SB 202 Task Force
Briefing Materials

SB 202 Task Force Meeting
University of Oregon Law School
Knight Law Center
1515 Agate Street
Lewis Lounge

25 May 2016
9:00am-4:00pm
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Meeting Agenda

Task Force on Independent Scientific Review for Natural Resources

Wednesday, 25 May 2016, 9:00am-4:00pm

University of Oregon Law School
Knight Law Center
1515 Agate Street, Lewis Lounge (Map)
Eugene, Oregon 97403-1221

Primary Meeting Objectives

− Reach current consensus on goal 1: Assess need and capacity for independent scientific review (ISR) in Oregon.
− Start to identify crucial components of ISR for Oregon, drawing upon research done for Goal 1 and addressing specific tasks within Goals 2 and 4.
− Agree on list of existing entities in Oregon to evaluate to accomplish Goal 2. Form subcommittee to conduct review and prepare proposal for discussion at July meeting.
− Determine action items, roles and deliverables for the next meeting.

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

<table>
<thead>
<tr>
<th>TIME</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am</td>
<td>1. Welcome, Agenda Review/ Additions; Comments from the Governor's Office – Facilitator Jane Barth; Chairs Barbara Bond and Michael Harte, Lauri Aunan</td>
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<tr>
<td></td>
<td>Recap of work accomplished since March meeting and discussion of timeline to accomplish remaining work by September 15, 2016.</td>
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<tr>
<td>10:00am</td>
<td>2. Recap and confirm where task force is on Goal 1 statement and definitions of ISR, science and scientific information.</td>
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<tr>
<td>11:00am</td>
<td>3. Independent Multidisciplinary Science Team as ISR example– Presenter: Nancy Molina</td>
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<tr>
<td>12:00pm</td>
<td>4. How to design an ISR for Oregon</td>
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<td>Through a mix of full group and break-out discussion, the task force will discuss specific elements within Goal 2 (Make recommendations on one or more entities that are best suited to conduct or coordinate ISR) and Goal 4 (Make recommendations regarding the structure and function of the process to be used by the recommended entities in the course of ISR.)</td>
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<td>WORKING LUNCH – Small group discussion</td>
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<td>Time</td>
<td>Item</td>
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<td>----------------------------------------------------------------------</td>
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<tr>
<td>1:00pm</td>
<td>5. Public Comment</td>
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<tr>
<td>1:30pm</td>
<td>6. Continue discussion of structures and processes for ISR in Oregon.</td>
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<td></td>
<td>Hear from small groups. Hold full group discussion. Identify emerging</td>
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<td>areas of consensus with respect to specific tasks within goals 2 and</td>
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<td>4.</td>
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<td><strong>BREAK  15 minutes during this block of time</strong></td>
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<tr>
<td>3:30pm</td>
<td>7. Agree on list of candidate existing scientific entities to review</td>
</tr>
<tr>
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<td>and assess [Obj. 2.1] Agree on who will do this work.</td>
</tr>
<tr>
<td>3:50pm</td>
<td>8. Review action items, agenda items for July meeting AND in between</td>
</tr>
<tr>
<td>4:00pm</td>
<td>Adjourn</td>
</tr>
</tbody>
</table>
SB202 Goals, Objectives, and Tasks

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.

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.
Questions for the SB202 Task Force to Deliberate

1. The co-chairs heard during the previous TF meeting general agreement that:
   • there are potential benefits to natural resource agencies, legislators and the public from ISR, but the TF isn’t able to fully evaluate these against the costs and disadvantages of ISR until it further considers the design, structure and processes associated with ISR.
   • the reports from INR captured the potential benefits.

We also heard several caveats such as economic feasibility and timing that must be considered within any design of ISR for Oregon in order for it to be beneficial and fill needs of natural resource agencies, legislators, and the public.

Prior to moving forward today with considering crucial elements of ISR for Oregon, we will determine whether these statements represent the current consensus of the Task Force. (All in agreement with the above statements say Aye…. Etc.)

2. In order to consider the many specific elements of ISR structure and process contained within goals 2 and 4 of SB202, we propose to start with the broad questions listed below. We ask that all Task Force members think about and answer these questions for yourselves and come prepared to share your opinions at the May 25th meeting. Through full group and small group discussion, we plan to consider elements within tasks 4.1 – 4.3, 4.5 and potentially tasks 2.4 -2.6 if time allows. We aim to have the TF agree upon some elements that then can written up as straw proposals for the July meeting by the co-chairs and other TF members who would like to help with writing. Remaining elements will be discussed and agreed upon during the July meeting.
   • When ISR has worked well in Oregon, other states and federal situations, what made it work well?
   • When ISR hasn’t worked well in Oregon other states and federal situations, what were the causes?
   • What are elements of an ISR process you think would work best for Oregon? [Process: Allow TF members to share their top priorities. That can be a vehicle to organize people into small groups for lunch time discussion.] I think we need to provide a few examples to get folks started.
     o What would be essential for a successful ISR process for natural resources in Oregon?
     o What would be desirable but not essential for a successful ISR process for natural resources in Oregon?
     o What should be avoided?

Suggestion for how to prepare your thinking for the meeting: It would be helpful to re-read Tasks 4.1- 4.3, 4.5, 2.4 - 2.6 in order to focus on some of the specific details the TF is charged with considering – i.e. pros and cons of legislative oversight, how to endure ISR is free of bias; nature of governing board; funding structure; diverse participation; selection of expert panel.
Definitions of Terms: Consensus of the SB202 Task Force

Definition of Science

Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence.

Definition of Independent Scientific Review

Independent Scientific Review

- is an external assessment of a stated scientific question or issue;
- produces unbiased conclusions regarding the current understanding of relevant information, methodology and assumptions relating to that scientific question or issue;
- includes, as applicable, an assessment of the risks, costs and benefits of potential alternative decisions or policies;
- is conducted by reviewers who:
  1) have 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 undue influence by others associated with the decision process;
  3) have demonstrable competence in the subject as evidenced by formal training and/or experience; and
  4) should be required to disclose any potential personal stake or conflict of interest with respect to the stated question/issue.
**Interview/Questionnaire Input**

**Agency Input**

Below is a table of generalized statements from the state natural resources agencies. We contacted 14 state agencies and received feedback from 13 state agencies. Their comments have been parsed out below.

<table>
<thead>
<tr>
<th>Program/System</th>
<th>Agency Input (# of respondents)</th>
<th>Considerations for the Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
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</tbody>
</table>
| *Legislative authority*      | − Possible legislative authority needed depending on funding source.  
                                − Perhaps coming out of the Governor’s Natural Resources Cabinet or the legislature. |                                   |
| *Charter*                    | − Clear charter with different tracks for different areas of research. |                                   |
| *Organizational structure or design* | − A multidisciplinary standing body of scientists. (2)  
                                − A Body/Board that would identify the experts for individual topics and create a subcommittee per topic. (4)  
                                − A process. (2)  
                                − A template or internal review process standard for more run of the mill reviews.  
                                − Collaborative system between agencies: reduce the likelihood of dueling science | − Should improve the process and keep aspects of the IMST that were helpful.  
                                − Would we really need an independent system?  
                                − Will/should the process provide guaranteed credibility to the agency/study?  
                                − Team of reviewers would need to be fluid because the topics will change. |
| *Reviewers*                  | − Cadre of identified experts in a diversity field.  
                                − A database of reviewers web-accessible. (3)  
                                − Folks who can speak to a number of disciplines.  
                                − The circle from which you draw could be broad (even outside the state of Oregon). (2)  
                                − Well-credentialed people/experts. (12) | − Oregon-only specialists are not adequate, the pool is too limited. |
| **Function**                 |                                 |                                   |
| *Focus areas*                | − On initiatives that are cross cutting.  
                                − Big inter-agencies issues. |                                   |
Technical guidance, prioritization.

### Mission

**Three options (3):**
- Here are the problems, what is the right approach?
- Here is what (approach) we've done, did we get it right?
- Tomato vs. "to-mah-to": decide what is right.

### Process

<table>
<thead>
<tr>
<th><strong>Who initiates?</strong></th>
<th>Uncertain about who could require the review (the sponsor?)</th>
<th>Agency</th>
<th>Clear definition of tasks and products review.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At what point is it initiated?</strong></td>
<td>Before</td>
<td>During</td>
<td></td>
</tr>
<tr>
<td><strong>What triggers a review?</strong></td>
<td>Agencies would have an option of requesting an independent science review when there is disagreement about the methods or quality of the science.</td>
<td>Where there are common issues and questions, there are also opportunities for natural resource agencies to collaborate on science synthesis or reviews.</td>
<td>Conflicts related to an activity or permit – where we may need a review to delve a little deeper, to understand the issue better.</td>
</tr>
<tr>
<td><strong>Process characteristics</strong></td>
<td>A nimble or flexible system to respond to changing solid funding source.</td>
<td>System of experts “waiting in the wings” without funding.</td>
<td>One caution is the workload – it can bog down policy development and can take too long or used as a tool to stall policy development.</td>
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<tr>
<td></td>
<td>Entity for the structuring and organization of</td>
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</tbody>
</table>
- Those reviews.
  - It must be practical in its design – timely and responsive and maintain to scientific integrity.
  - Staff: (1) Need someone (an entity) to herd cats, plan meetings, and do mediation, (2) Someone to help understand what the need is and what the product would be.
  - ISR for the state should be a resource – but should not be bureaucratic.
  - Recommendations that state what you should listen to and something that you can safely ignore.

**Negotiating question, framing, and scope**
- Would need to frame around what the customer (sponsor) wants/needs.
- A process to decide what is reviewed.
- Questions must be scoped and phrased just right as a very specific questions to get an answer or feedback that is applicable.
- Scope should be multi-agency.

- Multi-agency – we already have a ton of inter-agency data and science sharing possibilities.
- We need something slightly less rigorous.
- We need good science to be out to be used and not held to a purity standard. “The pursuit of the perfect gets in the way of the application of the good”.
- Need to consider what went well and what did not go well with the IMST.

**Timeline**

**Cradle-to-grave process steps**

**Products/Deliverables**

**Recommendations/Findings**
- Sometimes the recommendations are impractical (outside of scope, science, or budget). (2)
Tribal Input

Below is a table of generalized statements from the Tribes. We contacted 12 tribes and received feedback from 3 tribes. Their comments have been parsed out below.

<table>
<thead>
<tr>
<th>Program/System</th>
<th>Tribal Input (# of respondents)</th>
<th>Considerations for the Task Force</th>
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</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
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</tr>
<tr>
<td>Legislative authority</td>
<td>– May be needed.</td>
<td>– If not mandatory for agencies to undergo, how enforceable are the recommendations?</td>
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<tr>
<td></td>
<td></td>
<td>– Will there a repeal process?</td>
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<tr>
<td></td>
<td></td>
<td>– Where will the money come from? (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Can an agency refuse to do a review if it is requested?</td>
</tr>
<tr>
<td>Organizational structure or design</td>
<td>– A standardized process.</td>
<td>– There could be some static membership but needs change depending topic.</td>
</tr>
<tr>
<td></td>
<td>– Not solely a static body. (2)</td>
<td>– Need a fluid process, allowing different experts to come in and out.</td>
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<tr>
<td>Reviewers</td>
<td></td>
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<tr>
<td></td>
<td>– Tribal experts should be included.</td>
<td></td>
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<tr>
<td></td>
<td>– Reviewers should be 3rd Party.</td>
<td></td>
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<tr>
<td></td>
<td>– The reviewing team should be multidisciplinary.</td>
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<tr>
<td><strong>Function</strong></td>
<td></td>
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<tr>
<td>Focus areas</td>
<td>– Provide guidance to state agencies.</td>
<td>– Focus on how these additional resources will add value to the government/work.</td>
</tr>
<tr>
<td><strong>Mission</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Process</strong></td>
<td></td>
<td></td>
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<tr>
<td>Who initiates?</td>
<td>– The agencies themselves. (2)</td>
<td>– Roles, responsibilities, and authorities of each party must be clearly established.</td>
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<tr>
<td></td>
<td>– Legislative Committees.</td>
<td></td>
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<tr>
<td>At what point is it initiated</td>
<td>– At the beginning, before a study is conducted.</td>
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<tr>
<td></td>
<td>– Continual monitoring.</td>
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<tr>
<td>What triggers a review?</td>
<td>– Controversial issues or issues generating media attention because of public interest. (2)</td>
<td>– When considering a study the Tribes should be consulted.</td>
</tr>
</tbody>
</table>
Studies that the agencies need support for (to gain credibility or remove perception of bias).
- When the study will cause a big change in management or policy. (2)
- A review of current practices.
- Specific issues that need scientific force.

- What are the limits? What if every agency wants a review for every study?

<table>
<thead>
<tr>
<th>Process characteristics</th>
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</thead>
<tbody>
<tr>
<td>Negotiating question, framing, and scope</td>
</tr>
<tr>
<td>Timeline</td>
</tr>
<tr>
<td>Cradle-to-grave process steps</td>
</tr>
<tr>
<td>Products/Deliverables</td>
</tr>
<tr>
<td>Recommendations/Findings</td>
</tr>
<tr>
<td>Education/Outreach</td>
</tr>
<tr>
<td>Implementation of findings</td>
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</tbody>
</table>

**Legislative Committee Input**

Below is a table of generalized statements from the Legislative Committees. We contacted the Legislative Committees and although we have only had one interview so far, we anticipate further information to be collected during the Legislative Days on May 24th. Feedback received that day will be incorporated into the table below.

<table>
<thead>
<tr>
<th>Program/System</th>
<th>Legislative Committee Input</th>
<th>Considerations for the Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
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<tr>
<td><strong>Legislative authority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Characteristics</strong></td>
<td>- Must have transparency – let it be known if the reviewers are being paid.</td>
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<td></td>
<td>- Must have public support.</td>
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</tbody>
</table>
| Reviewers                                                                 | A reviews needs not just natural resources scientists but also need someone that is verse in public communications.  
|                                                                         | Can be from within the agency conducting the science. |

| **Function**                                                            |                                                                 |
| **Focus areas**                                                         |                                                                 |
| **Mission**                                                            |                                                                 |

| **Process**                                                            |                                                                 |
| **Who initiates?**                                                     | Agencies.  
|                                                                  | Legislative committees. |
| **At what point is it initiated**                                      |                                                                 |
| **What triggers a review?**                                            | Scientific reviews should always be used anytime there is a potential conflict in the management scheme, which is virtually every instance. |

| **Process characteristics**                                            |                                                                 |
| **Negotiating question**                                               |                                                                 |
| **Timeline**                                                           |                                                                 |

| **Suggestions of cradle-to-grave process steps**                       |                                                                 |
| (1) Issues arise because there is some compelling concern to deal with it, when these issues arise the state agency should go to the community of interest to talk to people to find out what the controversy really is – most often rising out of mistrust. | |
I would want the scientists in the state agency to bless the process and the outcome. I have no time to evaluate the science and want to trust what they say.

The importance of the scientific review doesn’t end with the writing of the report and making recommendations – that’s only 75% of the way there. We need to be working hand in hand with the scientists, working with communities regarding the findings and the implementation process. The legislative members, too, should go and work with the community to understand the boundaries – work with people and the community.

Below is a table of generalized statements from the Stakeholder groups. We contacted 38 stakeholders and received feedback from 14 groups/individuals. Their comments have been parsed out below.

<table>
<thead>
<tr>
<th>Program/System</th>
<th>Stakeholder Input (# of respondents)</th>
<th>Considerations for the Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
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</tr>
<tr>
<td>Legislative authority</td>
<td>State-Governor’s office needs to be supportive of independent science review team decisions so that bad agency management plans are not allowed to move forward if science review shows the science of plan to be faulty or biased.</td>
<td></td>
</tr>
<tr>
<td>Charter</td>
<td></td>
<td></td>
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<tr>
<td>By-laws</td>
<td></td>
<td></td>
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</tbody>
</table>
| **Organizational Structure or Design** | - Balanced and broad standing group. (2)  
- A review entity with a sub-workgroups for specific topics. (2)  
- Facilitator and staff supported.  
- Consulting group style. (2) | - "I think it's worth mentioning that while the IMST was filled with very stellar and brilliant folks, its structure was too hierarchical and difficult to access based on its location in Salem and its pre-ordained focus on the "Salmon Plan" and state agencies."  
- "Review process may include multiple review sub panels. For example there could be an at-large group of scientists who would be assigned to multiple Science Discipline panels for each natural resource broad category or specific need (terrestrial wildlife, forestry, fisheries, water, and air etc.). These panel would each have a Chair position who would in-turn sit on the At-Large Panel that would convene as a Science Review Panel for larger, multi-disciplinary topics.” |
| **Reviewers** | - Strong Chair – accessible to the public. (2)  
- Experts in the field. (2)  
- Outside Oregon or outside the region.  
- Appointed and confirmed by Senate.  
- Scientists unafraid to challenge state NR agency decisions. | - "The independent scientific review task force needs to have an impartial chairperson that is available to the public to raise issues to be considered by the task force” |
| **Function** | **Focus areas** | - Flexible review group with variety of subject matters. |
| **Mission** | **Process** | **Who initiates?** | - Legislature/elected officials. (4)  
- Executive branch.  
- The reviewing entity.  
- Agency themselves. (3)  
- Other Agencies or state entities.  
- Two way agreement between reviewing board and agency.  
- Whistle blowers.  
- Public request. | - “For an independent science review to be initiated, effected stakeholders and resource managers should be organized into a collaborative or quasi-collaborative group where the majority explicitly agrees to request a third party, independent science review. In other words, formulating a formal science review team should not just happen in a vacuum as a sort of due diligence" |
Anyone proposing new policy or regulations.  
commissioned by an agency or non-profit. To the contrary, a third party review should require a request from some sort of formal collaborative structure for a given issue. Having a group of otherwise opposing stakeholder group agreeing to disagree, but also agreeing to consider a third party expert is an important foundation from which to initiate a science review.”

<table>
<thead>
<tr>
<th>At what point is it initiated?</th>
<th>Who has access?</th>
<th>What triggers a review/ Under what circumstances?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Everyone.</td>
<td>Better manage the landscape for future generations without the industry or environmental organization biases.</td>
</tr>
<tr>
<td></td>
<td>Only the state.</td>
<td>To make better decision regarding livability on both an individual and group basis.</td>
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<tr>
<td></td>
<td></td>
<td>Under any circumstance where an independent review body is felt to be needed for a future final decisions. (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Always or anytime. (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highly Controversial issues. (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When making policy that affects land use, treatment of physical or mental health conditions, instructional practices used in public funding schools.</td>
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<td></td>
<td>When there is a question around the science of the issue, but a robust dataset of research exist. (2)</td>
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<tr>
<td></td>
<td></td>
<td>Concerning Major policy items or changes. (3)</td>
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<tr>
<td></td>
<td></td>
<td>Public outcry.</td>
</tr>
</tbody>
</table>

"More folks need access to this type of review body such as local governments and quasi-governments.”

“Do not think that groups or organizations should be able to make use of an independent scientific review process - my recollection from SB 202 was that it was supposed to explore whether the STATE had a need.”
Any time there is a state agency management plan or science study released. (2)

<table>
<thead>
<tr>
<th>Process characteristics</th>
<th>Open, but not open to manipulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timeframe flexible to study needs (not rigid). (2)</td>
</tr>
<tr>
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<td>Transparent.</td>
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<td>Engagement with stakeholders.</td>
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<td>Must have public meetings and open for participation/comment.</td>
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<tr>
<th>Negotiating question, framing, and scope</th>
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**Timeline**

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<tr>
<th>Cradle-to-grave process steps</th>
<th>SEE DETAILED PROCESS STEPS BELOW</th>
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<tr>
<th>Products/Deliverables</th>
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<tr>
<td>Recommendations/Findings</td>
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<tr>
<th>Education/Outreach</th>
<th>Shared results with public.</th>
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<td>Public outreach of conclusions.</td>
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<td>Education materials.</td>
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| Implementation of findings | The group that I'm associated with would make use of information put out by the review process to make decisions on what practices to fund and direct our education outreach, and what organizations to form partnerships. |

| | It is not enough to have an independent scientific task force if the agencies are unwilling to implement recommendations of the task force. The task force not only needs to address the scientific competence of an agency action, policy or proposal, it needs to be able to cause institutional change. It is customary for independent scientific task forces to be treated by the agency as advisory making the work of the task force a waste of time and money. Institutional change in the management of natural resources is political and if the task force lacks the political and funding support of the agencies, the governor, and the legislature, institutional change cannot happen. |

Don’t reinvent the wheel.
Below are ISR processes suggested by stakeholder respondents

**Suggestion A**
1. Approach the Independent Science Review Team (ISRT) for permission to access their process. Submit the topic areas and draft questions as part of the application request.
2. An ISRT representative should query other ISRT members to determine if they would like to pursue this topic area and if so, a meeting with the applicant should be arranged to give an opportunity for both groups to answer questions about the proposal.
3. If it is agreed that the topic area is one that the ISRT members agree to take on, the ISRT members should follow a pre-arranged process for addressing the topic area both individually and as a group.
4. The applicant should submit the questions/topic area to members of the ISRT that are pre-selected to compile and distribute to ISRT members.
5. A period of time should be determined for each individual ISRT member to review and draft a response.
6. When the pre-determined time has been met, the ISRT should meet on 2 to 3 consecutive days to synthesize their individual comments into a single draft group document.
7. A Draft synthesis document should be created and distributed to the ISRT group for review.
8. After a pre-determined length of time, the ISRT should meet to discuss and agree to a final synthesis document (2-3 days).
9. Final draft created and sent to the full ISRT group for review.
10. Select a “Last opportunity” date for ISRT members to suggest changes.
11. ISRT comments should be finalized and sent to the Applicant.
12. ISRT should meet with Applicant (and possibly others) to present findings and recommendations.

**Suggestion B**
1. The task force can respond to an agency for a scientific review of a policy or management plan prior to it being adopted through a public process.
2. The task force can initiate its own review of issues independently whether the agency agrees or does not.
3. The task force is able to address not only the scientific and factual merits of an issue it can recommend policy changes for the agency to address in its management or proposed plan.
4. The task force would divide the issue up for review by relevant expertise on the task force and in the event that the task force is in need of additional expertise to invite participation from scientists to serve on the task force with full participation.
5. The conclusion of the task force review and recommendations should be made available to the public as well as dissenting comments.

**Suggestion C**
1. Request comes from legislature, executive, or agency.
2. Group evaluates whether or not there is capacity to meet the request and if there is a demonstrated need.
3. Group chooses to take it on or not. / Group crafts work plan, with a lead member appointed.
4. Work is completed and then the rest of the group does some sort of peer review.
5. Report is adopted and returned to the requestor and made public.

Suggestion D
Review by all parties, list of objectives, then a SWOT or priority setting process, review results, re-define priorities, get more data, review the data, re-visit priorities to see if data provides a clear answer, action plans developed, reviewed, prioritized and then agreed to.

Suggestion E
We recognize there are experts in the social dynamics of natural resource decision-making processes and would provide suggestions here with that in mind. Based on the successes of forest collaboratives in Oregon, it may be wise to require that a science review be initiated by a natural resource stakeholder group who formed a collaborative or quasi-collaborative entity. They would request a science review on a subject of which there is disagreement within their group. By requiring an otherwise opposing stakeholder groups to form such a group shows a prospective science review panel that relevant parties are acting in good faith and have the capacity to move forward based on a third-party science advise.

The review could include the following steps:
1. Request for a review from stakeholder group
2. Inquiry and decision to initiate a science review
3. Formation of a sub-panel of relevant scientists to the discipline(s) in question
4. Sub-panel meets with stakeholders together
5. Science review panel compiles and considers facts etc.
6. Science review panel produces a compilation paper & presents findings to stakeholder group "pub talk" form.
7. Science review panel submits findings to legislature, Governor’s Office, or other entities.

Suggestion F
1. Chair breaks management plan or scientific study to review team for
2. Individual study of plan/report
3. Discussion by the whole review team.
4. Open public comment.
5. Final decision on review.
6. Written report on review decision made available to agency concerned and to the public. 6.
7. If the review is negative, the agency concerned has opportunity to response or change plan.
Lessons Learned from the Literature

Recommendations, Lessons Learned and Pitfalls to avoid in the Organization and use of Independent Scientific Reviews


1. An effective ISR should ensure that high-quality scientific input informs government decision makers without creating another bureaucratic, expensive process that delays decisions and drains away limited resources from agencies.

2. ISR should be employed principally when an agency decision rests on scientific judgments or management actions that are controversial, seriously disputed, or arguably insufficient, especially when the decision carries the risk of creating lasting negative effects on environmental quality, the economy, or communities.

3. An ISR should be employed in a flexible manner appropriate to each situation; a prescribed, centralized, “one-size-fits-all” approach is unlikely to improve decision making and may in fact hinder it.

4. Budgets for environmental projects should include funds for ISR. The costs would be marginal, particularly when considering the value gained for agencies by efficient and expert review, and they could prevent larger agency costs later in the process.

5. The depth of ISR will differ among issues and at different stages of each issue. Possible formats range from informal “checks” with established authorities on particular points in question (which should be formally recorded as having occurred), to independent and formal commentary on proposals or other documents by reviewers, to major workshops that convene reviewers for interchange and debate.

6. Most environmental planning already occurs under a suite of laws designed to allow public access to information and input at particular stages of planning and implementation. We recommend inserting ISR into these existing processes at three distinct points: 1) informal or formal review of early ideas and initial (pre-release) draft plans; 2) formal written review once official draft plans or policies are released to the public; and 3) formal final review once final plans are released.
Scientific 'Republicanism': Expert Peer Review and the Quest for Regulatory Deliberation.

1. ISR is best understood as a supplement to, not a substitute for, existing forms of external scrutiny, i.e. public notice-and-comment procedures or judicial review of a regulation. Instead, by offering agencies a preview of likely objections, ISR can help them anticipate and hopefully minimize weaknesses in a new policy or regulation.

2. If conducted early in an agency's risk assessment, ISR can provide valuable expertise and diverse perspectives, and focus attention on at least some of the data gaps in time for corrections. Early ISR may also minimize the temptation for scientists to become distracted with the opportunity to offer advice on questions of policy more properly left in the agency's domain.

3. So long as its role is not exaggerated, independent expert scrutiny early in the rulemaking process may facilitate rather than displace public and judicial review of agency action.

4. ISR undoubtedly will promote greater care and reflection, and may help steer agencies clear of embarrassing and costly mistakes. But ultimately ISR cannot and should not displace the broader deliberative process about hard policy questions that science cannot answer.


1. The benefits of ISR should be carefully weighed against the immediate, direct costs of doing it, and potential indirect costs to the public in terms of health and environmental effects attributable to diverted agency resources, delayed access to information, and delayed implementation of rules.

2. Compared to research science, regulatory science involves more knowledge synthesis and prediction of likely outcomes, which involves more uncertainty and discretionary judgment. Regulatory science generally has a lower burden of proof for validity due to this uncertainty. Regulatory science operates at the margins of existing knowledge, with fewer settled questions and basic assumptions still open to debate. Guidelines for evaluating regulatory science are thus fluid, controversial, and arguably more politically motivated than those for evaluating research science. ISR of regulatory science must take these differing goals and guidelines into account when evaluating the quality of scientific studies. The need to cope with uncertainty and the role of policy judgments in the choice of standards and norms for regulatory science must be acknowledged and accommodated in any ISR process.

3. Early ISR allows potential flaws, weaknesses, and uncertainties to be identified and dealt with before the agency invests significant time and resources in drafting a proposed regulation, rather than waiting until after the regulation is proposed to open it for public comment on the underlying science.
4. Regulatory science that deals with uncertainty is easily turned into a target for political actors and litigants to attack as "bad science." To the degree that it can help distinguish between uncertainty, policy judgment, and fact, ISR can help agencies counteract this misleading and counterproductive criticism and focus debate on the proper assumptions and policy judgments to be made, considering the facts and uncertainties surrounding the proposed regulation.


1. In order to be most effective, science panels also should understand the context of their decision-making. Bruce Smith believes, for example, that the Science Advisory Board (SAB) at the United States EPA only became a truly useful body to the agency after developing an expertise in regulatory science.

2. Participants on science panels must do more than provide cosmetic balance. Institutional representation does not always equal contribution. While many working models of science review strike a delicate balance of expertise and affiliation, it is expertise and the ability to contribute meaningfully to the final product that must dominate in selection.

3. Bureaucracies are not places that encourage the risk-taking, creativity or "give and take" atmosphere that are the hallmarks of the ISR process. The flip side of this coin is that the agencies sometimes attempt to change recommendations. Recommendations must not be subject to change by the staff if the credibility of the scientific enterprise is to be maintained.

4. The job of science advisor is very specialized. It is important to have scientists on the panels with an interdisciplinary bent who understand the administrative process. Several scientific respondents indicated that they have many more invitations to participate on panels then they can reasonably accept. For this reason, scholars recommend that scientific panels be used sparingly (and only for the most important issues) to avoid draining scientific resources or creating another layer of bureaucracy that delays decisions.

5. To streamline the process and avoid irregularities, [science] question development should follow several guidelines. First, questions should be asked at the earliest stage of a problem to allow scientists to offer guidance well in advance of actual decision-making. Second, questions should be dealt with when there is sufficient information to evaluate the technical merits of an issue based on standards of scientific proof. Third, questions should be addressed of the utmost importance to the agency such as when a decision carries a high risk of lasting harm to environmental quality, nature, the economy and communities. Fourth, questions should be asked when science is controversial, in dispute or inadequate. Finally, the actual format of the questions is significant. Questions should be formulated in small sets of very focused scientific questions that are answerable in a reasonable time-frame.

1. Because study sponsors reveal an inherent bias in choosing when they favor peer review, the power to empanel an ISR should be spread among multiple interests, and certainly not held by a single lawmaker.

2. When fielding congressional requests, the decision to conduct an ISR should require a threshold number of bipartisan legislators to ensure the review would serve multiple constituencies, instead of a single lawmaker's desired political goals.

3. Requests for ISR could be vetted for anticipated effectiveness and benefits by policymakers and scientists who are insulated from any vested interest in receiving funding to conduct such reviews.

4. Regardless of the criteria used to decide whether to proceed with a review – e.g. the importance and timeliness of the question, the level of controversy, the likely impact of the report, whether there is an adequate scientific evidence base to support a review – this decision process should transparent and documented to the degree possible.


1. To design effective ISR procedures, it is necessary to understand the major differences between academic and management science, including:
   - Final decisions. Scientists are trained to be critical and cautious and to make only statements that are well supported. Managers must make decisions with whatever information is available. Scientists usually send incomplete work back for further study; managers typically cannot. Managers must also weigh legal concerns, public interest, economics, and other factors that may have little basis in hard data.
   - “Best available” science. Managers are instructed to use the best available science. Scientists may regard such data as incomplete or inadequate. Reviewers’ statements that the evidence in hand does not meet normal scientific standards will be irrelevant to a decision maker who lacks alternatives and must by law make a decision.
   - Competing ideas. In pure science, two competing theories may be equally supported by data, and both may produce publishable work. Management needs to know which is best to apply to the issue in question.
   - Reviewers as advocates. In academia, it is assumed that a reviewer is impartial and sets aside any personal biases. In management situations, it is assumed that reviews solicited from environmental advocates or development interests will reflect those points of view.
   - Speed. Academic reviews are completed at a leisurely pace. This is not acceptable in management situations.
- **Anonymity and retaliation.** Academic reviews are typically anonymous to encourage frankness and discourage professional retaliation. Reviews in management situations usually must be open to promote dialogue. Some scientists will be reluctant to make strong statements if they are subject to public scrutiny.

- **“Qualified” versus “independent.”** Often the scientists best qualified to be reviewers of a natural resource issue are already involved in it. Finding qualified reviewers who understand the rationale and context of issues at hand may require balancing demonstrable independence and depth of understanding.

- **Language.** Managers and decision makers may not be familiar with the language of science. Statistical issues are particularly likely to cause confusion.

- **Reward structure.** In academic science, reviews are performed free of charge for the common good and to add to scientific discourse. Hence they are typically given a low priority. In management situations, this will not work. Rewards—financial and otherwise—are necessary for timeliness and simply to encourage reviewers’ interest in the first place.

2. The following principles provide a starting point for effective ISR: 1) The goals of peer review in each case must be clearly stated; 2) Clear roles for reviewers must be spelled out; 3) Impartiality must be maintained to establish credibility; 4) A balance must be sought between independence and expertise of reviewers; 5) Training of reviewers may be necessary; 6) A reward structure must be specified; 6) Early involvement of scientists will give better results than will post-hoc evaluations.
Resources for Designing an ISR Process

Introduction: The National Academies of Science, Engineering, and Health, and their operational arm the National Research Council (NRC) are the most commonly-used models for state-level academies of science and other ISR entities. Below are categories of web-based resources derived primarily from the National Academies and NRC, (but also other ISR entities) that can inform development of an ISR process for Oregon.

1. Organizational Structure
   A. National Research Council Articles of Organization:
      http://www.nationalacademies.org/nrc/na_070358.html

2. Review processes
   A. National Research Council Study Process (PDF, 4p brochure):
      http://www.nationalacademies.org/site_assets/groups/nasite/documents/webpage/na_069618.pdf
   B. Working with the National Academies: A Guide for Prospective Study Sponsors (PDF, 4p brochure):
      http://www.nationalacademies.org/site_assets/groups/nasite/documents/webpage/na_069619.pdf
   C. California EPA External Scientific Peer Review Guidelines:
      http://www.swrcb.ca.gov/water_issues/programs/peer_review/docs/exhibit_f.pdf
   D. Navigating the California EPA External Scientific Peer Review Process:
      http://www.swrcb.ca.gov/water_issues/programs/peer_review/docs/process_guidlines_2013_external_scientific_peer_review_final.docx

3. Guidance for selecting reviewers, identifying conflicts of interest, maintaining independence.
   The ISR literature notes that the goal is achieving a balance between expertise and impartiality. This can be challenging because scientists best qualified to be reviewers of a natural resource issue are often already involved in it.
   A. National Academies policy for Committee Composition and Balance and Conflicts of Interest for Committees (PDF, 11p):
      http://www.nationalacademies.org/site_assets/groups/nasite/documents/webpage/na_069688.pdf
   B. National Academies policy on conflict of interest:
      http://www.nationalacademies.org/coi/
   C. National Academies Background Information/Conflict of Interest (BI/COI) form:
      www.nationalacademies.org/coi/bi-coi_form-3.doc

   NAS process for selecting ISR committee members: Staff solicits extensive suggestions for potential committee members from a wide range of sources, and then recommends a slate of nominees. Nominees are reviewed and approved at several levels within NAS; a provisional slate is then approved by NAS president, who also chairs NRC. Provisional committee list is posted for public comment on Web. Provisional committee members
complete background information and conflict-of-interest disclosure forms. Committee balance and conflict-of-interest discussion is held at 1st committee meeting. Any conflicts of interest or issues of committee balance and expertise are investigated; changes to committee are proposed and finalized. Committee is formally approved. Committee members continue to be screened for conflict of interest throughout life of committee.

D. Serving on the Environmental Protection Agency Science Advisory Board (SAB):
Building a Flexible Process for ISR

“An ISR should be employed in a flexible manner appropriate to each situation; a prescribed, centralized, ‘one-size-fits-all’ approach is unlikely to improve good decision making and may in fact hinder it....we offer no single recommended or standardized format for good ISR because circumstances vary greatly by issue; in fact, we strongly caution against a set format. The depth of review will differ among issues and at different stages of each issue.”


From the Literature

If a “one-size-fits-all”, standardized format for ISR is not recommended, then what are some options? The ISR literature suggests that to build a flexible ISR process that can be tailored to different types of issues and circumstances, it may be useful to consider:

1. **A range of ISR products or services.** These could include:
   
   A. Informal or formal consultations or roundtable discussions with some combination (depending on the circumstances and issue at hand) of agency staff, independent science experts, stakeholders, and legislators.
   
   B. Formally researched and written reviews or consensus reports of the scientific underpinnings of a policy or regulation, using a panel of independent experts. The literature suggests that this is the most common type of ISR.
   
   C. Workshops, conferences or symposia that convene reviewers and, depending on circumstances, agency personnel, legislators, stakeholders, or the public for interchange, debate and social learning regarding scientific evidence.
   
   D. White papers or knowledge syntheses on issues of particular interest and policy relevance. This type of product is often initiated internally by science experts serving on a standing ISR panel on topics they feel are important to the host agency and/or stakeholders and the public.

   Some ISR entities - e.g. IMST, EPA Science Advisory Board - offer two general categories of products: 1) focused reviews that are requested externally by a political body (e.g. Congressional committee), state or federal agency, stakeholders or the public, and 2) science synthesis products initiated internally by ISR entity members on broader topics they deem important to the agency mission, stakeholders or the public, or that lay out the science bases for the entity’s more focused, externally requested reviews.

2. **ISR of varying depth, rigor, and comprehensiveness,** depending on 1) the complexity and/or level of controversy surrounding the issue, 2) the potential risks or impacts of over- or under-regulation, or improper use of the scientific underpinnings, 3) timelines and resources available to conduct the review.
A. Consider the range of expertise needed (different fields) - more complex issues may require a larger number of reviewers in order to include the necessary diversity in fields of relevant expertise.

B. Also consider the depth of expertise needed in each particular field. In some cases - e.g. particularly controversial issues - it may be advisable to include 2-3 reviewers for each area of expertise to account for different viewpoints within each field.

C. The available timeline can affect the potential rigor of a review, and the amount of resources needed. With more time, a smaller group of reviewers may be capable of the same rigor as larger group of reviewers working under a shorter timeline.

3. Deploying ISR at different stages of the policy development or rule-making process. This could involve use of different products or services at different points - e.g. a consultation at the beginning, a workshop or forum midway through, and a scientific review of the draft final product.

A. Analysis suggests that the utility of ISR can be maximized by invoking it early in the process, i.e. “getting off on the right foot”. This could take the form of informal or formal consultations, workshops, etc. Consultations are usually documented as part of the administrative record.

B. Depending on the complexity, media attention, stakes or controversy surrounding the issue, some sort of “progress check” midway during the process may also be beneficial. (The NWPCC-ISRP 3-Step Review process of costly, multi-stage projects is one example.)

C. For high profile or complex issues, an ISR of the draft policy or rule before it is finalized and made public may be beneficial, provided that this is planned for from the start. (“Second-guessing” of agencies by invoking ISR after a final product has been made public may increase controversy and stall the process rather than reduce controversy and expedite decision making.)

From other ISR Entities

Below is a table showing the range of products and services offered by several different international, federal, and state-level ISR entities. NOTE: An attempt has been made to place similar products and services in the same columns, but these do not always align.
<table>
<thead>
<tr>
<th>ISR Entity</th>
<th>Product or Service 1</th>
<th>Product or Service 2</th>
<th>Product or Service 3</th>
<th>Product or Service 4</th>
<th>Product or Service 5</th>
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<tbody>
<tr>
<td><strong>National Academies/National Research Council</strong></td>
<td>Peer-reviewed consensus reports by study committees convened to answer specific sets of questions</td>
<td>Commissioned white papers on policy issues of special interest</td>
<td>Proceedings, summaries or reports for workshops, conferences, symposia, roundtables</td>
<td>Journals &amp; Periodicals</td>
<td>Electronic media-e-newsletters, RSS news feeds, social media</td>
</tr>
<tr>
<td><strong>Independent Multidisciplinary Science Team (IMST)</strong></td>
<td>Formal reviews requested by OR Plan partners: comprehensive assessments of scientific basis for management of resources relative to OR Plan. (More focused, shorter than independent products.)</td>
<td>Independent technical/scientific syntheses (projects)- provide groundwork and background information for IMST reviews. Independent reviews initiated by IMST</td>
<td>Technical workshops and workshop reports (syntheses and summaries) on topical issues</td>
<td>Recommendations requiring formal responses; advice or clarification on technical issues relevant to OR Plan; briefings to Governor’s Office and state legislative committees</td>
<td>Scientific literature/publication database</td>
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<tr>
<td><strong>CSAS - Fisheries and Oceans Canada/Canadian Science Advisory Secretariat</strong></td>
<td>Science Advisory Reports include traditional Stock Status Reports, Ecosystem Status Reports, and Habitat Status Reports</td>
<td>Research documents: The scientific basis for evaluation of fisheries resources in Canada</td>
<td>Proceedings: Record the activities at meetings or workshops of which Fisheries &amp; Oceans Canada is a sponsor</td>
<td>Science responses: To urgent/unforeseen requests for scientific information/advice or to requests for which advisory precedents already exist</td>
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<tr>
<td><strong>Environmental Protection Agency, Science Advisory Board (SAB)</strong></td>
<td>Peer-reviewed reports on EPA documents-typically regulations under Clean Air Act, Clean Water Act, others under EPA purview</td>
<td>Commentaries or more extensive original reports on topics deemed important to environmental protection</td>
<td>Workshops on important scientific issues. Sponsored meetings where EPA can learn from work of highly qualified technical people</td>
<td>Advisories when SAB has reviewed EPA works-in-progress Rapid Consultation in event of emergencies, e.g. Hurricane Katrina</td>
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<tr>
<td><strong>Independent Scientific Advisory Board (ISAB) for NW Power and Conservation Council, Columbia Basin Indian Tribes, NOAA Fisheries</strong></td>
<td>Fully researched and documented formal reports for technical/peer and administrative audiences-high detail &amp; long timelines</td>
<td>Focused reviews for administrative or technical/peer audiences-moderate detail &amp; timelines</td>
<td>Less fully documented memos or opinion letters for administrative audiences-low detail &amp; short timelines</td>
<td>Formal consultations for administrative or technical/peer audiences-detail &amp; timelines as needed</td>
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<td><strong>Product/Service→</strong>&lt;br&gt;ISR Entity ↓</td>
<td><strong>Product or Service 1</strong></td>
<td><strong>Product or Service 2</strong></td>
<td><strong>Product or Service 3</strong></td>
<td><strong>Product or Service 4</strong></td>
<td><strong>Product or Service 5</strong></td>
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<td>Northwest Power and Conservation Council, Fish &amp; Wildlife Program Independent Science Review Panel (ISRP)</td>
<td>Regular BPA/NWPCC reviews of F&amp;W projects- incorporate successful elements of previous reviews. Most recent models: category and geographic reviews</td>
<td>Iterative, 3-step reviews of complex, expensive projects involving planning, design, construction, and implementation phases</td>
<td>Retrospective reports on how projects change objectives, strategies, and methods based on learning from results of previous actions</td>
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<tr>
<td>Pacific Fisheries Management Council (PFMC) Scientific and Statistical Committee (SSC)</td>
<td>Multidisciplinary scientific reviews of fishery management plans (FMPs), stock assessments, rebuilding plans, etc. Advises PFMC on scientific content</td>
<td>Identifies scientific resources required for development of FMPs and amendments</td>
<td>Evaluations of science information- statistical, biological, economic, social, etc.</td>
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<td>Recommendations on composition of plan development, technical, and management teams</td>
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<tr>
<td>Washington State Academy of Sciences</td>
<td>Study committee reports; peer-reviewed and board-approved</td>
<td>Independent white papers, e.g. genetically modified foods</td>
<td>Proceedings of annual symposia</td>
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<tr>
<td>Virginia Academy of Science, Engineering and Medicine</td>
<td>Studies: scientific analyses, technical evaluations, clinical evaluations and analysis of policy issues in a technical context</td>
<td>Reports, based on topical annual conferences, e.g. 1) unmanned aerial systems, 2) vehicular transportation, 3) “big” data, 4) smart and connected health care</td>
<td>Conferences on important scientific topics, some of which are open to public</td>
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1SAB reports use a standardized template with different parts targeted to specific audiences. The **cover letter** addresses the larger science issues in a policy context meaningful to the EPA Administrator, summarizing the charge, key findings and recommendations with minimal technical jargon and detail. The **executive summary** is directed at senior EPA managers and provides more detail on issues addressed in the report, including summary responses to each charge question. The **report body**, written for EPA scientists, contains the greatest level of detail along with supporting scientific references, data and analysis.
Input from Other Science Review Programs

The information below is the direct input received from representatives or directors of ISR programs or entities. The information was gathered through the Qualtrics survey and three phone interviews. The information is collated under three questions the respondents were asked. We thought it worthwhile for the task force to be able to read the responses of other program directors/managers who have intimate knowledge of leading ISR’s.

We’d also like to draw your attention to the lessons learned (p.33) mentioned by Respondent 4.

1. If you had the opportunity to design an independent scientific review process for the state of Oregon, based on your experiences, how would you set it up?

   RESPONDENT 1: This is a rather open ended question, which depends upon the nature of the review. I have been involved (lead) a number of scientific reviews, discussed below:
   1. On-going scientific advisory committee's/panels
   2. Advisory committees set up for a specific (and generally short term) purpose
   3. Single person, single issue reviews

   RESPONDENT 2: The model in the state of Washington with a Science Academy consisting of experts in their respective scientific fields (broadly defined) provides a substantial base of knowledge to make an independent assessment and review of scientific information.

   Thus, the Washington State Academy of Sciences provides expert scientific and engineering analysis to inform public policy-making, and works to increase the role and visibility of science in the State of Washington.

   Members of the Washington State Academy of Sciences come from academic research, government, and industry, and represent a broad range of scientific, technical, and engineering fields. All members are residents of Washington State and U.S. citizens or legal permanent residents.

   The Founding Class of WSAS members was constituted by invitation. All Washington scientists, engineers, and other researchers who have been elected to the National Academy of Sciences, the National Academy of Engineering, or the Institute of Medicine were offered the opportunity to join WSAS. Of the 156 who were invited, 105 agreed to join and participate in the scientific advisory work that is the organization's mission. The Founding Class of members was inducted in November 2008. New members of WSAS are now elected annually by a process developed by the Nominations Committee and in accord with WSAS bylaws. There are currently more than 250 members covering the disciplines of Physical and Mathematical Sciences, Engineering and Technology, Biological Sciences, Health Sciences, and Social and Behavioral Sciences.

   WSAS Public statement policy - Mission statement: The Washington State Academy of Sciences (WSAS) provides expert scientific and engineering analysis to inform public policy-
making, and works to increase the role and visibility of science in the State of Washington. Study committee reports are the main official products of the WSAS. Whether studies are requested by external sponsors or initiated and funded by the WSAS, study reports summarize the analyses and conclusions of committees established under the guidelines of the WSAS. Reports are vetted by the WSAS review process and approved for publication by the Board of Directors. WSAS does not recommend policy. It does not take positions on contested public issues. Its analyses and conclusions are strictly non-partisan. It does not accept commissions for studies designed to advocate particular legislation. Its studies and resultant peer-reviewed and board-approved reports provide the basis for informed public discussion and decision. No statement or document that has not been approved by the Board and posted on the website for public access should be considered an authorized statement or recommendation of WSAS.

RESPONDENT 3: First of all, I don’t know how to avoid being self-serving. The NAS is the gold standard. We are expensive, and I am not sure the state could afford it. My advice is to contact Jane Lubchenco at OSU who used to work with NOAA and is a member of NAS. She can provide in depth details about the work that is done here and how it can transfer to the state of Oregon. If I were the state of Oregon and felt like I couldn’t afford an exhaustive process, I would have a look at the description of our study process and then tinker with it to accommodate your needs.

RESPONDENT 4: Depends on the needs for the state. We have two review groups that have very different approaches ISAB can be more like a think tank at times but the ISRP is more of a reviewing group that reviews proposals and existing programs. This is what we call adaptive management, where we review results of the projects and improve it or aid with the implementation of results.

When I think of review process I think of informing decision makers, providing guidance on conflicting science, and providing some information on the soundness of science. A review can provide different ways of looking at a topic but, like with the ISRP, there is an accountability function.

If there are different program managers the groups can look at various science topics. In addition, a review group can see the big picture and look at programmatic themes that usually cut across fields that individual entities would not get. Oregon is covering a lot of territory with “natural resources” so there needs to be balance and direction and clear purpose [for an ISR entity]. Understanding the purpose will inform what kind of group you have. Having a broad multidisciplinary groups can cut across issues, i.e. climate change human development, impact of non-native species. However, it depends on what type of group you want. The question becomes how does independent scientific reviews effect decision making? For example, the role of ISAB is more of review. Other times we are given specific documents to review which will directly inform and impact the program being reviewed. Recognize the objective of your review group and incorporate those perspectives into the plans for a long term educational way of changing things. In the end, the review process should be a part of the schedule, including public comment, for
any study and it therefore affects budgeting/funding up front. Each review entity will have a different goal but there must be a public outreach part of it, knowing that the purpose is to improve knowledge of those working in the field.

I also thought it was interesting that the legislation stated “independence”, but what does it mean?
- In or legislation it is clear that we mean a financial conflict of interest, so our reviewers are not associated with the agencies nor are they receiving contracts from the entity being reviewed. Therefore most of the standard work that we do uses reviewers that are outside of the region, retired, or consultants. To insulate ourselves from conflict of interest claims, we use the same process as the NAS. We can’t have any conflict because it will dampen the impression of independence.
- Bias is another element of conflict but our approach is to just have an understanding that as humans we have bias. So we put those on the table to be figured out internally, and reviewers will recuse themselves if need be. Reviewers are there because of their scientific credentials so they are pulled for their expertise not necessarily because of their sector. It becomes more challenging in your case if you are trying to include stakeholder groups which may bring in more of a bias.
- The ISAB can raise their own questions or suggest a review, but in the end they have to go through an oversight process that would approve the assignment.
- The final aspect of independence is editing your draft, etc. without requirements from outside influence. The sponsor and public get the final reports at the same time, but never the drafts. I saw SB202 question whether the decision makers should be required to respond to the review? For ISAB, there really isn’t that function, you just see it change overtime. But with the ISRP if the conclusions are disagreed with they have to put it in writing which is a much more direct way (in writing) of how to deal with the scientific review. I think is a good function to have because it creates an expectation that they will use the review (don’t want them to be documents on the shelf).

2. What have been the most salient lessons learned from your system, and what advice would you offer Oregon regarding the organization and use of independent scientific reviews?

**RESPONDENT 1:** From my experience the key factors in a successful review process include:
* an experienced chair * the quality and experience of the members of the committee * a well-defined set of objectives and review process (good term of reference) * good professional support for the committee * clear guidelines on whether the process needs to involve stakeholder engagement.

**RESPONDENT 2:** The bottom line is that it works! Those who use this system acknowledge that the final products are bias free.
RESPONDENT 3: It must be totally independent and use top experts. Independence is having the process under complete control by the reviewing entity. It is the process that maintains independence. The statement of task is approved internally after suggested by the sponsor. Sponsor is invited to make suggestions for experts but we are not obligated to appoint them. Then the sponsor can participate in the open committee meetings so the committees understand the necessary background information. There is the Federal advisory committee act, but we are exempt mostly from it. Whenever we meet outside of the academy it must be open and pre advertised.

RESPONDENT 4: LESSONS LEARNED
- We started with a simple, anonymous paper review process then released a final report, but those being reviewed or associated with the project didn’t feel like they had the chance to be heard. So we worked into our process to have presentations from those being reviewed to provide context. This includes a response to a review of a proposal, however the reviewers are not obligated to incorporate or respond to the public comments before making their final report. Our drafts stay internal but the council is very open and transparent.
- You must be very conservative with the conflict of interest. The success and use of our work is built on maintaining impartiality and the perception of independence. Therefore we take financial conflict of interest seriously and are very conservative when deciding whether appoint a reviewer, even if it is on something that may seem well removed.
- Context is important – the reviewers need to have as much context as possible in order to review. It is important to have members of the tribes, federal agencies and others on the reviewing panels. Although they are not representing their groups by being there, they will have a clear understanding of what info their organization/group would need the most and how they study can be framed or worded to be effective and beneficial to all.
- In policy and science there are a lot of grey areas. The policy-type recommendations are often challenged and our advice with policy decisions is less likely to be used. Comments on recommendations regarding policy have been that the reviews should be focusing on the science. But obviously what we do is meant to inform policy.
- It costs money! The broader type reviews that are open ended are going to cost more than those that are specific or to review a documents.
- There are many entities that do these reviews. A lot of agencies have their own internal science so the questions we get from them to study are different and the way they use our advice is different.
- If anticipating to design a group that will get requests for reviews throughout the year, then a standing budget is necessary. Asking reviewers to do it just on a volunteer basis wouldn’t work. But if it’s a one-time only report, if it may be fine to ask for them to volunteer their time.
- Results really depend on who writes up the report. Staff should just be administrators or facilitators but the scientists need to be the ones that write it.
- Administratively, there are a million lessons learned. Contact me again when you get to that step.

Structure Options:
1. Like and NRC they are given questions, and then they constitute a group – then write reports that inform decision making. Their scientists are not paid but staff are paid. It is important to understand the workload of a standing committee.
2. It may be interesting for you to have a continuous group of a small core group and then for particular reviews having external advisors to augment the core group in order to undergo a review.

Possible Strategy: have national entities approve or suggest your reviewers. We have the NAS review who we appoint which also helps in developing a relationship with a larger entity. It is good to have your own group because you can’t go back to the federal/NAS system every time.

3. Please list any specific webpages or documents that explain your independent scientific review program’s structure, function, or processes.
   - **RESPONDENT 1:** You could find information by Googling the above reviews
   - **RESPONDENT 2:** Please see the following web links to learn how the Academy operates in carries out independent science review and legislative establishment of academy.
     - [http://www.washacad.org/about/WSAS_fact_sheetFINAL.pdf](http://www.washacad.org/about/WSAS_fact_sheetFINAL.pdf)
     - [http://www.washacad.org/about/index.html](http://www.washacad.org/about/index.html)
     - [http://www.washacad.org/about/articles.html](http://www.washacad.org/about/articles.html)
     - [http://www.washacad.org/about/legislation.html](http://www.washacad.org/about/legislation.html)

   - **RESPONDENT 3:** The study process is on the website. Nas.edu
   - **RESPONDENT 4:** In 2005 the ISRP did a retrospective report that looked at the results of their peer review project: [https://www.nwcouncil.org/fw/isab/](https://www.nwcouncil.org/fw/isab/)
Example List of Entities in Oregon

Universities

Institute for Metropolitan Studies (PSU)
Oregon Solutions (PSU)
Institute for Natural Resources (OSU, PSU)
Institute for Sustainable Solutions (OSU)
Institute for a Sustainable Environment (UO)
OSU College of Forestry
OSU College of Agriculture
University of Oregon Law School (OU)
Oregon Climate Change Research Institute (OSU)
Oregon State Academy of Sciences
School of Public Policy (OSU)

NGOs and Professional Associations

Sustainable Northwest
EcoTrust
The Nature Conservancy
Oregon Forest Resources Institute
Oregon Chapter of the Wildlife Society

Consulting Groups