishing the 2 tasks of the group.
− I think that success would be some consensus around whether or not we need a legislative proposal going forward and creation of a legislative proposal around this topic. We may decide that we may not need one but agreement would be great. In addition, we should be sure to be inclusive of all the data available.

− Success for the task force is to meet the timelines, and to work together to ensure that we get ourselves in a place to reach those goals.

− We complete a comprehensive review and develop achievable, practical, cost effective recommendations that are supported by Oregon state government (esp. Governor’s Office).

2. What can we (the INR staff, facilitator, and Governor’s Office) do to help make the task force as successful as possible?

− A task force can go off the rails without clear guidance and direction. I think the most important thing you can do is to make sure that the task force sticks to the charge established in SB202. Of course, the administration of the task force is also important - keeping a record of the discussion and decisions, organizing meetings, etc.

− If there is any additional material that can be sent prior to our first meeting, please do. Which are the other states that have independent scientific review? What do their policies look like? Examples would be nice. What are the existing state/fed/academic resources for conducting reviews? Anything you might think is helpful—beyond what is on the task force website—is appreciated.

− Be prepared/knowledgeable of the system that other states and possibly countries (e.g., EU) are using.

− Help the task force stay “on task” by a.) avoiding blind alleys as much as possible by helping the task force keep a clear vision of short term and longer term goals and expectations and, b.) structuring pre-work and meeting agendas to help meetings be as productive as possible. Help to make sure that each task force member contributes effectively- i.e., they have the resources they need, they are listened to, they do the work that is expected of them in a timely way, and if any obstructionist or domineering behaviors arise, they are quickly eliminated. Help to make sure that the environment of the task force meetings is comfortable (temperature, seating, refreshments, bathroom access, adequate but not excessive time for breaks).

− Good facilitation and clear communication about expectations are essential to keep this group on task and producing the desired results by the deadline.

− For the facilitator, walking the line between being firm about maintaining focus and not getting bogged down in side issues, while allowing for exploration of a range of views and options. Also, given that INR has a potential conflict of interest as a group that could play a role in implementing such a process if one is recommended, the facilitator may need to be
attentive to managing that conflict along the way. Logistically, providing timely communication about meetings and enough time to review materials before discussion (the day before a meeting is not “enough”). From the Governor’s office, helping the TF maintain clarity of focus and commitment of the Governor to take TF findings and recommendations into account.

− To help make the task force successful, the INR staff, facilitator, and Governor’s Office can continue to clearly define expectations and questions to be addressed as well as setting firm timelines for deliverables.

− Just make sure communication is clear, often, clear, often.

− It is important to have productive facilitation. It may be challenging to start with this group since it is a smart group where people do not know each other. A good facilitator will be able to keep people focused without being do prescriptive so that the task force can interact well with each other and be productive. A strong and effective facilitator is necessary. Providing needed information and resources to the group is very critical. The staff should be able to anticipate some of the needs of the task force, and also be responsive on the fly. The staff can help make the task force successful by carefully listening to the group’s struggles and identifying what information may help resolve those challenges. My guess is there will be a need to look at other panels and other states to understand what their scientific reviews look like. Not everyone is aware of how the National Academy of Sciences works and functions, thus information on these organizations would be helpful information for the task force.

− I think the staff has done an amazing job so far. Continuing the amount of effort they have shown thus far will make a huge difference in the outcome. I anticipate that there will come a time for robust information gathering, where relevant data will need to be researched, collected, and shared with the task force. I wonder how that will be staffed in order to get all the information gathered and in front of the task force in a timely manner.

− Make sure the task force knows it is supported- Governor’s Office defends the process in the event there is criticism.

3. What are some pitfalls we should try to avoid as we all move forward with the task force’s work?

− With a diversity of strong-willed individuals on the task force, there is a danger that it could attempt to go beyond its mandate. Also, there is a danger that one or a few individuals with extra strong personalities could dominate the discussion. It will be necessary to set up and run meetings in such a way that every type of personality has an equal opportunity to provide input and contribute to task force conclusions.

− Keep us focused on the big picture and not muddled with the minor details.
− Designing a system/approach that the state cannot afford, or which will not be used or adopted because of some not-so-obvious reason.

− Task force members may become sidetracked in interesting discussions that distract us from our goals. But this is tricky because some digression is essential for creative thinking. The facilitator, in particular, will need to be sensitive about these differences. A common problem in high-level groups like this is that everyone is extremely busy with other responsibilities, and despite best intentions and desires, may not be able to devote the time and attention that the process requires. Group members may become frustrated with one another, especially when everyone is tired at the end of long work days, and when people disagree (e.g., about definitions of terms, or when a product is either good enough or should be better, or when to quit at the end of a day). It is hard to anticipate exactly what people will become frustrated about, but it is pretty normal for it to happen. Task force members will need to work on developing enough respect for each other that we’ll be able to deal with these things, and the staff and facilitator will need to be able to defuse incipient situations before they become real problems.

− Getting sidetracked by details that are ultimately not important for the final proposal.

− Being distracted by related issues that could divert attention from the practical outcome of the task force if we spend too much time there. There is likely a spectrum of views, all with some validity, about the role of science and scientists in policy, how to handle uncertainty, what level of depth of analysis is needed to be effective. All of these issues are relevant and should be surfaced, but they also all could be the topic of entire conferences and are unlikely to be resolved at a consensus level. So we need to be able to have good discussions that surface key areas of agreement and disagreement, and then be able to present that clearly without bogging down entirely in the range of viewpoints.

− I have been on several technical and scientific review teams and the biggest pitfall for me has been when team leaders have an unstated preferred outcome and constrain input to achieve that outcome. In this way information contrary to the preferred outcome is disregarded. Maintaining openness to outcomes and opinions is critical to avoid bias or the perception of bias.

− There are 4 scheduled meetings. Seems like we might be shorting ourselves. Conversation is always best when it is face-to-face. It loses something with texts and email.

− A pitfall would be losing track of what we are trying to accomplish. The culture would be best if we problem solve together instead of representing the university or interest group with which each member is associated. The process and meetings should be formed to provide the environment that shows “we are all in this together”.

− I have no strong opinions about this question but I imagine that having meetings be too long is a potential pitfall.
Getting into too many specifics, e.g. what kinds of issues should get reviewed. Try to stick to broad principles. Stick to timelines.

4. In your opinion, and thinking about independent scientific reviews, what do the following terms mean – independent, science, benefit, and public?

All responses with definitions have been moved to pages 16-25 of this document, with the exception of the one comment below.

All words need to have context. For example, science is very broad, including social life and physical sciences, and also includes policy analysis. It is not just a narrow category. The words cannot be defined separately. It is not what they are defined as separately but collectively, in context what they are trying to achieve. Should the research questions be developed independent of the state or the organization, in the sense that they do not have any input of what questions are being asked, or will the independent science review be more customer-based depending on who if funding the study? It may not be helpful to be “independent” of the agency needs all the time. For example, the National Academy of Sciences is not independent in that regard; each study is serving somebody or some organization, and there is an audience for the science review.

5. Do you have any examples of independent science review entities, processes, or techniques about which we should gather background information for the task force? If so, please provide them.

The Congressional Office of Technology Assessment, which has been disbanded, is probably a good model.

I’m aware of the IMST process and that IMST proposed a revised approach---I have not read it yet. I am also aware of the NRC process.

The report from the IMST workshop that was held on Jan 15, 2015 (report dated Feb 9 2015, mentions reviews models (IMST, ISAB, INR, WSAS, NAS). This is a pretty good review and it would be helpful if the members of the SB202 committee could read this as a starting point (so they don’t end up re-creating this wheel). It would also be useful to take a look at some of the NUMEROUS scientific reviews of federal environmental policies. For example, a group called “RESOLVE”, which describes itself as a neutral, third-party in policy decision-making (http://www.resolv.org) conducted a review in 2011 of the U.S. Forest Service’s EIS Federal land management (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5295052.pdf). There have been many other reviews like this and it probably won’t be a good use of time for the task force to read them all or try to search for them, but it might be a really useful task for someone at the INR to search out some of these and summarize them for the task force. Another useful model to consider – at least from a historical perspective – is the NW Forest
Plan, which of course wasn’t a “scientific review” but instead was an effort commissioned by Bill Clinton by a group of esteemed scientists to actually create policy.

There are some features of the review processes used by NSF for proposal reviews – these aren’t entirely translatable to the needs of this task force, but they’re useful to consider.

In addition, here are a few resources that would be useful. (Of course there are a LOT more – this is just a starting point):


- EPA’s Scientific Advisory Board process for reviewing the scientific merits of federal EPA policies.

- The Independent Scientific Review Panel for the NW Power and Conservation Council (https://www.nwcouncil.org/fw/isrp/), I thought this memo on independent scientific review was also relevant to this discussion (it refers specifically to the Independent Science Panel established in Washington State) – it actually speaks to a number of the questions in this list. http://www.digitalarchives.wa.gov/GovernorLocke/gsro/science/031803ispmemo.pdf

I believe the process for the IPCC documents is a good one to look at since it involves unsettled science, narrow areas of science with few scholars, and it also looks at social science. Also, the peer review process at the National Science Foundation is pretty good -- not perfect - but pretty good.

- My experiences in the last few years with technical and scientific review entities have been less than positive in that those leading the team had clear policy preferences and generally did not recognize contrary input. In one case the technical team leaders did not limit the teams to those with technical expertise so that the interactions were more political rather than careful and conscientious weighing of the science. I queried my colleagues about positive examples of scientific review entities. One indicated that the panel he was on for the Columbia River Independent Science Advisory Board was very effective (www.nwcouncil.org/fw/isab/). This panel was jointly sponsored by the Northwest Power and Conservation Council, Columbia River Intertribal Fisheries Commission and NOAA Fisheries. The panel had two primary tasks: 1) provide technical reviews of environmental...
issues/questions raised by the sponsors and 2) review research products and proposals related to recovery of fish and wildlife in the Columbia Basin. He felt the process was successful because the membership was strictly limited to people with the scientific and technical credentials. Those on the panel were vetted by the National Research Council. What helped the panel to be effective was that the tasks were clearly defined by the sponsors and the “Independent” part of the panel name was stressed. If a panel member had a conflict of interest with a project then they did not participate. The strength of the panel was the strict focus on science rather than promoting a particular policy outcome.

- I only know of the IMST that was part of the Oregon Salmon Plan.

- The National Academies of Science is the organization that I am most familiar with. I think it would be helpful to have more information on the Washington State Academy of Sciences, and it is possible that we would benefit from looking at IMST. I am not aware of any but I would like to see some non-Pacific Northwest examples.

- I think it would be beneficial to look at the federal level, and how federal agencies have handled the Data Quality Act. I think some really good studies include the lessons learned at the federal level for example when the NRC has been brought in to review the sciences conducted by other agencies. I think they've learned a lot through their experiences that we can benefit from. In addition, there is some academic work published about the benefits and burdens of the general scientific review process, including the expense and time of a study and how decisions are made.

- I think the various fisheries management councils (e.g. PFMS) have science review boards.

6. Are you interested in being considered to serve as the Chair of the task force?
   Yes (2)
   Uncertain (3)
   No (7)
   Unknown (1)

7. We have a lot of work to do, very few meetings, and many of us don’t yet know each other. Do you have any suggestions how we could help the task force to get to know each other better?
   - Could you distribute the materials that were provided by each member to the Governor's Office?
   - If possible, please send bios of other task force members prior to meeting, beyond what is on the INR website. I’d like to know each other’s expertise.
   - Host a social; spend 5 minutes/each at first meeting with introductions.
− It might be helpful if we could all read the responses that others give to this questionnaire. Other than that, most good facilitators have lots of cool “ice breaker” tricks up their sleeves – I assume ours will.

− Some kind of social interaction might work well – a happy hour where task force members can mingle, or an outside activity like a hike.

− Allow for some 1:1 discussions or small group discussions during meetings to help people have more in-depth conversations and include in them some more self-introduction (e.g. sharing the answers provided to the questions above, or seminal persona/professional experiences, etc.).

− While I’m not overly fond of contrived ice breakers, it may help to have time in the introductions for people to talk about not just their professional life, but something personal (hobbies, etc.) or describe a “moment of science” where they learned something scientific that was compelling. Also, I understand time is limited, but having time for people to communicate (breaks, etc.) is important to foster dialogue.

− Maybe a social hour the night before each meeting?

− The first day it is always helpful to do the around the room self - introductions. Lunch should be in a different physical location than the meeting space (another meeting room) so that people are forced to get up and mingle. During lunch the facilitator should encourage people to sit next to someone new that they do not know. Deliberate social interactions is pretty important otherwise people will sit next to those they know. You can be more heavy-handed than that, however academics often loath ice breaker games. If icebreakers are chosen, the facilitator must be very careful about ensuring that they are strong, effective icebreakers that people are interested in doing. Also, the facilitator needs to be aware that there can be cultural difference between academics and non-academics that can be challenging when trying to get a new group to work together. The staff should circulate member bio sketches.

− I would suggest having a lunchtime mixer at the first meeting.

8. Is there any other information you’d like us to know as we kick-start our work together?

− Working without coffee or donuts might slow my cognitive processes.

− I’m excited about the task force and appreciate in advance the work of the facilitator, INR and the Governor’s Office in stewarding this process going forward.

− I look forward to working on the task force.

− I am a bit worried about the full day length of these meetings. Members of the task force are very busy and it is not like we can ignore email all day. The staff and facilitator should be aware of this and the agenda should reflect those needs so that the task force can be focused while in session, but also able to balance other responsibilities. The agenda could include a
designated time to deal with email or other responsibilities, which is also separate from typical breaks which are valuable social interaction opportunities.

How do you keep people off their phones all day? A good facilitator will be able to manage this and minimize the amount of time people spend on their phones during sessions.

I am looking forward to it. It should be fun.

- I am excited to be a part of this team and to be working on this project.
Appendix D. Bio-sketches

Allison Aldous
Allison is a freshwater scientist with The Nature Conservancy (TNC). She is based in Portland and works across Oregon and in Gabon, central Africa. Her work includes the research and conservation of groundwater-dependent biodiversity; wetland restoration; assessment and mitigation of water quality impairment; environmental flows restoration; landscape-scale mapping and modeling freshwater systems; and climate change impacts to freshwater biodiversity. Allison served on the Environmental Protection Agency’s Science Advisory Board Panel to provide technical advice on jurisdictional waters of the United States and on the U.S. Forest Service’s Groundwater Technical Team. She works extensively with partners in state and federal agencies, other non-governmental organizations, and scientists in academic institutions. Allison has published extensively in the peer-reviewed literature and has presented her work across the U.S. and abroad. In the past she led a wetland training program for TNC staff across the U.S. and in Central and South America; and directed the Oregon TNC chapter’s Research and Monitoring program.

Allison holds a Ph.D. from Cornell University in wetland ecology; a M.Sc. in plant sciences; and a B.Sc. in biochemistry, both from McGill University in Montréal, Canada.

Jennifer Allen
Jennifer is an Associate Professor of Public Administration in the Mark O. Hatfield School of Government and a Fellow at the Institute for Sustainable Solutions at Portland State University. Her research focuses on sustainable economic development, collaborative approaches to reducing use of toxics, and rural-urban connections. Jennifer served as the Director of Portland State’s Institute for Sustainable Solutions from 2012-2015, and has previously worked at the World Bank, Ecotrust, and the Oregon Economic and Community Development Department. She is an Oregon State Parks and Recreation Commissioner, and has served on the boards of Oregon Forest Resources Institute, Shorebank Pacific, Portland Energy Conservation Inc., Illahee, the Portland Sustainability Institute, Friends of Forest Park, and the Food Alliance.

Jennifer holds a Ph.D. in Environmental Science and Public Policy from George Mason University, a Master of Environmental Management from Yale School of Forestry and Environmental Studies, and a B.A. in American Studies from Yale University.

Adell Amos
Adell first joined the UO faculty in 2005 after practicing environmental and natural resources law with the U.S. Department of Interior in Washington DC. She is Clayton R. Hess Professor and Associate Dean for Academic Affairs at the UO School of Law. She teaches in the Environmental and Natural Resources Law Program and is courtesy graduate faculty in the OSU Water Resources and Policy Management Program. Her research emphasizes jurisdictional governance structures for
water resources management in the US and internationally. She focuses on the relationship between federal and state governments on water resource management, the role of administrative agencies and law in water policy, and stakeholder participation in water resource decision-making. Adell’s most recent scholarship focuses on the integration of law and policy into hydrologic and socioeconomic modeling for the Willamette River Basin as well as the legal framework that provides the backdrop for water conflicts and dispute resolution through a multi-institutional, interdisciplinary effort funded by the NOAA and the National Science Foundation. In 2008 Adell accepted a 2-year appointment with the Obama Administration as US Dept. of Interior Deputy Solicitor for Land and Water Resources, overseeing legal and policy issues involving US water resources and public lands. She and her team of attorneys provided counsel directly to the Secretary and of Interior and Deputy Secretary, the Assistant Secretary for Water and Science, Assistant Secretary for Fish, Wildlife and Parks, Bureau of Land Management, Bureau of Reclamation, National Park Service and US Fish and Wildlife Service.

Adell has a J.D. from the University of Oregon (Coif), and a B.A in 1995 Drury College.

Barbara Bond

Barbara came to Oregon in 1977 after earning a B.S. with honors in Biological Science from the University of California, Irvine, followed by a secondary teaching credential from U.C. Santa Barbara and three years of teaching middle school math and science in southern California. For several years after that she moved back and forth between motherhood, continuing education (M.S. in Plant Ecology from OSU in 1984, Ph.D. with a double major in Forest Science and Plant Physiology from OSU in 1992), serving as the director of a curriculum project (“Forestry for Teachers”) and working as a research assistant in hardwood silviculture.

After completing her Ph.D. she continued working at OSU, first as a soft-money research scientist, with research projects that included remote sensing of forest canopy health and studies of the physiology of aging in forest trees. She was hired into a tenure-track, professorial position in the Department of Forest Science in the College of Forestry in 1997. With a Fulbright fellowship in 2001/2002, she spent a sabbatical leave conducting research and teaching in Argentina and Uruguay – an enlightening experience, especially in terms of the differing perspectives on management and values of natural resources in these different countries. She was named as the first Ruth Spaniol Chair of Natural Resources by the College of Forestry in 2003. Shortly afterwards, she became the lead principal investigator of the Long Term Ecological Research Program at the H.J. Andrews Experimental Forest. In that capacity, she led a team of about 50 scientists and became deeply involved in the scientific culture that emerge after the fabled “owl wars” of the 1990s – a wizened culture that advocates a stronger role of interdisciplinary scientists in the arena of public policy-making.

Barbara is now retired and living with her husband on a small family farm that includes a small vineyard and a lot of animals, vegetables and trees. The intersections among economic, environmental and social concerns has never been more poignant to her than it is now.
**Tim Deboodt**

Tim is an OSU Crook County Extension Agent with a program emphasis in range and natural resource management and natural resource public policy issues. He serves the central Oregon area and is responsible for developing and delivering educational programs on rangelands, their use and management. His programs specifically include information on grazing, range improvements and restoration and range/watershed issues. He works with public land management agencies, landowners and others to provide technical information and research findings for management issues related to Oregon’s rangelands. Tim represents OSU on Oregon Watershed Enhancement Board Region 4 review team and Crook County Court on the Ochoco-Deschutes National Forest Resource Advisory Committee. Tim has served on state-wide committees for the Oregon Department of Agriculture, Department of Forestry and the Department of Environmental Quality. Before he and his family moved to Prineville in 1983, he worked for the University of Wyoming Cooperative Extension Service in Teton County, Jackson, Wyoming.

His current research activities include the evaluation of western Juniper control on watershed function and hydrology, the impact of juniper harvest systems on Oregon’s watersheds, assessing water quality parameters as influenced by land management activities and restoration of rangeland health using prescribed fire and other management practices.

Tim has Ph.D. in rangeland ecology and management from Oregon State University, a M.S. in Range management from the University of Wyoming, and a B.A. in rangeland resources from Oregon State University.

**W. Daniel (Dan) Edge**

Dan has four degrees from the University of Montana, culminating in a Ph.D. in Forestry in 1985. He then did a post-doctoral project in Pakistan, worked with the U.S. Forest Service, with the Smithsonian Institution, and had a temporary teaching appointment at Humboldt State University. Dan came to OSU as the Extension Wildlife Specialist in 1989. He was promoted to Associate Professor in 1995 and added teaching to his extension-research appointment. He was named the first Mace Professor of Watchable Wildlife in 1997, was promoted to Professor and appointed Department Head in 2001 and started as Associate Dean in 2015. Dan has taught 15 different courses at OSU including 3 online. He has directed the Agriculture and Natural Resources Study Abroad Program in Chile since in 2012. Dan has successfully mentored 22 M.S. and 3 Ph.D. students and 2 Post-doctoral trainees, and his research has focused on wildlife habitat and population ecology in forest and agricultural ecosystems including ecological risk assessment.

Dan’s scholarship includes 54 peer-reviewed journal articles including 4 related to teaching and curriculum development; 25 non-peer-reviewed professional journals or symposia proceedings, including 8 related to teaching, curriculum development, or extension programming; and 12 extension bulletins, 5 extension videos and 7 book chapters. Dan’s accomplishments have garnered him 6 national teaching awards, 1 national extension award, and 2 university and 3 college awards. Dan has made substantial service contributions to the university and his profession. He currently
serves as Past-President of OSU Faculty Senate, has served as President of the National Association of Fish and Wildlife University Programs, Chair of both the Association of Public and Land-Grant Universities, Fish and Wildlife Section and Board on Natural Resources, and served as an Oregon Fish and Wildlife Commissioner for 8 years, including 2 years as Chair.

**Linda A. George**

Linda is an atmospheric chemist and Professor of Environmental Science and Management Department at Portland State University. Her primary research interests include monitoring and modeling of urban air pollutants as they relate to urban infrastructure, such as transportation systems and urban form. In addition her group works on assessing human exposure of air pollutants using statistical models and GIS, development of measurement techniques for quantifying atmospheric species and sensing and analysis of urban climate modification. Her research and teaching also explore the intersection of environmental justice, gender and class as it influences scientific research and policy in air quality and climate science. She has served in scientific review capacities as a Program Director for the National Science Foundation (Division of Atmospheric and Geospace Sciences) as well as an Associate Editor for the journal "Science in the Total Environment". Her research has been funded by the National Science Foundation, the Environmental Protection Agency, USAID and several private foundations.

Linda has a Ph.D. from Portland State University in environmental sciences and resources/chemistry, and a B.S. cum laude from Loyola University of Chicago in chemistry.

**Sara Gray**

Sara serves a Senior Corporate Counsel to the Precision Castparts Corporation. Prior to working for Precision Castparts Corp. in 2013, her legal experience included work with Con-way Inc., Stoel Rives LLP, and the U.S. House of Representatives. In addition to her legal work, Sara was a professional staff member of the U.S. House of Representatives’ Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, where she provided analysis and recommendations on legislative and policy matters relating to water resources development, conservation and management, water pollution control and water infrastructure, and hazardous waste cleanup. She was also the Special Assistant to the Director of the Office of Nonproliferation and National Security in the U.S. Department of Energy.

Sara has a J.D. from Cornell, and a B.A. international relations and German from The College of William and Mary.

**Michael Harte**

Michael is a tenured Professor in the College of Earth, Ocean and Atmospheric Sciences at Oregon State University and specializes in Marine Resource Management, Marine Spatial Planning and fisheries management. He has research and teaching interests in geospatial analysis and planning, small-scale fisheries and food security, co-management of coastal marine resources, sustainable
fisheries, and the governance and sustainable management of Antarctica and the Southern Ocean. He has chaired and served on many advisory boards, committees, working groups and provided scientific and policy advice to a wide range of stakeholders at local, national and international levels. He trained in physical geography and economics, specializing in natural resource management and planning.

Michael has a Ph.D. from the University of Victoria in British Columbia, a Master's degree in Geography from the University of Auckland, New Zealand and a Bachelor's degree in Economics and Geography from the University of Auckland.

Cassandra Moseley

Cassandra is a research professor and Associate Vice President of Research and Innovation. Dr. Moseley serves as an institutional official and as the UO’s research integrity officer. She is the direct supervisor for Research Compliance Services, which supports and protects the interests of the university, faculty, staff, students, and research subjects in research compliance matters. She directs the Ecosystem Workforce Program and the Institute for a Sustainable Environment (ISE) at the UO and is a past chair of the U.S. Department of Agriculture (USDA) Forestry Research Advisory Council.

Cassandra has developed applied research and policy education programs focusing on community-based forestry, federal forest management, and sustainable rural development. She has testified before Congress about rural green jobs, rural development, and the working conditions of forest workers. Additionally, she has participated in dozens of briefings and presentations to congressional and presidential administration officials, including the White House Economic Council, Regional Development Cluster. She is a member of the board of the Rural Voices for Conservation Coalition, and a former board member of the Flintridge Foundation and the Applegate Partnership, as well as recent past associate editor for policy of the Journal of Forestry.

Cass earned her Ph.D. and two Master’s degrees in political science from Yale University, and a B.A. in mathematics and government from Cornell University.

Maryanne Reiter

Maryanne has been a forest hydrologist in Environmental Forestry Research at Weyerhaeuser Company for over 20 years and is currently part of a multi-disciplinary and multi-agency research team examining the effects of contemporary forest management practices on aquatic ecosystems in the Oregon Coast Range. Maryanne also manages the company’s long-term water quality research project in Washington State and has used the 40-year data record from this watershed to investigate the effects of forest regulations and climate change on water quality, including water temperature, turbidity and suspended sediment. In addition, she works with company engineers and foresters on stream, wetland and riparian projects and provides scientific and technical support for forest-related policy and regulatory issues.
Prior to Weyerhaeuser Company she was a Faculty Research Assistant in the Department of Forest Engineering at Oregon State University where she coordinated an interdisciplinary team assessing the cumulative effects of forest practices on air, soil, water, fish, and wildlife in the Pacific Northwest. She has also worked as a consulting hydrologist/soil scientist on municipal and industrial sludge storage and on-land application projects and wetland delineations.

Maryanne has an M.S. in forest engineering from Oregon State University, and a B.S. in soil and water resource technology from the University of Minnesota.

**Mark Sytsma**

[From the PSU Profile] Mark is a Professor of Environmental Sciences, the director of the Center for Lakes and Reservoirs, and co-director of the Aquatic Bioinvasion Research and Policy Institute. He also served as the Associate Vice President for Research and Strategic Partnerships. His primary research interest is in limnology and the biology and management of aquatic invasive species. His long-term, ongoing projects include the limnology of Waldo Lake, an ultraoligotrophic lake in the Cascade Mountains; aquatic plant surveys in Pacific Northwest lakes; invasive species in the Columbia River; dreissenid mussel monitoring in western states; spartina management in Oregon estuaries; and invasive species policy. He co-authored the Oregon Aquatic Invasive Species Management Plan and is responsible for implementation of the Plan in collaboration with other state agencies. He is a founding member of the Oregon Invasive Species Council, the Columbia River Basin Team of the 100th Meridian Initiative, and the Western Regional Panel on Aquatic Nuisance Species.

Mark earned his PhD from the University of California-Davis, and his M.S. from the University of Washington.

**Jason Younker**

Jason is the Assistant Vice President and Advisor to the President on Sovereignty and Government-to-Government Relations at the University of Oregon, Associate Professor of Anthropology and a member of the Coquille Indian Tribe. He received his Ph.D. in Anthropology from the UO in 2004 and returned to Oregon after teaching at Rochester Institute of Technology for 10 years where he was chair of the Department of Sociology and Anthropology. He received the prestigious Ely S. Parker Award in 2014 from the American Indian Science and Engineering Society for his work with tribes and Native American students in higher education. He is the Past-President of the Association of Indigenous Anthropologists for the American Anthropological Association and is originally from Coos Bay, Oregon.