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Results from a survey to assess the perceptions, value, and goals of the Tahoe Science Consortium

Zachary P. Hymanson and Jill Falman

Tahoe Science Consortium

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For further information or to obtain a copy of this document contact the Tahoe Science Consortium, 291 Country Club Drive, Incline Village, NV 89451. (775) 881-7566.
www.tahoescience.org

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Executive Summary

A web-based survey was conducted between November and December 2008 to obtain input on the perceptions, value, and goals of the Tahoe Science Consortium (TSC). Through its 17 questions, the survey provided an opportunity for individual input on the appropriateness of the TSC's primary objective and to assess the value of TSC efforts as perceived by a variety of individuals working in the Tahoe Basin. The survey also included a question about potential programmatic goals the TSC could pursue in the future. An invitation to complete the survey was distributed via the internet to approximately 450 individuals. The 140 respondents (~30% response rate) to the TSC survey identified themselves as associated with one of seven affiliations: Federal Government, State Government, Regional Government, Local Government, Environmental Group, Business/Property Rights Group, and Research Scientist. Where possible, the survey responses are grouped by affiliation, and the survey results should be read as a reflection of the group as a whole, rather than individual input.

Nearly two-thirds (63%) of the respondents reported having substantive interactions with the TSC (i.e., an ongoing working relationship or a direct short-term interaction dealing with a specific issue or topic). Respondents identified a diversity of topics of interaction with the TSC or science community, reflecting the range of subject areas considered in the Tahoe Basin. Five topics (invasive species, air quality, water quality, soil conservation/ecology, and forest management/ecology) were selected 70% of the time as the topics of interaction with the TSC or science community.

The TSC Memorandum of Understanding (MOU) states that "the primary objective of the Consortium will be to provide environmental managers and decision makers with comprehensive and well-synthesized scientific findings drawn from research, monitoring, and modeling." A majority of respondents from all affiliations (94%) agreed that the MOU objective should remain the primary objective of the TSC. Several of the responses suggested the programmatic goals of the TSC should specifically include the main services it currently provides: science planning, peer review, and technical assistance. This indicates the TSC needs to better communicate the services it provides.

Survey respondents were asked to rate the importance of four programmatic goals the TSC could pursue. Overall, survey responses suggest the strongest support in having the TSC pursue the programmatic goals of (1) maintaining an applied research agenda for the Lake Tahoe Basin, and (2) providing the capacity to integrate and synthesize data and information on the effects and effectiveness of capital improvement/restoration projects. These programmatic goals will be used in developing a strategic plan for the TSC.

The survey included a number of questions to assess respondents' perceptions of the TSC's value in addressing science needs and supporting science services in the Tahoe Basin. Results from this section of the survey were mixed with some indication that the value added by the TSC in its first three years of operation was slight to moderate overall. The relatively high percentage of respondents (up to 27%) who could not

assess specific value characteristics of the TSC indicates the need for the TSC to bolster its communication efforts. The responses regarding the TSC's value establish a baseline that could be used to evaluate changes in perceptions of TSC value over time, if this survey is repeated.

A broad spectrum of narrative responses was received from representatives of all affiliations. Some responses were highly critical of the TSC or its representatives, although others were complimentary. Numerous constructive suggestions were provided, but some suggestions related to entities or programs outside the purview of the TSC. Narrative responses to several questions indicate many individuals are unfamiliar with the current services provided by the TSC or think the TSC needs to do more to communicate and disseminate scientific data and information to all sectors in the Tahoe Basin (e.g., the public, stakeholders, project implementers, or government agencies). Better distribution of data and information, including products from inside and outside the Tahoe Basin was strongly desired. The need for the TSC to bolster its communication strategies is broadly apparent. In developing a strategic plan, the TSC also should consider development of a science communication strategy.

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Introduction

A web-based survey was conducted between November and December 2008 to obtain input on the perceptions, value, and goals of the Tahoe Science Consortium (TSC). Through its 17 questions, the survey provided an opportunity for individual input on the appropriateness of the TSC's primary objective and to assess the value of TSC efforts as perceived by a variety of individuals in working the Tahoe Basin. The survey also included a question about potential programmatic goals the TSC could pursue in the future. Results from the survey will be used to guide the TSC's efforts to maintain and improve its value. The results also will serve to guide the development of a strategic plan for the TSC.

Methods and Sample

An invitation to complete a survey about the TSC was distributed via the internet to approximately 450 individuals (Appendix A). The survey was available through a web site maintained by the University of California Cooperative Extension (UCCE, Appendix B). Survey questions were developed by the TSC, but survey distribution and responses were managed by UCCE staff to avoid any perception of bias. 140 individual survey responses (~30% response rate) were received over a six-week period, although the number of responses to individual questions within the survey varied.

Individual survey results were compiled in an Excel spreadsheet for summary and analysis. The results presented below represent all of the survey data received. Data are presented for each question with the interpretations of results grouped among three different sections: 1) respondent characteristics, 2) TSC objective and programmatic goals, and 3) perceptions of TSC value. In most cases, the data are presented as response frequency histograms, with responses from each affiliation (e.g., federal government or research scientist) grouped within the relevant categories. The responses within an affiliation are considered a reflection of the group as a whole, rather than individual input. In some cases, the results are a compilation of narrative comments received. Narrative comments are grouped by affiliation to provide additional insight into the general perceptions of an affiliation (e.g., comments for an affiliation are generally positive or negative). All narrative comments are presented in Appendix C. The order in which narrative comments are listed does not imply any order of importance or priority. Narrative comments were only modified to correct grammar and spelling errors.

Respondent Characteristics

Survey responses were received from representatives of all seven targeted affiliations: Federal Government, State Government, Regional Government, Local Government, Environmental Group, Business/Property Rights Group, and Research Scientists.

However, the number of responses varied among the different affiliations (Figure 1). The business/property rights group response was very small (2 responses), and although the individual responses are included in subsequent figures, the results are not necessarily considered representative of this group. In contrast, the number of responses (41) from the research scientist group was substantially larger than any other group. The disproportionately large research scientist response raised concerns that this group could skew the interpretation of survey results if all the responses were combined. Consequently, data presented in subsequent figures are segregated by affiliation to allow the reader to examine the distribution of responses within and among response categories.

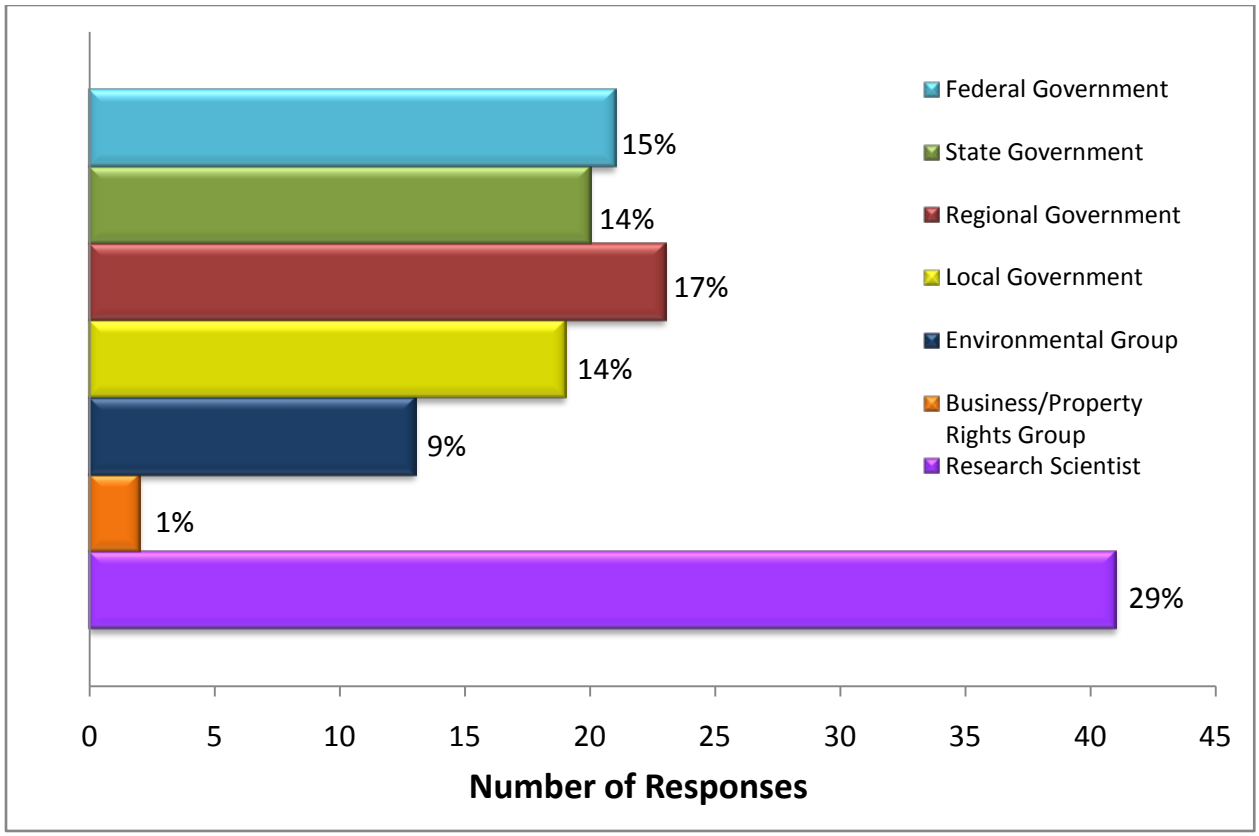

Figure 1. Responses to survey question one: *What is your affiliation?* The percentage value associated with each bar is the proportion of all respondents representing that affiliation. The data include 139 individual responses (n=139) grouped within seven different affiliations. The same affiliation color codes are used in all subsequent figures.

Ninety-two percent of the respondents reported having some level of interaction with TSC representatives, its products, or both (Figure 2). Nearly two-thirds (63%) of the respondents reported having substantive interactions with the TSC (i.e., an ongoing working relationship or a direct short-term interaction dealing with a specific issue or topic). All affiliations are represented in the respondents reporting an ongoing working relationship with the TSC, showing the TSC is able to work with a broad base of affiliations.

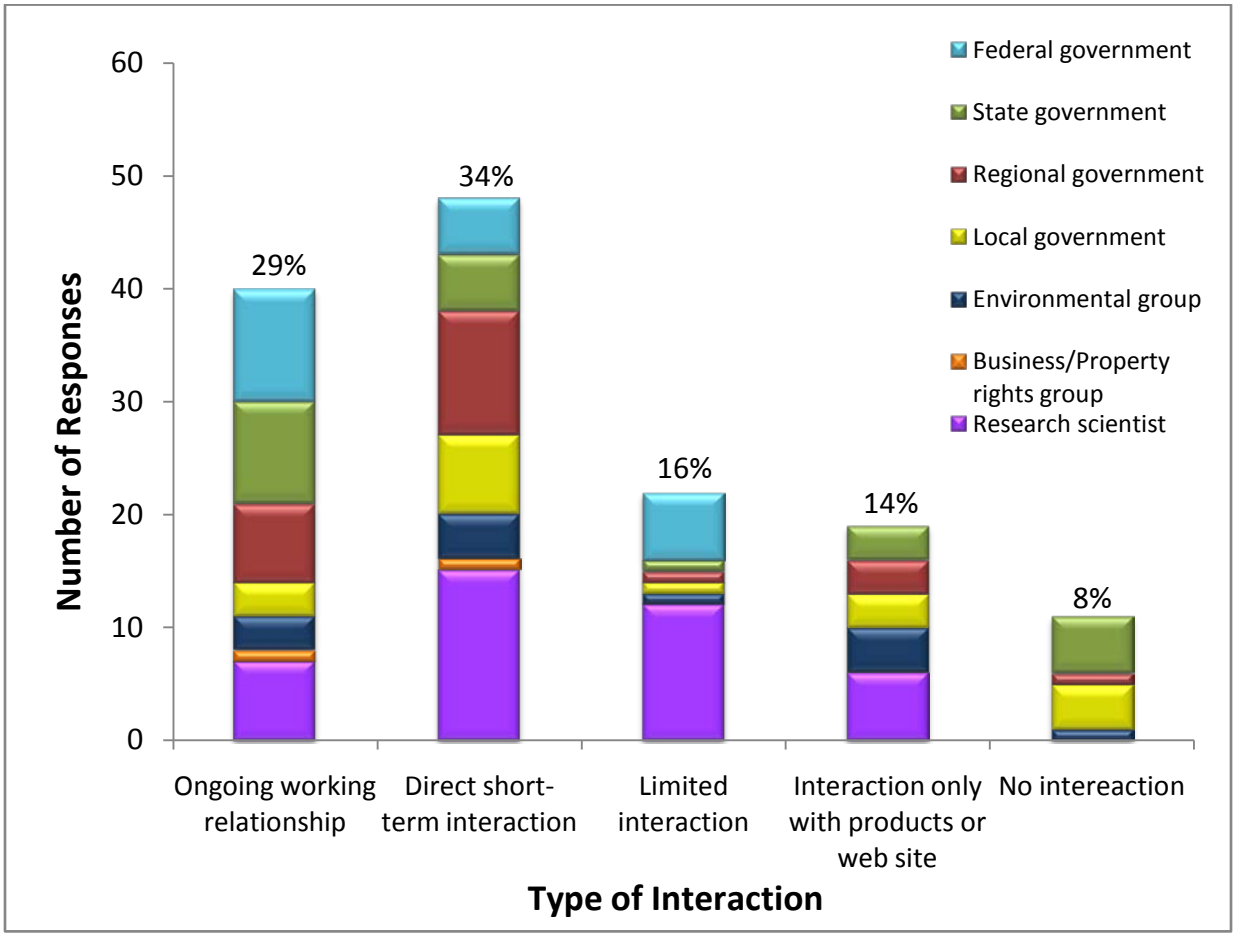

Figure 2. Responses to survey question 15: *What level of interaction have you had with the TSC?* The percentage value associated with each bar is the proportion of all respondents that selected the associated type of interaction. The data include 140 individual responses (n=140) grouped within seven different affiliations.

Survey respondents were also queried to identify the topics of interaction with the TSC or science community (Figure 3). A diversity of topics was identified reflecting the range of subject areas considered in the Tahoe Basin. Not surprisingly, water quality was the number one topic selected (18%), and the top five topics (invasive species, air quality, water quality, soil conservation/ecology, and forest management/ecology) were selected 70% of the time as the topics of interaction with the TSC or science community. In contrast, climate change and fire/fire ecology were the least selected topics of interaction.

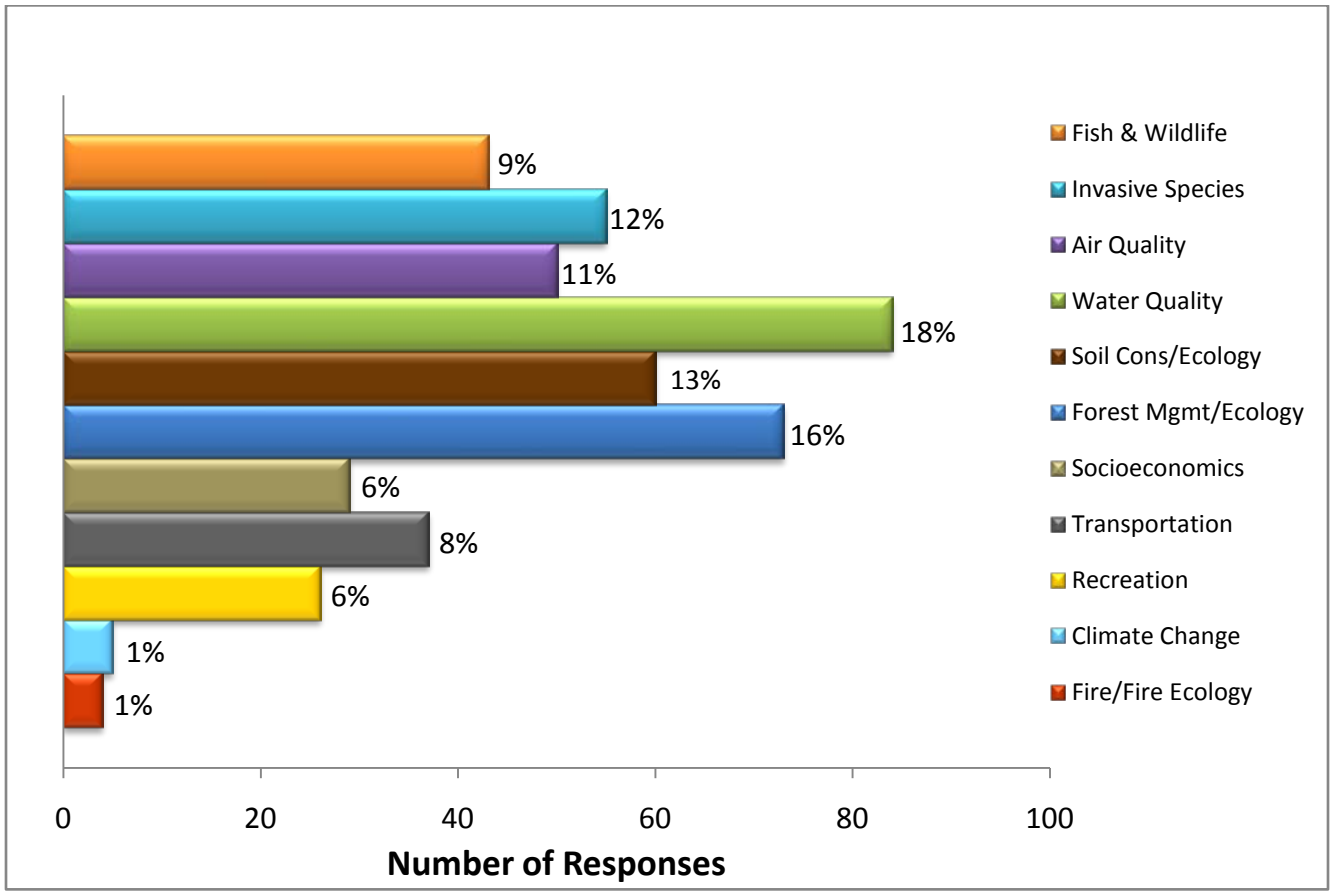

Figure 3. Response to survey question 2: *What topics have you interacted with the TSC or members of the scientific community?* The percentage value associated with each bar is the proportion of all responses that selected the associated topic. Respondents were allowed to select multiple topics and a total of 466 selections (n=466) were made.

TSC Objective and Programmatic Goals

The survey included three questions to assess respondents' opinions about the TSC's primary objective and potential programmatic goals the TSC could purse in the future. Question 3 asked respondents if the primary objective as stated in the TSC memorandum of understanding (MOU) should remain the TSC's primary objective. The TSC MOU states that "the primary objective of the Consortium will be to provide environmental managers and decision makers with comprehensive and well-

synthesized scientific findings drawn from research, monitoring, and modeling." A majority of respondents from all affiliations (94%) agreed that the MOU objective should remain the primary objective of the TSC (Figure 4).

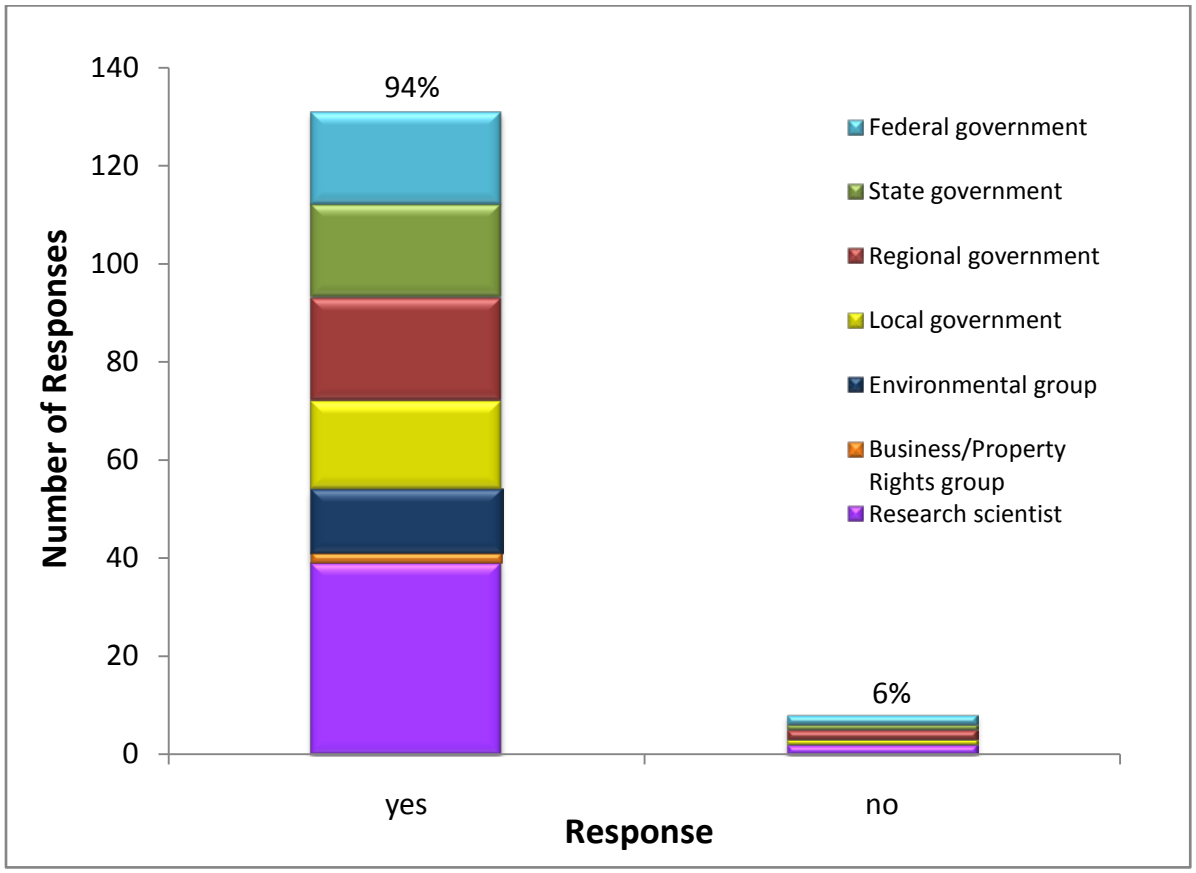

Figure 4. Response to survey question 3: *Do you think the primary objective stated in the TSC memorandum of understanding should remain the primary objective of the TSC?* The percentage value associated with each bar is the proportion of all respondents that answered yes or no. The results include 139 individual responses (n=139) grouped within seven different affiliations.

Survey question 4 asked respondents to describe what they thought the primary objective of the TSC should be. This question specifically requested a response from those individuals who selected no to question 3 (i.e., individuals who did not think the primary objective stated in the TSC MOU should remain the primary objective of the TSC). In addition, nine individuals who answered yes to question 3 also provided a response to survey question 4 ("yes, but" responses). All of these responses (Appendix C) accounted for less than 10% of the individuals responding to question 3. Many of the responses to survey question 4 were critical of the TSC and its efforts to achieve the primary objective stated in the MOU. Some responses offered constructive suggestions on the approach the TSC should pursue to achieve a primary objective; however, several respondents thought the TSC has not been achieving its primary objective.

Question 5 asked survey respondents to rate the importance of four programmatic goals the TSC could pursue. A majority of respondents (57%) indicated it was highly important for the TSC to provide the capacity to support sustained implementation of a science program in the Tahoe Basin (Figure 5a). However, inspection of the data shows that research scientist respondents comprised 36% (28 out of 78 responses) of the high importance responses. Responses from representatives of the other affiliations were somewhat mixed between 'moderate' and 'high' importance.

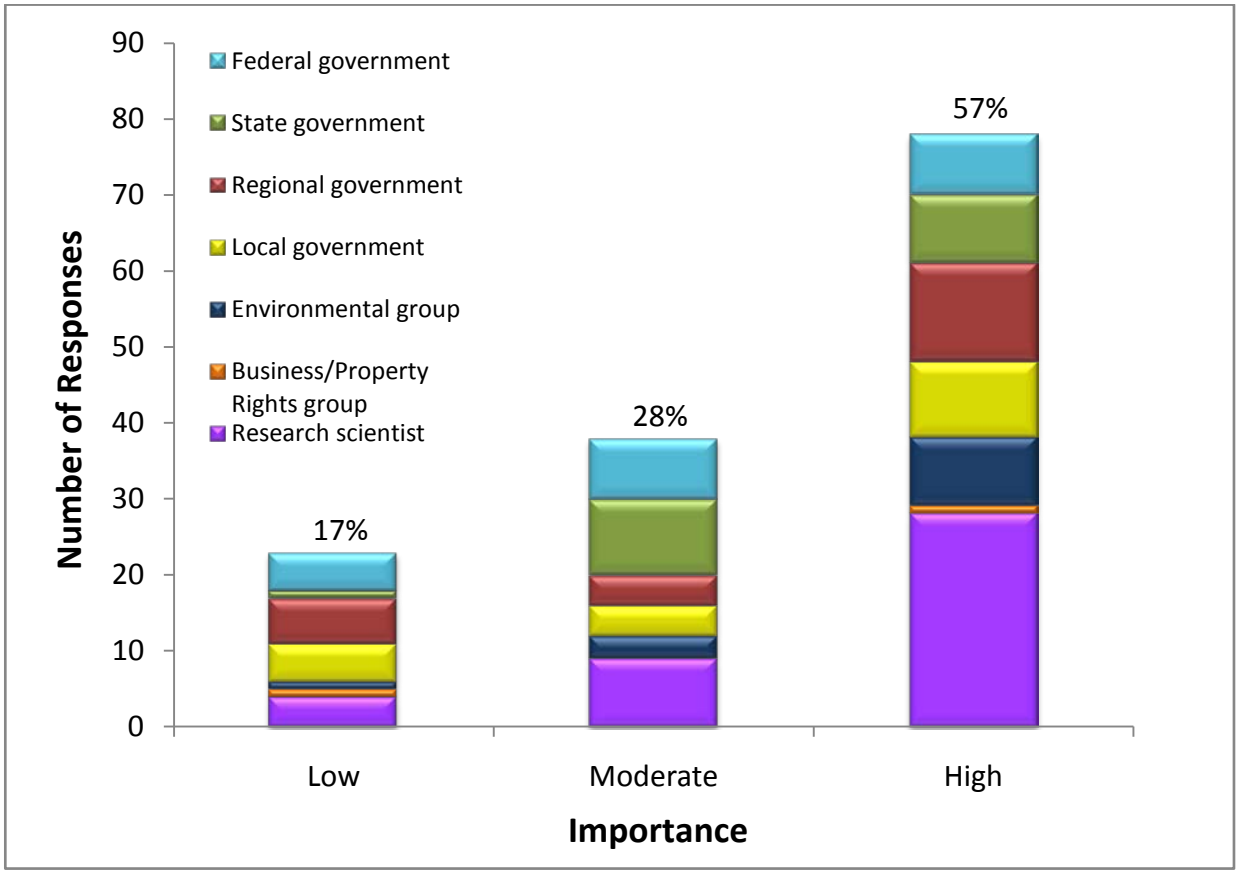

Figure 5a. Response to question 5a: *How important is it for the TSC to provide the capacity to support sustained implementation of a science program in the Tahoe Basin?* The percentage value associated with each bar is the proportion of all respondents that selected each level of importance. The results include 138 individual responses (n=138) grouped within seven different affiliations.

Respondents nearly equally rated as moderate and high importance the programmatic goal of "providing the capacity to regularly conduct an independent examination of the ecologic and socioeconomic status of the Lake Tahoe Basin and its human and natural resources" (Figure 5b). With the exception of the local government response, dominant affiliation responses were mostly mixed between moderate and high importance. The research scientists' responses were evenly split among these two categories.

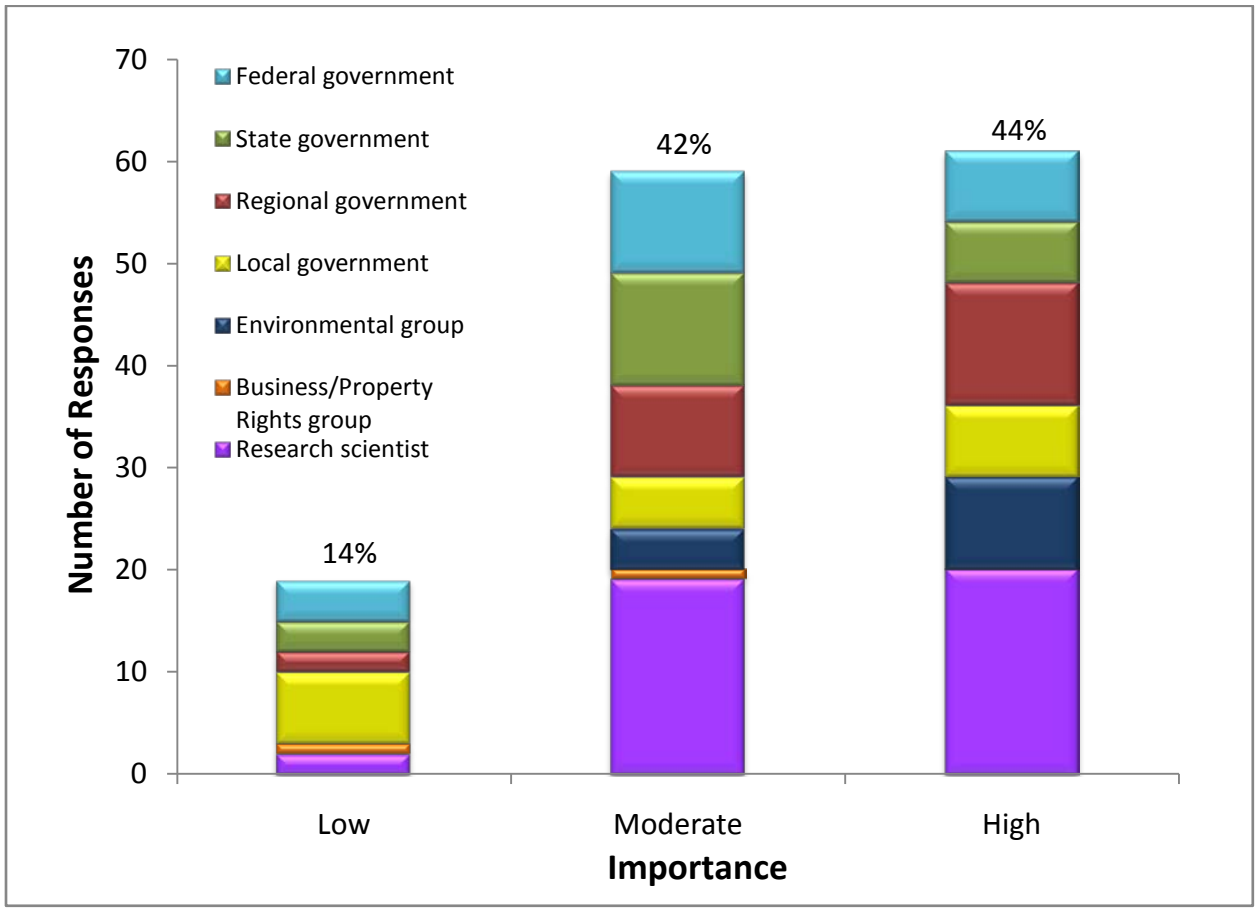

Figure 5b. Response to question 5b: *How important is it for the TSC to provide the capacity to regularly conduct an independent examination of the ecologic and socioeconomic status of the Lake Tahoe Basin and its human and natural resources?* The percentage value associated with each bar is the proportion of all respondents that selected each level of importance. The results include 139 individual responses (n=139) grouped within seven different affiliations.

"Maintaining an applied research agenda for the Lake Tahoe Basin" received the greatest percentage (65%) of high importance ratings among the four TSC programmatic goals considered in this survey (Figure 5c). Although the research scientist respondents comprised 32% (29 out of 90 responses) of the high importance responses, the responses from all other affiliations were also dominant in this category.

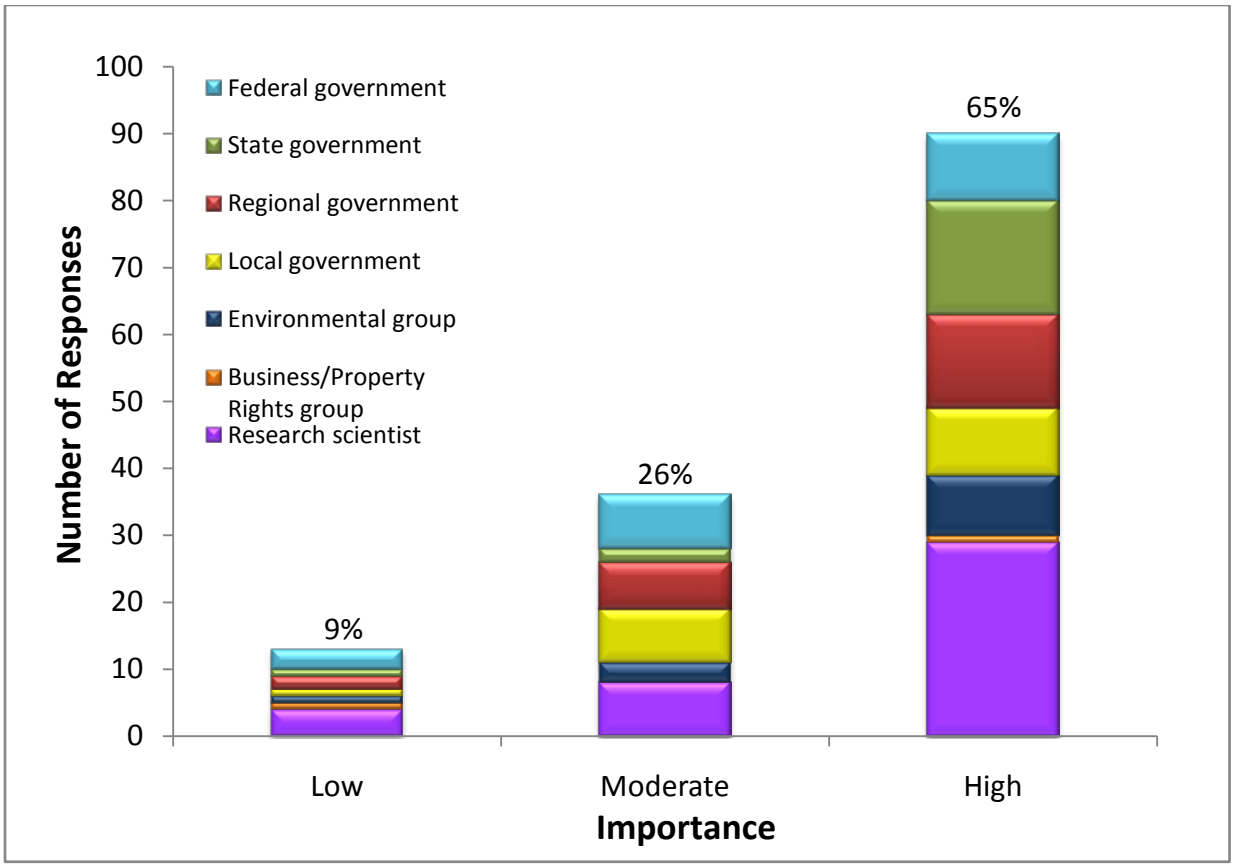

Figure 5c. Response to question 5c: *How important is it for the TSC to maintain an applied research agenda for the Lake Tahoe Basin?* The percentage value associated with each bar is the proportion of all respondents that selected each level of importance. The results include 139 individual responses (n=139) grouped within seven different affiliations.

“Providing the capacity to integrate and synthesize data and information on the effects and effectiveness of capital improvement/restoration projects” received the second greatest percentage (62%) of high importance ratings among the four programmatic goals considered in this survey (Figure 5d). Although the research scientist respondents were evenly split between the moderate and high importance categories, the responses from all other affiliations were dominant in the high importance category.

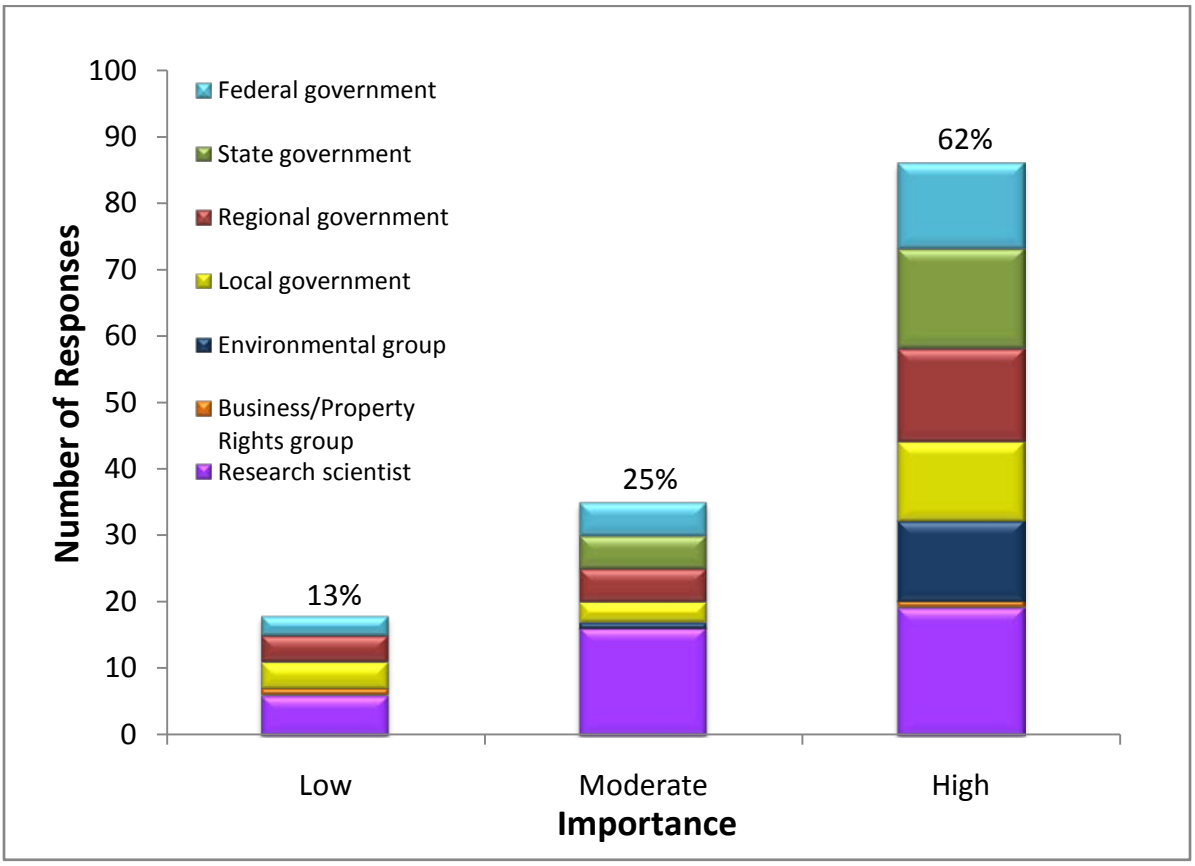

Figure 5d. Response to question 5d: *How important is it for the TSC to provide the capacity to integrate and synthesize data and information on the effects and effectiveness of capital improvement/restoration projects?* The percentage value associated with each bar is the proportion of all respondents that selected each level of importance. The results include 139 individual responses (n=139) grouped within seven different affiliations.

Overall, survey responses (Figure 6) suggest the strongest support in having the TSC pursue the programmatic goals of

1) Maintaining an applied research agenda for the Lake Tahoe Basin.

2) Providing the capacity to integrate and synthesize data and information on the effects and effectiveness of capital improvement/restoration projects.

These programmatic goals will be used in developing a strategic plan for the TSC.

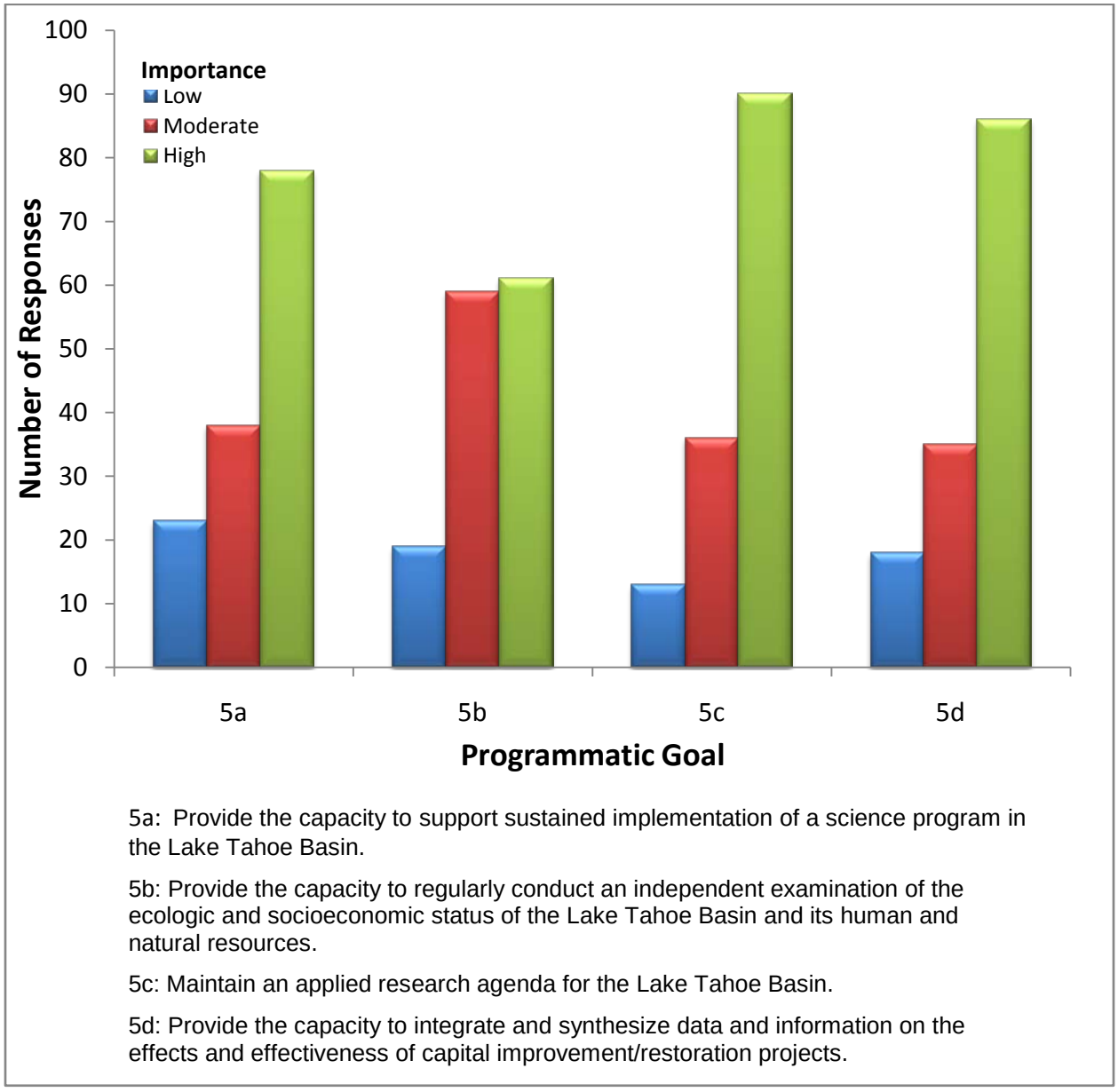

Figure 6. Comparison of responses about the importance of four programmatic goals the TSC could potentially pursue in the future. Response data are aggregate affiliation responses from questions 5a-5d.

The last question under programmatic goals (question 5e) asked respondents to specify other goals they think the TSC should pursue. Thirty-six narrative responses (Appendix C) were received from representatives of all seven affiliations. Several of the responses suggested the programmatic goals of the TSC should specifically include the main services it currently provides: science planning, peer review, and technical assistance. (More information about these services and their perceived value are presented on page 12.) Several respondents commented that the TSC should devote more effort to communicating science findings to all sectors in the Tahoe Basin (e.g., the public, stakeholders, project implementers, or government agencies).

Perceptions of TSC Value

The survey included a number of questions to assess respondents' perceptions of the TSC's value in addressing science needs and supporting science services in the Tahoe Basin. Results from this section of the survey establish a baseline that could be used to evaluate changes in perceptions of TSC value over time, if this survey is repeated.

Question 6 asked respondents to identify which of the existing TSC services had been of benefit to the individual or their organization. Respondents were able to select any of the TSC's existing services, which include

- Science Planning (developing regional monitoring plans and developing a science plan for research).
- Peer Review (administering or conducting independent technical review).
- Technical Assistance (providing technical advice to agencies or conducting technical workshops).

A majority of the respondents indicated that existing TSC services had been of benefit to them or their organization (Figure 7). The responses show science planning was the service of greatest benefit followed by technical assistance. The research scientists' results were consistent with the results from other affiliations.

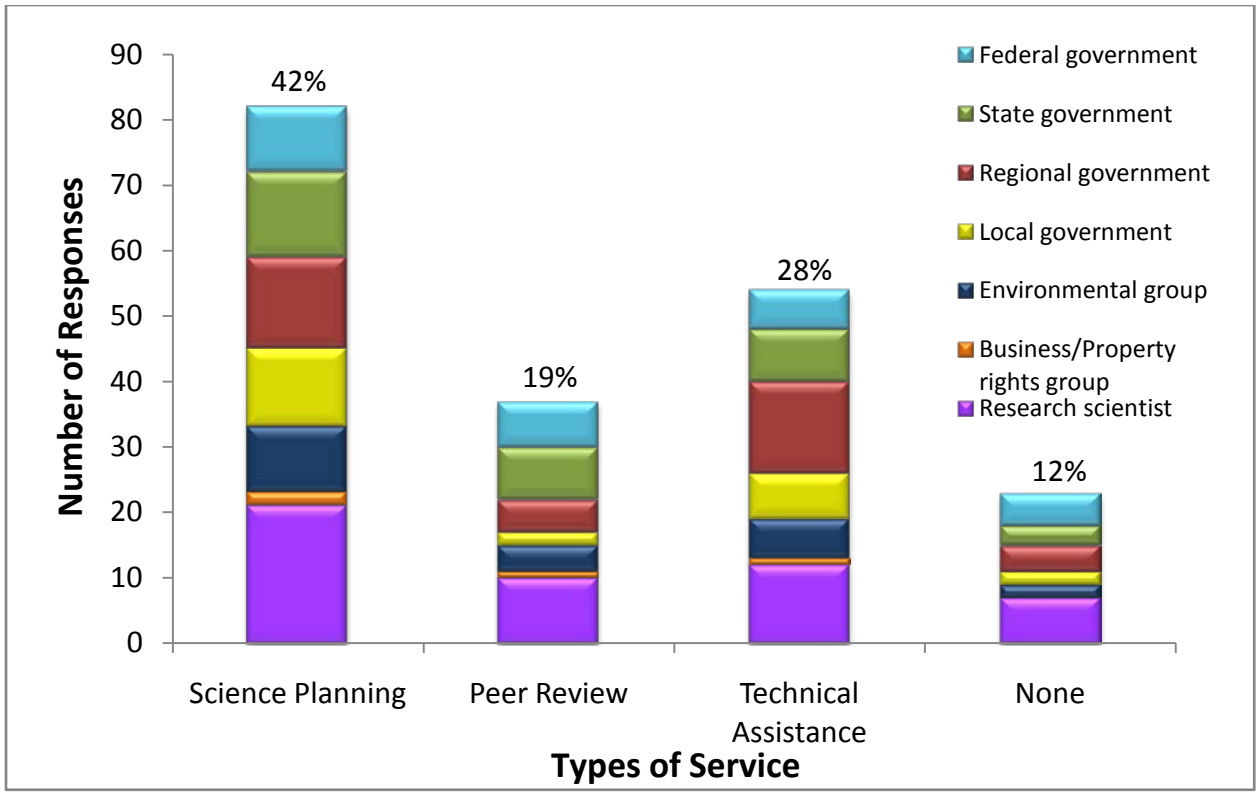

Figure 7. Response to question 6: *Which of the existing TSC services have been of benefit to you or your organization?* The percentage value associated with each bar is the proportion of all responses that selected the associated type of service. Respondents were allowed to select multiple types of service and a total of 196 selections (n=196) were made.

Question 7 asked respondents to list specific examples of TSC services that had substantially benefitted their work in the Tahoe Basin. Seventy-nine narrative responses were received from all seven affiliations (Appendix C). Many of the respondents from all affiliations mentioned specific examples of existing TSC services that had benefitted their work in the Tahoe Basin. A majority of the comments from each affiliation were positive, although some responses were highly critical or questioned whether a "substantial benefit" had occurred.

Question 8 asked respondents to describe any other kind of science services that would be of benefit to their work in the Lake Tahoe Basin. Sixty-four narrative responses were received from all affiliations (Appendix C). Responses from all affiliations were generally positive and many identified issue-specific needs. For example, conduct research (new or synthesis of existing information) on specific issues (e.g., timber harvest practices, storm water treatment, or effectiveness of the Environmental Improvement Program), or apply more effort to bringing in new researchers or research results from outside the Tahoe Basin. Several respondents suggested the TSC should bolster its science communication and distribution services to provide data and information to a variety of users.

Question 9 asked research scientist respondents to rate the degree to which the TSC has enhanced their ability to complete scientific work in the Tahoe Basin. The intent of this question was to gain data to assess how well the TSC was doing in facilitating the

science communities' work in the Tahoe Basin. Nearly equal proportions of the respondents indicated that the TSC had enhanced their ability to complete work in the Tahoe Basin to a moderate or high degree (42%), compared to those indicating that the TSC has had little to no influence (45%) in enhancing their ability to complete work in the Tahoe Basin (Figure 8). The fact that 13% of the respondents do not know if the TSC has enhanced the ability of scientists working in the Tahoe Basin (Figure 8) suggests there is more the TSC should do to communicate a basic level of awareness about itself and its efforts.

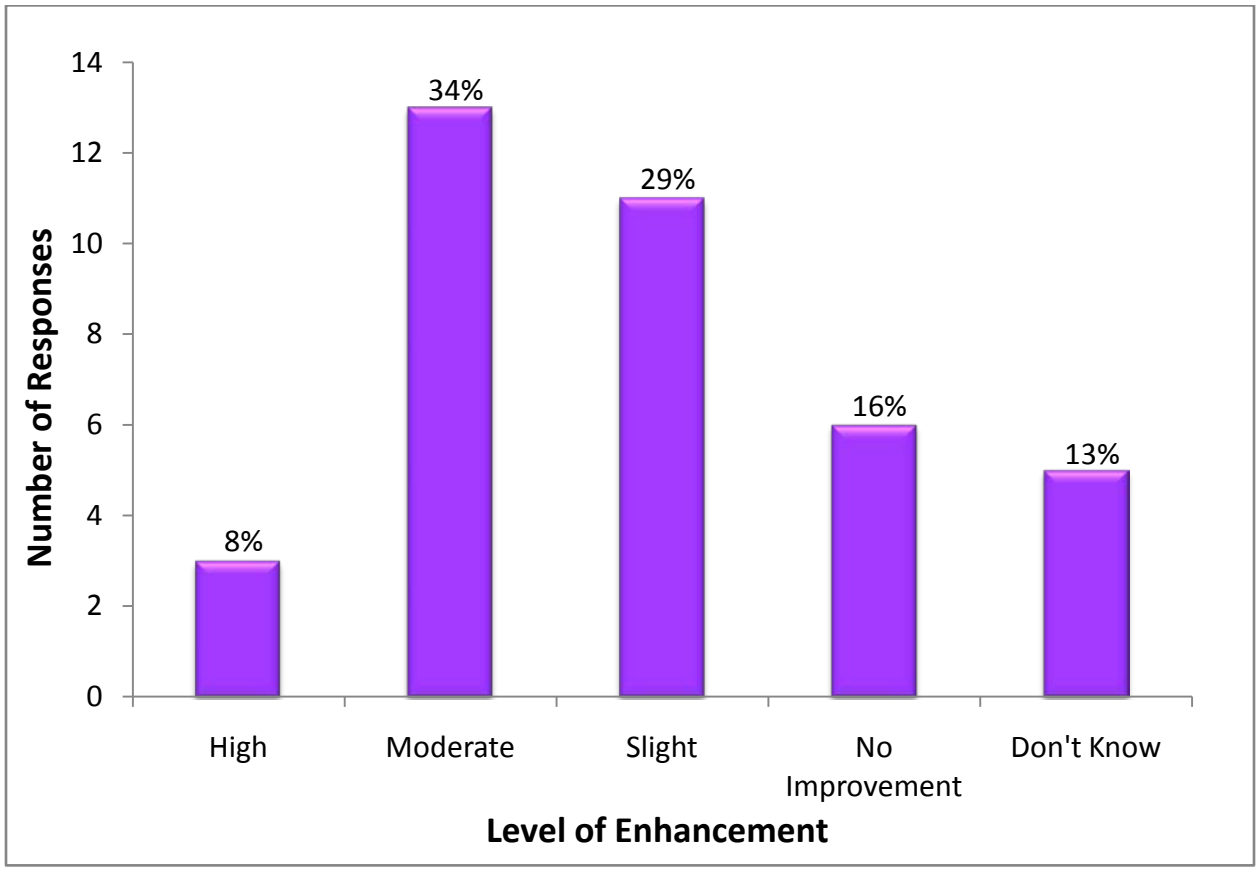

Figure 8. Response to question 9: *To what degree has the TSC enhanced the ability of scientists to complete scientific work in the Tahoe Basin?* The percentage value associated with each bar is the proportion of research scientist respondents that selected each level of enhancement. The results include 38 individual responses (n=88).

Narrative responses to question 10 provide some additional insight into the kinds of services the survey respondents' think the TSC could provide to enhance the ability of research scientists to undertake scientific work in the Tahoe Basin. Forty-nine narrative responses were received from all affiliations (Appendix C), although nearly half of the responses (22) were provided by research scientists. Several of the suggestions provided in response to question 8 were repeated in the responses to question 10. In particular, several respondents suggested the TSC should bolster its science communication and distribution services to provide data and information to a variety of users.

Question 11 asked survey respondents to rate the degree to which the TSC has helped to improve their access to the science community, or if they were a research scientist, improved their access to other parts of the science community? Forty-three percent of the respondents indicated the TSC had moderately to highly improved access to the science community, although 51% of the respondents indicated slight or no improvement (Figure 9). 87% of the research scientists (34 out of 39 responses) indicated the TSC had only moderate to no influence in improving their access to other parts of the science community (Figure 9).

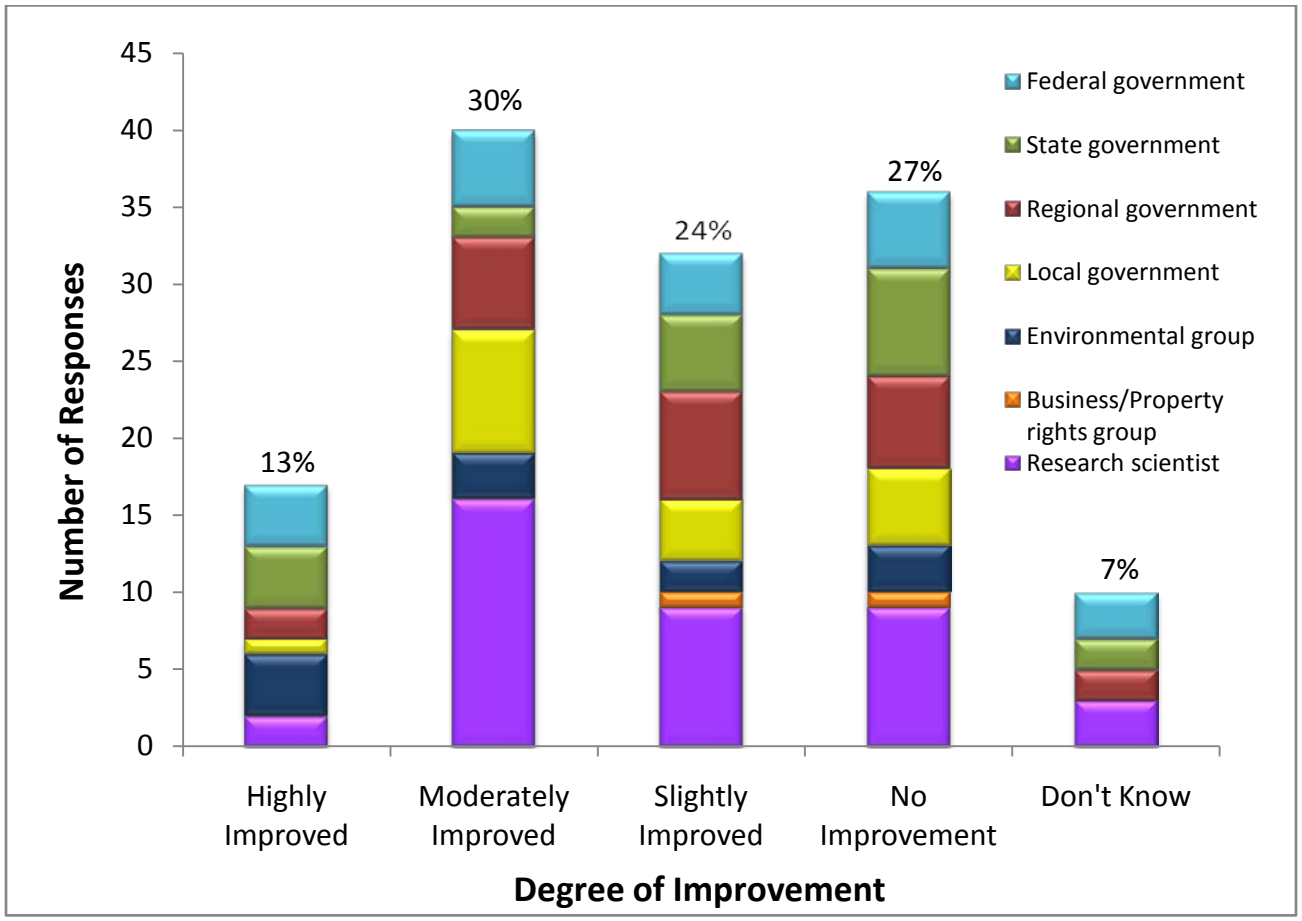

Figure 9. Response to question 11: *To what degree has the TSC helped to improve access to the science community?* The percentage value associated with each bar is the proportion of all respondents that selected each level of improvement. The results include 135 individual responses (n=135) grouped within seven different affiliations.

Question 12 asked respondents to rate the degree to which the TSC has helped to increase the level of service (i.e., timeliness, product utility, or product quality) the science community provides in the Lake Tahoe Basin. Thirty-eight percent of the respondents thought the TSC had helped to increase the level of service provided by the science community to a moderate or high degree (Figure 10). However, an equal proportion of respondents (39%) thought the TSC had not increased or only slightly increase the level of service provide by the science community. Nearly a quarter (22%) of the respondents did not know if the TSC had helped to increase the level of science community service, further suggesting the need for better communication about the TSC and its efforts.

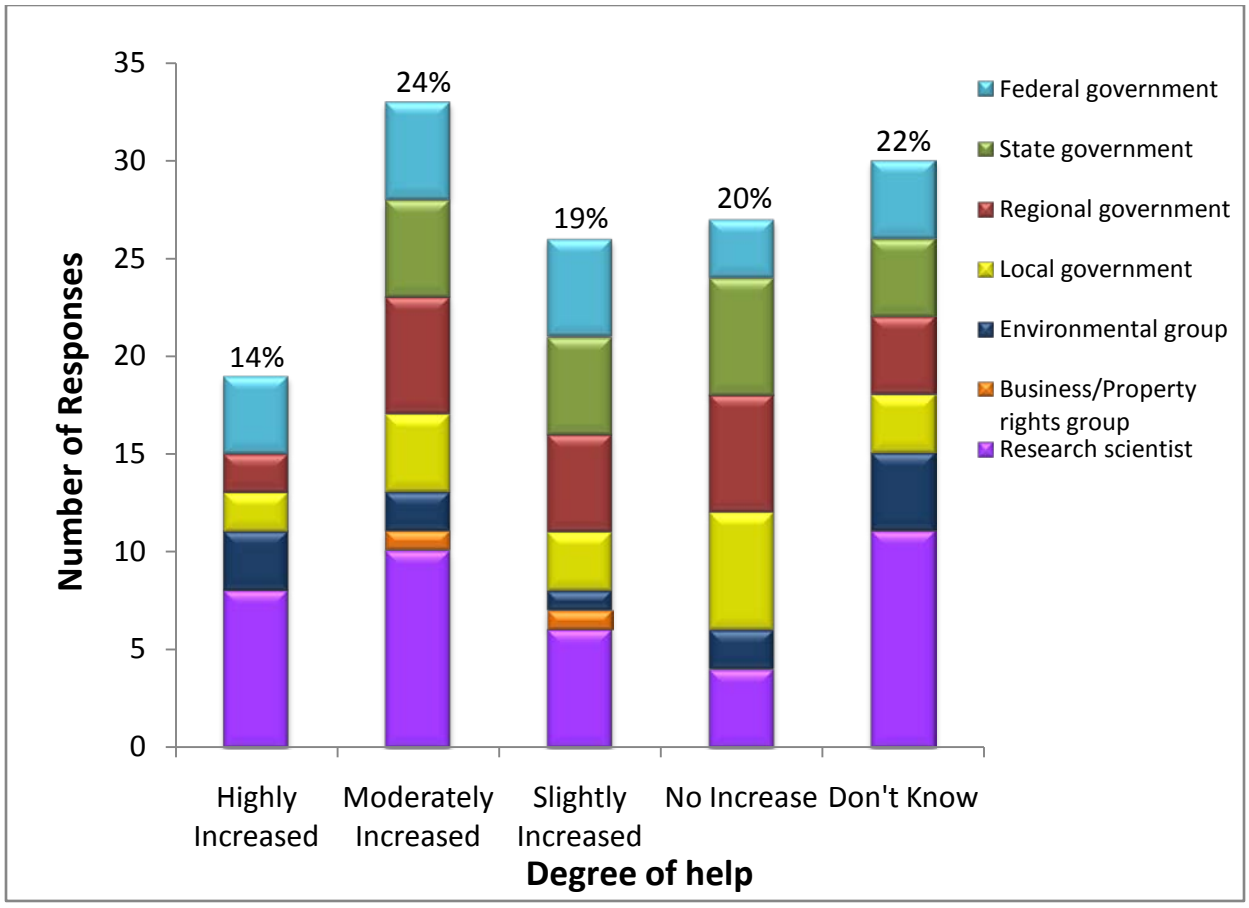

Figure 10. Response to question 12: *To what degree has the TSC helped to increase the level of service the science community provides in the Lake Tahoe Basin?* The percentage value associated with each bar is the proportion of all respondents that selected each level of improvement. The results include 135 individual responses (n=135) grouped within seven different affiliations.

Question 13 asked respondents to rate the degree to which the TSC has helped to increase the consistency of the information provided by the science community in the Lake Tahoe Basin. One third of the respondents indicated that the TSC had helped to highly or moderately increase the consistency of information provided by the science community (Figure 11). However, 40% of the respondents indicated the TSC had provided no help or only slightly increased the consistency of information provided by the science community. More than a quarter of the respondents (27%) did not know if the TSC had helped to increase the consistency of science community information.

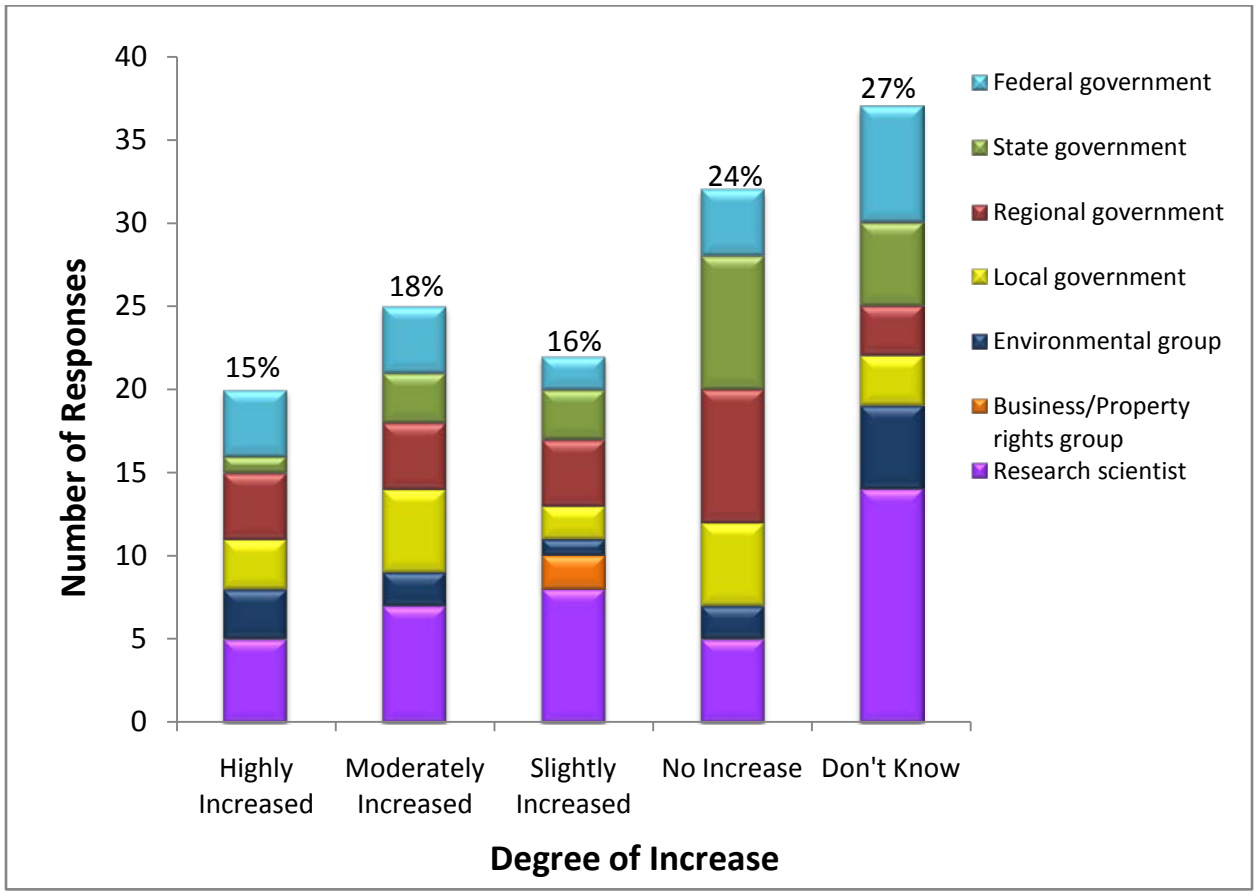

Figure 11. Response to question 13: *To what degree has the TSC helped to increase the consistency of information provided by the science community?* The percentage value associated with each bar is the proportion of all respondents that selected each level of increase. The results include 136 individual responses (n=136) grouped within seven different affiliations.

Weible (2007) hypothesized that stakeholders will evaluate science positively and perceive scientists as influential in making policy when the science community provides a consistent message over time. Results from a 2001 survey of stakeholder perceptions of scientists suggest scientists were not viewed as influential compared to other organizational affiliations in the Lake Tahoe Basin (Weible 2007). However, whether this lack of influence is due to inconsistencies of information or other factors is unclear. For example, Weible (2007) suggested the lack of influence by the science community may be due to the fact that "Lake Tahoe's collaborative organizations were never designed to integrate science into policy." Tracking the degree to which agency

and stakeholder representatives view the science community as providing a consistent message over time could be a useful indicator of how science efforts are perceived in the Tahoe Basin.

Question 14 asked survey respondents to evaluate how credible they regard the products and information provided by the TSC and its member organizations. Nearly half of the respondents considered the products and information highly credible (Figure 12). In contrast, 13% of the respondents stated that products and information provided by the TSC and its member organizations are not credible or only slightly credible. Maintaining a high degree of credibility is very important to the TSC and its member organizations, since credible products and information directly relate to the overall credibility of an organization. Future surveys should reassess respondents' perceptions of credibility to determine how this value is changing over time.

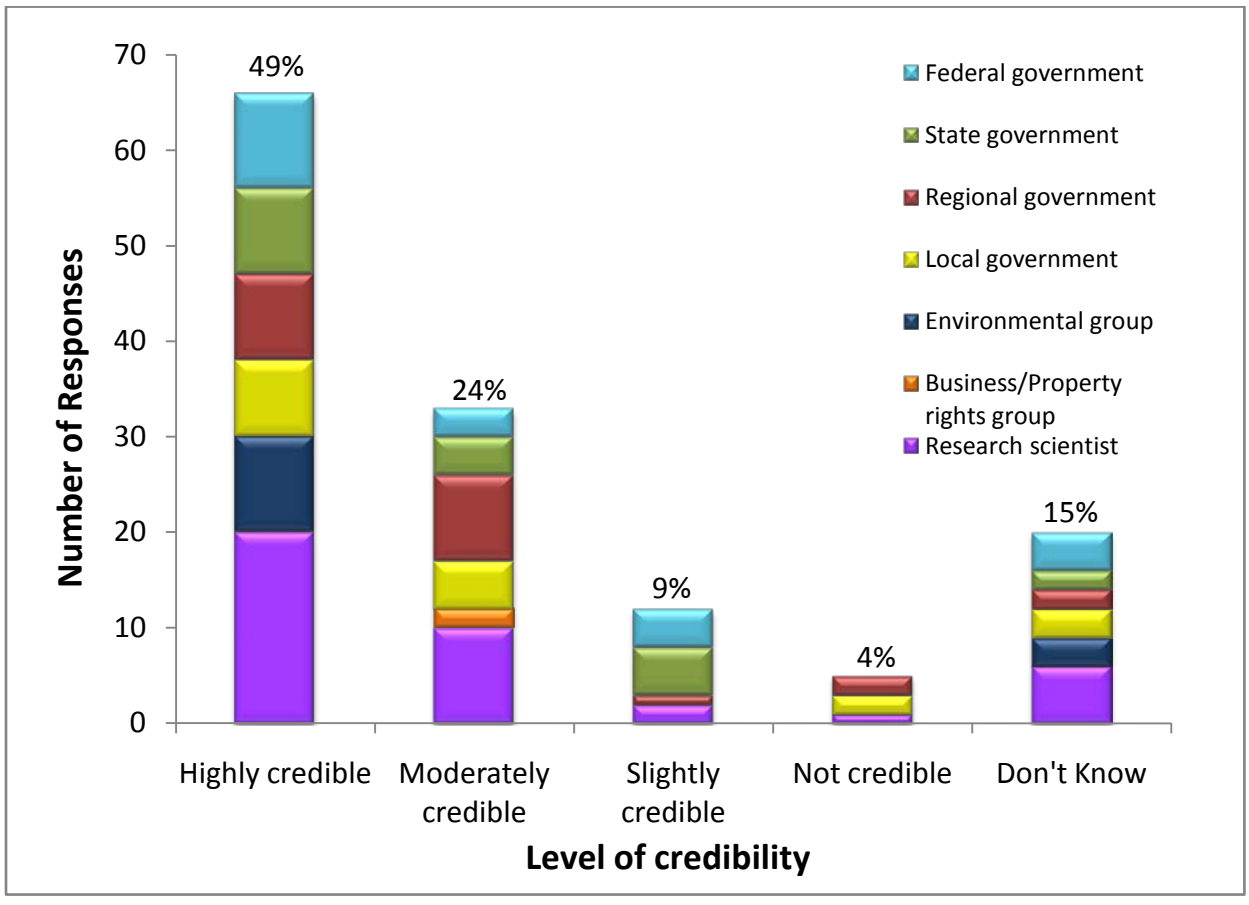

Figure 12. Response to question 14: *How credible are products and information provided by the TSC and its member organizations?* The percentage value associated with each bar is the proportion of all respondents that selected each level of credibility. The results include 136 individual responses (n=136) grouped within seven different affiliations.

Question 16 asked respondents if they had been able to provide input to the TSC and its activities and if so, whether that input received meaningful consideration or not. Overall results were nearly equal among the four categories, although the dominant response of most affiliations differed across the categories (Figure 13). State government and research scientists were exceptions, with nearly equal response proportions among the four categories.

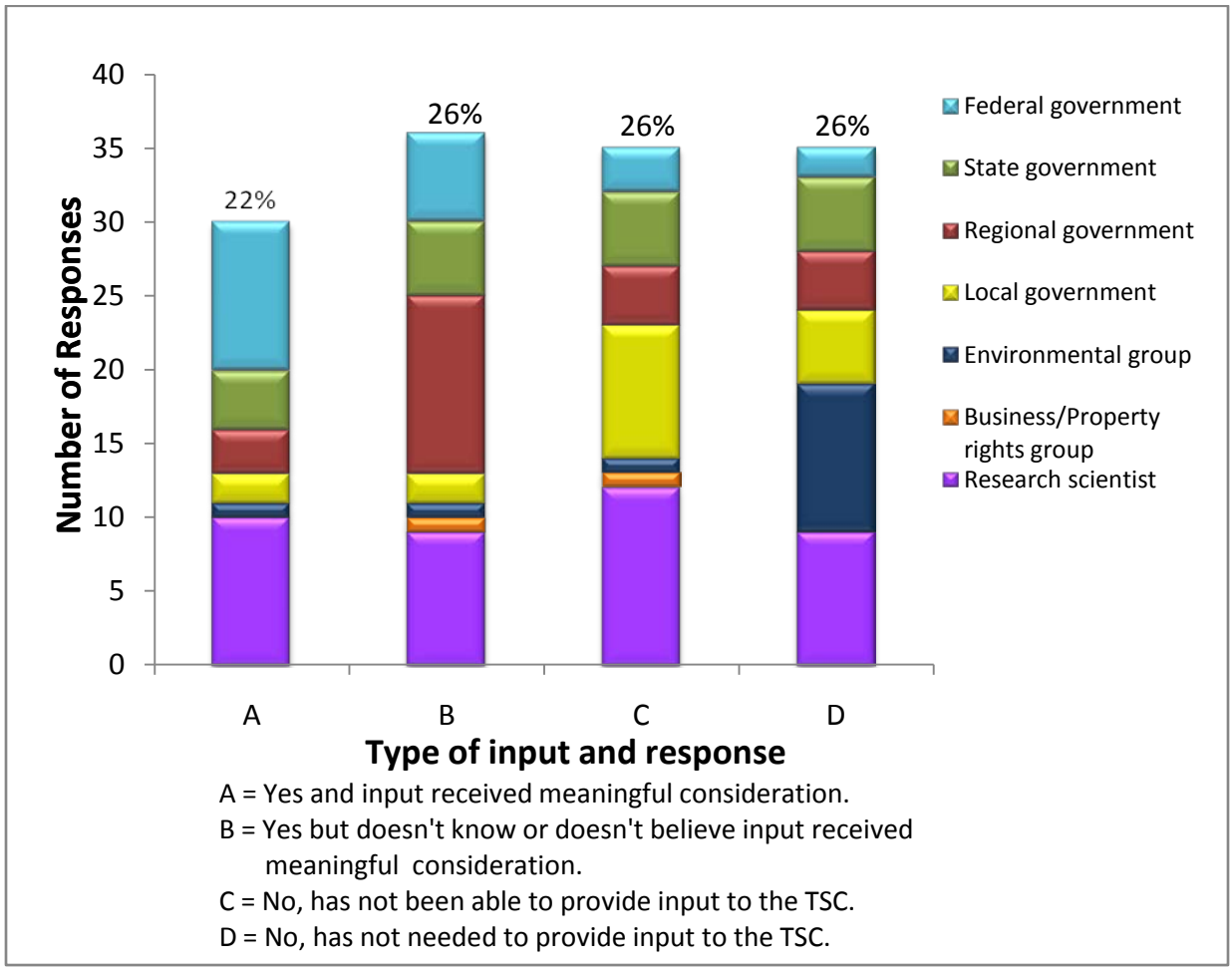

Figure 13. Response to question 16: *Have you been able to provide input to the TSC and its activities, and if so, did that input receive meaningful consideration?* The percentage value associated with each bar is the proportion of all respondents that selected each type of input and response. The results include 136 individual responses (n=136) grouped within seven different affiliations.

The survey concluded with an invitation for respondents to provide any other input related to the TSC (question 17). Forty-one narrative responses were received from all affiliations (Appendix C). Several respondents find the role of the TSC to be unclear and are uncertain of TSC products/interactions. Without understanding how the TSC functions, several responses in most affiliations are negative towards the organization or individuals within the organization. This is another indication that the TSC needs to develop a communication strategy.

Acknowledgements

The Tahoe Science Consortium gratefully acknowledges the time taken by the 140 individuals who responded to the original survey. This survey would not have been possible without the help of Susie Kocher (University of California Cooperative Extension, El Dorado County) in the development and implementation of the web-based survey. Development of the survey questions benefitted from comments provided by Jonathan Long (US Forest Service, Pacific Southwest Research Station), Tamara Sasaki (California Department of Parks and Recreation), Amy Horne (University of California, Davis), and Susie Kocher. The final version of the survey report benefitted from comments provided by John Reuter (University of California, Davis), Mike Collopy (University of Nevada, Reno), and Susie Kocher.

Literature Cited

Weible, C.M. 2007. Stakeholder perceptions of scientists: Lake Tahoe environmental policy from 1984 to 2001. *Environmental Management.* 40:852-865.

Appendix A
Invitation to participate in a survey about the Tahoe Science Consortium

From: skocher@nature.berkeley.edu
Sent: Monday, November 10, 2008 5:30 PM
To: redfir@sbcglobal.net
Subject: [TSC Survey Recipient] Invitation to participate in a web-based survey on the direction of the Tahoe Science Consortium

You are invited to participate in a web-based survey to assess the perceptions, value, and goals of the Tahoe Science Consortium (TSC). This survey is a means to obtain your input on how well the TSC is meeting its primary objective and to assess how useful the TSC efforts have been to you. The survey also includes a question about potential goals for the TSC going forward. Results from the survey will be used to determine how the TSC could improve its utility and function. The results also will serve to guide the development of a strategic plan for the TSC.

The survey contains 16 questions, and there is an opportunity at the end for you to provide additional input. The survey should take you 20-30 minutes to complete. The University of California Cooperative Extension Program (UCCE) has agreed to administer this survey as a neutral third-party. UCCE will receive all individual survey responses and will provide the TSC with a data base containing the responses of all survey participants. No information will be collected that could identify you as an individual. The TSC will analyze the resulting survey data to assess the perceptions, value, and potential goals of the Consortium. These results will be communicated to TSC members, funding agencies, and other interested parties.

You can access the survey at **http://ucanr.org/tscsurvey.** This survey will be available through **November 30, 2008**. Please complete the survey at your earliest convenience. You are also encouraged to pass this survey onto your colleagues and co-workers. The TSC is very interested in receiving the broadest input possible.

Susie Kocher
Natural Resources Advisor
University of California Cooperative Extension
El Dorado County
1061 3rd Street
South Lake Tahoe, CA 96150
(530) 542-2571 (o) (530) 318-3665 (c)
E-mail: skocher@nature.berkeley.edu,
Web: http://ceeldorado.ucdavis.edu/

Zach Hymanson
Executive Director
Tahoe Science Consortium
291 Country Club Drive
Incline Village, NV 89451
(775) 881-7561 (office)
(530) 208-6347 (cell)
(775) 832-1673 (fax)
redfir@sbcglobal.net
www.tahoescience.org

Appendix B
Web-based Survey to Assess the Perceptions Value and Goals of the Tahoe Science Consortium

Survey Main » https://ucce.ucdavis.edu/survey/surveyadmin/surveyedit.cfm?surveynumber=2915 » Survey Edit Page help

Survey owner: Susan Kocher

Survey Options

add a question

Test Your Survey
View Results

survey2915

Question	Sort	Question Type

show numbers

A. Please tell us a little about yourself *Divider Only*

1. My affiliation is: (choose only one)

- Local government (e.g., county, city, public utility district, general improvement district, school district, or fire district)
- Regional government (e.g., Tahoe Regional Planning Agency, Lahontan Regional Water Quality Control Board, Tahoe Conservancy, or Fire Safe Council)
- Federal government (e.g., US Forest Service, Natural Resources Conservation Service, Army Corps of Engineers, or US Environmental Protection Agency)
- State Government (e.g., NV Division of State Lands, NV Division of Forestry, CA Department of Fish & Game, CA State Lands Commission)
- Environmental Group (e.g., League to Save Lake Tahoe, Sierra Club, Sierra Forest Legacy)
- Business/Property Rights Group (e.g., chamber of commerce, homeowners association, or board of realtors)
- Research Scientist (e.g., university or college faculty/staff, consultant scientist, government research scientist)

2. The topics for which I have interaction with the TSC or science community include (select all that apply)

- [ ] Air Quality
- [ ] Fish and Wildlife
- [ ] Forest Management/Ecology
- [ ] Invasive Species
- [ ] Recreation
- [ ] Soil Conservation/Ecology
- [ ] Socioeconomics
- [ ] Transportation
- [ ] Water Quality
- [ ] Other (please list)

Other:

B. Please provide input about the priority goals for the TSC

Divider Only

3. The primary objective of the TSC is to provide environmental managers and decision makers with comprehensive and well-synthesized scientific findings drawn from research, monitoring, and modeling. Do you think this should remain the primary objective of the TSC?

- [ ] Yes
- [ ] No

4. If you answered no to question 3, then please describe what you think the primary objective of the TSC should be.

5. Five goals the TSC could potentially pursue are listed below. Please tell us if you think these goals are important by ranking them as 1 = low importance, 3 = moderate importance, and 5 = high importance. You can use any number more than once.

Divider Only

a. Provide the capacity to support sustained implementation of a science program in the Tahoe Basin.

1

b. Provide the capacity to regularly conduct an independent examination of the ecologic and socioeconomic status of the Lake Tahoe Basin and its human and natural resources.

1

c. Maintain an applied research agenda for the Lake Tahoe Basin. 1

d. Provide the capacity to integrate and synthesize data and information on the effects and effectiveness of capital projects. 1

e. Other (Please specify)

C. Please tell us about your perceptions of the TSC and its services *Divider Only*

6. Which services of the TSC have been of benefit to you or your organization? (Select all that apply)

- Science Planning (developing regional monitoring plans and developing a science plan for research
- Peer Review (administering or conducting independent technical review)
- Technical Assistance (providing technical advice to agencies or conduct technical workshops)
- None of the efforts are of value to me

7. Please list one or more specific examples of TSC services that have substantially benefitted your work in the Tahoe Basin.

8. Please describe any other kind of science services that would be of benefit to your work in the Lake Tahoe Basin.

9. As a research scientist, please rate the degree to which the TSC has enhanced your ability to complete scientific work in the Tahoe Basin. (Please skip to question 11 if you do not consider yourself a research scientist.)

- Highly enhanced
- Moderately enhanced
- Slightly enhanced
- No improvement
- Don't know

10. Please describe the kinds of services the TSC could provide to enhance the ability of research scientists to undertake scientific work in the Tahoe Basin.

11. To what degree has the TSC helped to improve your access to the science community, or if you are a scientist, improved your access to other parts of the science community? (please choose only one).

- Highly improved
- Moderately improved
- Slightly improved
- No improvement
- Don't know

12. To what degree do you think the TSC has helped to increase the level of service (i.e., timeliness, product utility, or product quality) the science community provides in the Lake Tahoe Basin? (please choose only one)

- Highly increased
- Moderately increased
- Slightly increased
- No increase
- Don't know

13. To what degree has the TSC helped to increase the consistency of the information provided by the science community in the Lake Tahoe Basin? (choose only one)

- Highly increased
- Moderately increased
- Slightly increased
- No increase
- Don't know

14. How credible do you regard the products and information provided by the TSC and its members? (choose only one)

- Highly credible
- Moderately credible
- Slightly credible
- Not credible
- Don't know

15. What level of interaction have you had with the TSC? (choose only one)

- On-going working relationship with TSC representatives
- Direct, but short term interaction with TSC representatives on a specific project or issue
- Limited interaction (e.g. telephone conversation) on a specific issue
- Interaction only with TSC products or its website
- No interaction

16. Have you been able to provide input to the TSC and its activities? If so, do you believe this input received meaningful consideration? (choose only one)

- Yes, I have been able to provide input and that input received meaningful consideration
- Yes I have been able to provide input but I do not know or do not believe that it received meaningful consideration
- No, I have not been able to provide input to the TSC
- No, I have not needed to provide input to the TSC

17. Please feel free to provide any other input related to the TSC.

Appendix C
Compilation of Narrative Responses Received in Response to Specific Survey Questions

Question 4 survey responses:

No, does not agree the MOU primary objective should be the TSC primary objective

Federal Government

Emphasis should be applied research that informs adaptive management via agencies. Current is too broad and esoteric to be productive.

All of the above is nice, but without funding it is moot. Therefore, I think the TSC is also about providing a united framework for the preparation of funding proposals such that redundancy is minimized and ideas are harmonized across disciplines. It is also a forum for developing cross-disciplinary cooperation.

State Government

Findings are fine, but managers need potential solutions. TSC focuses too much on research and not developing solutions to the water quality problems. The studies seem to perpetuate more studies. Solutions are difficult to find for the challenging clarity problems we have to deal with, but the end game needs to be what we get to as quickly as possible.

Regional Government

I believe you are missing a purpose statement. To what end/purpose are you doing research for? Comprehensive and well-synthesized scientific findings mean little if they are not directed at the appropriate issues/goals of your recipients. There seems to be a lot of effort to ensure scientifically supported findings, but more effort is needed up front to encourage the necessary research vs. just sound research.

Does the consortium do the research, monitoring, and modeling? I have yet to see results from the group. In my experience much of their work is redundant.

Local Government

I overall agree with the primary objective, but a phrase should be added such as ....scientific findings that help make progress on achieving environmental thresholds identified and adopted by TRPA and other agencies in the Lake Tahoe Basin.

Research Scientist

Research, monitoring and modeling may provide information about expected outcomes of decisions - but NOT the criteria by which private individuals and agents that represent groups of individuals use, are likely to use under alternative scenarios, or ought to use, given alternative socially agreed upon objectives for Lake Tahoe. Science alone does not provide sufficient information for POLICY decisions. There is an unhealthy bias to the level of emphasis on the importance of yet more science whilst very little is being done on the research front for policy. How much more benefit is likely to be generated by an additional million $ spent on biophysical science, and how much from an additional million spent on real economics and policy research. Contracting with private consulting firms to do impact studies is simply NOT economics research and is actually a biased and incorrect method to measure returns from investing in improvements. The past economics work was embarrassing - not done with academic standards in mined as is expected of the 'science' research. Why the double standard? In short - primary objective should be to assistance with decision support by providing the best science - both natural AND social....

I think the objective should be less skewed toward the environmental managers, since that emphasis can push us away from the larger and more difficult science questions, which may require leapfrogging past the (applied) issues that might seem pressing to whomever is holding a given management position.

Yes, does agree the MOU objective should be the primary TSC objective but…

Federal Government
The above statement [i.e., the TSC primary objective as stated in the MOU] may make sense on a broader level, but how the TSC meets specific needs or their role in answering specific questions is really unclear.

I answered yes, but I am not sure we have matured yet in achieving the primary objective.

State Government
Include environmental program/project implementers in your client pool. Include databases and analytical methods in your scientific outputs.

However, I want to emphasize the need of the primary objective is to environmental managers and decision makers with comprehensive and well-synthesized scientific findings drawn from research, monitoring, and modeling which it has not been doing all of these.

Regional Government
I believe that should be the objective, but I do not believe you are achieving it.

It should be the primary objective; however, this objective has not been partially or wholly realized to date. More emphasis should be put on laying out the science/agency organization needed to meet this objective.

Local Government
I do think that is their objective; however they perform that task very poorly. We rarely see published information from TSC that is useful in real time. Data is held by them in privacy and their bureaucracy is as bad as the local governments around Lake Tahoe.

I think question 3 SHOULD be the objective, but I feel they function more in an advocacy role than an advisory role.

Research Scientist
The objective should also address the fact that the TSC informs the managers about scientific needs and gaps in information.

Question 5e survey responses:

Federal Government
Continue to provide independent, expert assessments of Tahoe Basin management activities/programs (the workshop on Veg. Mgmt in Sensitive Areas this year was a prime example of this). Continue to advocate for/promote investment in science (as a complement to capital investments), and to analyze all aspects of Basin management issues (i.e. effectiveness of regulatory and incentive-based programs, not just capital programs).

Ensure sound science/peer review/best use of scarce funding.

Develop a reliable and credible peer review system.

More timely advice on emerging issues...the SNPLMA contingency fund is terrific idea....now we need to also provide early and preliminary data and outcomes...time is money.

Represent a forum for discussion of emerging technologies to address existing issues and a forum for emerging issues such as climate change.

State Government
Provide the structure for communication between interested parties in the research being conducted in the Basin and the resulting management actions.

Provide the capacity to produce regular reports on the environmental assessment indicators linked to management actions (provide scientific support and capacity to implement an environmental threshold assessment management system integrated with EIP implementation) -most important task for TSC.

Rankings above reflect their relative importance, but also raise a question as to whether the TSC is the best entity to perform these functions.

Related to C above, an essential function of TSC should be to develop and maintain a research plan based on agency needs and priorities.

The goals listed above seem very self serving, would it not be better to work with the agency managers to further understand their agency needs, then prioritize them in this way?

Need to focus on applied study results. How will studies be implemented in an effective manner, including effectiveness, costs, life cycle longevity, etc?

Regional Government

What does provide the capacity mean?

Provide the necessary science to support regulatory and other efforts that result in implementation of environmental improvements.

It is not clear what the term capacity relates to in this survey. Also, it is not clear how a science program would be determined; this process needs to be clearly outlined and the information useful to agencies and managers.

Exert more leadership providing information managers need even if they don't know it and getting scientists to conduct more research on those questions, especially interdisciplinary questions.

Provide public support and outreach about science projects and community development regarding Tahoe and its watershed (as a side note to aiding research findings).

Provide technical assistance to managers; beyond traditional hypothesis testing. Be a conduit that provides managers with the products they need to support planning, monitoring (all forms), and policy and management actions.

Local Government

I don't think that the TSC should be involved in examining socioeconomic status of the Basin; I think it should be a strictly hard sciences organization.

Perform research on cutting edge issues and actually collect good data. Synthesize the data and provide a report in a decent turnaround time to be used by planning and implementing bodies.

Highest priority: Provide research findings that truly have independent peer review, as that term is used in the scientific community. The partnership members have devised their own definition of independent and it is not credible. Without credibility, all the good work that does occur is useless. Without credibility, all the public funds are essentially wasted.

Provide tools and scientific support for forward implementation of forestry and water quality protection projects. If the TSC cannot [do this then] the funding should be removed from the TSC and provided to the implementers who get the work done.

Environmental Group

Allow for ease of exchange of data - compiling or reorganizing data into similar electronic formats to make them universal. Allow for the study of trends.

Inform public about the science projects conducted in the basin; Support efforts for interagency collaboration on research and monitoring.

TSC should monitor environmental projects (fuels, water quality, etc) to find out their effectiveness. TSC should also monitor the long term condition of the lake and the forest, species, etc. That way TSC can evaluate our actions and make recommendations for improvement.

Business/Property Rights Group
Increase public participation by the research scientists in public meetings. Stop worrying about losing funding via political pressure and speak the truth at TRPA Gov. Board meetings, Pathways 2008, and KBCCIP.

Research Scientist
Conduct regular extension/outreach programs to disseminate scientific information to resource managers and local/regional decision-makers.

Provide the scientific knowledge based that will enable protection of the Tahoe area.

Serve to facilitate and encourage dialogue and understanding between the science and management communities.

Educate the public about research in the Tahoe Basin and what it all means.

The issues I see two issues as paramount: 1) Demonstrating a real link between scientific findings and actions by the various local, State, and Federal agencies. Why do research if it isn't influencing policy? And 2) evaluating the effects of environmental actions, including new rules, policies, and infrastructure (e.g. burning restrictions, street sweeping, supplying natural gas to the basin, etc.) as well as physical changes (e.g. paving, sediment traps, etc.). We can't make progress if we don't know what effects we're having.

Incorporate other humanities and arts research into the TSC.

Understanding/anticipating climate change.

Provide comprehensive workshops to regularly update the broad user community/stakeholders on the State of the Science in the Basin. This needs to get outside of the agencies to users.

Provide the capacity for Extension outreach education: share needs of users with scientists and findings of scientist with users.

The word capacity in goals a, b, and d above are fuzzy. How does one measure capacity? To what degree does TSC want to provide the capacity?

Collect and distribute important scientific issues that have not been addressed adequately.

Question 7 survey responses:

Federal Government
Assessment of technologies, and critique of current policies, provided in aforementioned Vegetation Management workshop. Promotion of RSWMP approach/concept. Organization of technical and relevancy reviews of SNPLMA science proposals.

Fisheries studies, such as invasion ecology of warm-water fishes. However, specific efforts in aquatic ecology have not been directly related to TSC, but more so of agency managers finding professionals with specific expertise on the subject matter of concern (i.e. Lahontan cutthroat trout recovery). TERC has been instrumental in collecting valuable limnological data sets as well.

Planning for integrating science by encouraging support for diverse fields of investigative endeavor.

TSC worked hard to help us get product peer review...the effort fell apart over issues on contracting.

A central point for findings of science and determining the additional research questions/needs.

Development of the annual science themes for SNPLMA funding. Addressing the impacts of prescribed fires on air quality and water quality.

The science plan has benefitted my organization to understand what issues are relevant and most important in Tahoe.

None yet, but am more hopeful for future

Winter 2008 meeting that discussed issues with regulatory objectives concerning SEZ's. The forum brought a lot of info to light.

Peer review of water quality issues.

State Government

I'm not aware of any such instances, I'm sure they exist but I think the TSC needs to do a better job of advertising itself.

Research Symposium.

I have used the TSC science program to answer key questions I have that my agency does not have the capability to answer. Although I do not have the answers yet I assume I will get them when the work is done.

Interaction with the Executive Director regarding long term science needs in the Basin as well as establishing a credible peer review process.

Studies on water quality conditions and BMP assessments. Stormwater monitoring programming.

Have little idea of what TSC does - what the goal/objectives are.

Peer review of science and research grant applications.

Specifically: RSWMP; because final science plan is not out it is difficult to say how useful this product will be. Maybe better time for this survey would have been after this was released.

Preparing monitoring proposal for Angora Fire area.

Substantially is a stretch, however benefits would include Angora Fire monitoring, RSWMP, SNPLMA Science Planning & Prioritization

Their leading and coordinating the SNPLMA Research proposal process including development of themes and subthemes.

Regional Government

Helping with a residential monitoring plan.

The TSC has not only not benefitted my work; it has actively interfered with it.

By providing scientific data on water quality trends in Lake Tahoe in order to secure funding for erosion control work.

Providing review of monitoring plan elements. Providing a forum for talking to the science community.

While I very much value the types of services that the TSC is supposed to supply us, I have yet to actually benefit from many of these services.

Assistance with invasive species, program and priority, general review of science applications for funding.

It remains to be seen in practice but the proposal for and development of the Regional Stormwater Monitoring Program is very relevant potentially.

Conducting a workshop on Forest Management on sensitive terrain in the Tahoe Basin.

Haven't seen the value of the TSC yet. The TSC needs to focus on results versus bureaucratic process and organizational structure.

Lake Tahoe Science Plan-Research Agenda

The research themes that were proposed for SNPLMA funding.

Organizing the Vegetation Management Workshop and the regional storm water management plan.

On-going working relationship with TSC representatives has opened up avenues into the science community.

Zach has been valuable and effective in conveying science and monitoring funding needs to decision makers. He has provided valuable input on efforts I've been involved in. Focused workshops are a great venue to present current information to manager and scientists on issue emerging in the basin. Consider providing more (3/year).

Outreach in the main hall that explains some research findings and flora and fauna of the Basin. I think more of this would help the public. Also keep the Demonstration Garden.

I spoke with John Reuter for hours about how to put stormwater loads in to context with the watershed model loadings. I am working with both measured and estimated loads for Glenbrook Nevada, and am trying to figure out what does this mean in the larger context.

Presentations on BMP effectiveness, TMDL etc.

Water quality monitoring .

Local Government

I do not feel that TSC has evolved to a place which we have substantially benefitted.

I have not had the specific interaction as yet but intend to utilize this resource in the future.

Development of Living with Fire by UNR Cooperative Extension.

Annual workshop is done fairly well.

Projects are referenced in the Tahoe Water Suppliers Association annual report .

None of the TSC efforts to date have substantially benefitted the work my agency performs in the Basin. TSC is however, creating a master water quality monitoring program that we intend to use in the upcoming years.

None. The TSC has failed to engage stakeholders. The TSC has failed to provide anything tangible for use in forestry or water quality protection.

Support by TSC staff in attempting to develop a regional storm water monitoring program to assist implementers and regulators in regulation compliance, assessing BMP effectiveness and achieving water quality TMDL allocations.

Coordination of research and scientific input to specific studies

Research and distribution of information related to the effectiveness of BMP implementation and systems. Provision of funding and prioritization of community based planning efforts on a sub-watershed level.

DRI and the District have an excellent relationship pertaining to applied projects; the most recent example is the shared work on our sweeper study in Incline and previously the monitoring sharing with the air deposition study on-going.

Environmental Group

Research on Aquatic Invasive species, Forest ecology and forest management.

TSC has helped maintain my awareness of restoration projects going forward in the Basin.

Making management decisions on the LTAIS coordination committee and providing support on multiple levels on the invasive species issues.

Working with other agencies i.e., community awareness; projects proposed for North Shore of Lake Tahoe.

AIS research.

The fact that TSC exists as a voice of science and not of management is very powerful for advocacy work.

Business/Property Rights Group
The published works have greatly informed my designs for storm water quality.

Research Scientist
Annual Science Symposium.

Improved interaction between researchers and managers, through the science planning process, has resulted in a more objective and useful process by which research needs can be met in the Basin.

Developed SNPLMA RFP.

The TERC has helped with sampling.

Funding to support research. Advance knowledge in applied science in forestry.

The Vegetation Management in Sensitive Areas Workshop in 2008.

I was able to use the TCES to teach a course this past summer jointly between UNR and UCD. I don't know if the TSC was involved with that (I think so).

The TSC peer reviews research proposals every year. Also it allows access to a lot of scientific information of the Tahoe Basin.

Support for a proposal on effects of Angora fire. Support for a SNPLMA proposal.

Science planning is necessary and a good thing, but too much planning is a waste of time. Over the years I have repeated the same planning exercise for Tahoe many times.

My work is outside the guidelines of a strictly science-based plan.

Science priority document has helped in formulating questions for funding .

Synthesizing available research and outlining new research priorities.

I would like to benefit from the above, but have seen none of that type of activity offered.

TSC has provided feedback and technical advice on the update of the Tahoe monitoring and evaluation program

The TSC has provided review of documents that we have prepared.

Development of long term air quality monitoring for the basin and its impact on prescribed fire and transportation.

Conferences.

Validated the need for water quality monitoring of the lake and its environs for the long term to establish trends and see if efforts to repair the environment are bringing positive or negative results.

SNPLMA program.

Meetings that foster multi-institutional collaborations.

The science plan has enabled me to write more effective SNPLMA proposals.

Question 8 survey responses:

Federal Government
Expand independent assessments (via workshops, preferably) of basin mgmt practices (esp. re: WQ and air quality regulation), including TMDL and Implementation Plan. Assessment of appropriate restoration objectives in light of changing baseline circumstances (e.g. global warming).Assistance with development, review and maintenance of conceptual models contained in science plan, and via EIP's Science Program Mgmt System. Other roles as described in draft Science Program Management System (SPMS): identifying uncertainties, revising research agendas, assisting with synthesizing results, etc.

Effect on water sedimentation due to catastrophic fire vs. water sedimentation due to fuels thinning in stream environment zones (SEZ).

In relation to question 7's response (above) - it's unclear as to what focus areas the TSC works in or has specific expertise in (i.e. forest management, aquatic ecology, terrestrial ecology, etc.).

Request for proposal process that brings in outside research capabilities.

It would be useful and more effective if TSC were more open to utilizing scientific expertise outside of the basin for issues/concerns/questions within the basin.

Crosscutting prioritization of research needs for non-SNPLMA funded work that will be managed by an agency where that agency has some discretionary funding that might be applied to research.

Need to provide high level support for integration/synthesis of existing research.

Money, with a level playing field, i.e., as it is now, only the anointed get funded.

Keep track of progress towards achieving the goal of non-degradation and long-term improvement in health of Lake Tahoe and the basin.

State Government

It would help if the TSC made it more clear how they can be of assistance and who should be contacted to ask these questions.

See above. Peer review may be of importance in the future.

As supplied in work groups for Recreation, through the Shore zone Process (Brant Allen is great and a wonderful communicator!)

Better collaboration in the development of project effectiveness monitoring plans.

More applied science results to pointed management questions.

Provide the capacity and be the venue to address and solve competing environmental priorities within the Tahoe Basin, e.g., Fire Defensible Space and Water Quality. Be a clearing house for potential Basin-related projects and provide feedback on projects and grants to ensure that project money is being wisely utilized and that the project goal is one that fits in with broader Basin goals.

Synthesize existing info and develop a research and monitoring plans and/or programs to fill information gaps and address agency needs for specific topics/issues/resource areas.

Synthesizing research in basin on timber harvesting impacts to water quality relative to other land uses and wildfire.

Applied research to answer key uncertainties and management questions related to the Tahoe EIP. How effective are projects? What are they doing for the environment/thresholds? Bring in world class research/understanding when addressing Tahoe issues, expectation of complete synthesis of understanding an issue when using EIP $ to fund research, etc.

Applied studies for treating storm water from all basin faculties using cost effective (Capital and Maintenance) methods.

Longer term project performance data and information to gauge project success.

Directed research to answer management or policy questions, and independent peer review.

Regional Government

Social scientists evaluate social science proposals/research .

Provide the necessary science to support ongoing regulatory and other efforts that result in implementation of environmental improvements.

Comprehensive studies on invasive species in the Lake and potential threats.

Consultation and advice on statistical methods for research .

Increase the interaction between the project managers (staff level) of the implementing agencies and the scientific community. Currently it seems that most of the coordination is done at the higher levels and therefore may not be as appropriately applied by the project managers.

Clearinghouse for science publications, especially the unpublished research papers and thesis.

Allow the agencies to determine what the management questions are, then focus on research to answer those questions and provide analysis of findings.

Developing an independent science based approach to treating overstock timber stands, and the most environmentally, economic, and socially beneficial use of excessive fuels. Analyzing current and potential technological advances in use of biomass. Treatment options for soil impacts related to pile burning.

Technology transfer, especially of best practices used elsewhere but not in use in the Tahoe Basin.

Continuing to provide the bi-annual Tahoe Conference is vitally important for bringing the science community together in productive ways.

More BMPs in the community garden including LID practices such as Rain Gardens. Also help on native plant species in gardening with more wildflowers and where people can buy them (people like wildflowers).

A Regional Stormwater Monitoring Program.

Making the connection between science outcomes and policy needs

Long term studies on the impact of large scale wildland fires on ecology, wildlife and water quality.

Local Government

Implementation of a Regional Stormwater Quality Monitoring Program that 1) builds on the limited data series used in TMDL to establish loads, and 2) provides reliable monitoring data on more than just the effectiveness of CIP/EIP water quality projects. A RSWQMP should also assess the value of enhanced maintenance practices, the value of BMP retrofits on constrained and unconstrained properties, and whether public policy decisions can provide significant load reductions (e.g. banning parking on dirt or allowing permeable pavement or gravel parking/snow storage areas by waiving existing land coverage limitations). If 3/4 of the fine particle load reductions will be allocated to the urban uplands, 3/4 of the water quality science funding should go towards scientific work associated with how to reduce urban loads.

Completing a comprehensive regional monitoring plan with approved protocols and methodologies.

Anything that supports project implementers.

Determining an economic and viable source of road traction material that has less water quality impact than the current application of sand. Also, help assess street sweeping technology and characterize the effectiveness and economics of newer sweepers.

Compilation of key science findings for incorporating into EIP delivery.

Hosting of technical workshops to provide information on the latest research and findings related to erosion control practices and water quality improvements. Establishment and disbursement of brochures documenting latest science behind BMP implementation/water quality improvements.

Conducting a shared project between NRCS, NTCD and a member of the TSC (DRI?) regarding particle retention quantification as part of EIP 16, such that the data can be utilized by stormwater implementers and receive credits. An ancillary benefit is application of EIP 16 where the most particles will be retained.

Monitoring impacts of fuel reduction projects on soils and water quality.

Environmental Group

Long-term impacts of development on environmental thresholds.

Timely interaction with the activists that are currently implementing projects on the ground and in the water.

Support for citizen involvement (i.e. water quality monitoring) .

Greater fire research.

What happens when fires or other natural behaviors change our usage and ability to grow.

Additional environmental scientific research to assist decision makers on the implementation of various projects such as fuel removal in SEZ's, recreation, restoration techniques and methods and climate change.

Business/Property Rights Group

The scientist must sit as an advisory panel at governing board/supervisor meetings. It is so painful to watch the uninformed debate the technical aspects of projects.

Research Scientist

There has been extensive research on plant establishment and erosion control by Caltrans since at least 2000, as well as monitoring; almost none of this information is available. Also on Nevada side of the Lake (Cave Rock).

Regular, focused-topic seminars typical of university extension.

Additional implementation work and program evaluation.

On site sampling and collaboration potential.

More focus on applied research.

It would be nice to have more detailed/specific links to other data/information in other web sites, such as GIS coverage in USGS and soil data in NRCS Web Soil Survey.

Data stewardship/clearinghouse.

Provide a comprehensive list of people involved in different research areas with contact information.

Maintenance research.

Science aimed at decision making not just research for research sake.

Identification of funding opportunities - especially shared funding across agencies.

Create a list of important unanswered research questions that have yet to be addressed. Also, it would be helpful to create some type of schematic that organizes all the research questions that has been conducted with a link to the published literature.

Lobbying regulatory agencies to implement science results in much shorter lag times than they now seem to favor...use adaptive management techniques.

Working group meetings to better integrate scientific efforts for within and between scientific disciplines.

Question 10 survey responses:

Federal Government

More public meetings related to prioritization.

The TSC needs to make a better effort in understanding agencies policies and the current resource management objectives. Resource management agencies should be a primary driver of what questions research should focus on.

Request for proposal process that brings in outside research capabilities.

A science conference to facilitate meeting others participating in the TSC and to hear first-hand the results of their work.

TSC has just become another layer, another hoop.

Mitigating the politics of doing research in the Basin.

This past SNPLMA round 9 was the most understandable in terms of what research is needed, since the science plan was referenced and the update was available. It made writing a proposal much easier.

Expand their view of science; it's not just about monitoring.

State Government

More accessible peer review interaction; more forums to share information.

Prioritize research questions. Help scientists focus research questions that optimize research time and money to answer pressing Basin needs.

State-of-knowledge information synthesis; research planning (ie., laying out conceptual research work plan); information feedback to improve project design and performance (through a variety of mechanisms: lectures, workshops, literature); helping agencies prioritize needs and in determining if adequate information exists to support policy - if it doesn't then what do we need to make the decision?

Develop summary listing of research opportunities and background information that could be available to develop or take advantage of funding opportunities.

Share data, results, focus on key water quality issues and not esoteric studies.

They can help to inform researchers of the agencies scientific needs to ensure all parties are working together.

Regional Government

Literature and implementation review of programs that have been proven effective in other areas. In my fields the Basin is really not unique. Other areas experience the same issues and have developed procedures to mitigate them. It would be useful to document their methods and provide some type of benefit analysis for use the Basin

Workshops explaining scientific findings.

More interactions with agency staff.

I don't think that this should be in the purview of the TSC. Sound science should dictate the research completed. The TSC is not a neutral facilitator of research in the Region.

Go after grant monies that provide for research that is more holistic in nature. I think it would be super cool to do a comprehensive project where we are monitoring atmospheric, stormwater, GW, and creek water all at the same time, within the same time frame, and with the same intensity. Instead of piecing data together from one project with another.

On-site field workshops.

Standardization of methods so all research is comparable.

Promote/coordinate standardized monitoring and ensure monitoring is conducted.

Local Government

Develop approved monitoring protocols that can be applied region-wide and assist in comparing data and determining project effectiveness as well as long term trends

Conducting a shared project between NRCS, NTCD and a member of the TSC (DRI?) regarding particle retention quantification as part of EIP 16, such that the data can be utilized by stormwater implementers and receive credits. An ancillary benefit is application of EIP 16 where the most particles will be retained.

Environmental Group

Provide reports and studies online, allow easy access of resources.

Data should be electronic, in one particular format, and accessible. Perhaps a data manager is needed.

Business/Property Rights Group

Applied science that could support agency decision makers in understanding the trade-offs of policy decisions.

Research Scientist

Post it! See response to #8. There is a lot going on that is not available for review. #8: There has been extensive research on plant establishment and erosion control by Caltrans since at least 2000, as well as monitoring; almost none of this information is available. Also on Nevada side of the Lake (Cave Rock).

More regular and frequent information dissemination, beyond the annual symposium.

Better communication between the research organizations' reps on the Committee of Scientists and the research community would enhance the ability of scientists to work effectively with managers.

Provide existing data bases and contact information for collaborations. Assist with sampling.

Bridging between local land managers and researchers.

Provide yearly summary of current research projects at Lake Tahoe.

Define science to include serious economic policy analysis.

The TCES facility is a good resource.

If the TSC can control (or keep) all the data related to the Tahoe Basin, it will be easier and more efficient for research scientists to conduct their work.

Provide scientific leadership. Agencies in the Basin should not be making decisions about scientific research - their focus is too narrow and often very financially self-serving. They do not understand research and should not be managing it.

It would be useful to have a virtual library of scientific publications (as pdf files) of papers related to the Basin. For copy write reasons, a password might be required for access (the library could reside on the UCD cehr ftp site). I have suggested this to TERC staff, who agrees that it is a good idea, but to my knowledge, nothing has happened yet. I have quite a lot of articles that I could upload. The library would ideally include a bibliographic data base (such as Endnote) which would be kept up-to-date by the librarian.

Coordinating research has been pretty good, of course, more money is always needed, and efforts to get it are always a plus. To a large extent, the problems in the basin are external to TSC.

Help to find research funding sources.

Include humanities and arts research.

Developing a database of all fuels treatment and survey data available in the basin would be useful.

Data stewardship/clearinghouse and a summary of previous research and findings of research in the basin.

Assist in permitting issues.

Develop, disseminate, and engage the broader stakeholder group in a coherent and relevant science plan.

Find funding.

Create a list of important unanswered research questions that have yet to be addressed. Also, it would be helpful to create some type of schematic that organizes all the research questions that has been conducted with a link to the published literature.

Provide monetary and logistical and political support to them.

Assemble and publish Data and provide contact person information for specific issues.

Question 17 survey responses:

Federal Government

Again, from a land management perspective it's become unclear of the real role the TSC plays, especially where science has answered a number of questions in the Sierra Nevada, however outside of the basin. But no where have I seen a synthesis of issues when issues have arisen (i.e. aquatic invasive species or forest fuels management). The TSC needs to do a better job of looking at existing science and informing agency managers of what current science says, before jumping in and saying we need to do research on every issue. However, in order to speak to multiple environmental/land management issues, does the TSC have a diversified staff (experience) prepared to do that? The TSC may need to accept that there will be many times when agencies work with scientists outside of the LT basin on specialized issues.

The TSC has gone a long way in institutionalizing a science agenda at Tahoe. Keep up the great work! I think two areas that need further attention are a monitoring strategy for the basin and better coordinated electronic data management for information transfer.

TSC should continue to find out from regulatory/land managers what their science needs are and then inform the research community. This is a very valuable service because then more people in the research community can contribute, not just the researchers that work closely with the regulatory/land managers.

Cut the politics.

The TSC serves the purpose it was created for.

State Government

I think you need to do a better job of selling yourself. I know your goals but am unclear when I'm actually interacting with TSC and reviewing TSC products.

Sometimes the response and information has not been timely enough to be of value in stemming the tide of problems (e.g., Eurasian Milfoil infestation).

See responses to questions 12 -16. The jury is still out on many of the products and information that the TSC is involved with. My expectation is that many of the regional opportunities which they are critically involved will kick this into highly credible once the products are complete or more data sets and analysis is completed.

Sadly, there is still a perception that decision at TSC are being made in an isolated, ivory tower environment, and are often not responsive to the needs of partner agencies.

How have the altered conditions of streams and SEZs in urban land use areas affected aquatic biodiversity, particularly macroinvertebrates, and what influence do the biological effects have on aquatic nutrient cycle/food web?

Comments above should be tempered with fact that my interaction with TSC was very brief.

Many members of the committee of scientists are the usual cast of Tahoe researchers focusing on the same old issues; we need new academic blood and more accountability from the science community. It appears the scientist want to only do research and that research is not always applicable to various agencies key management-science questions.

Concentrate on the water quality problems and solutions to those problems. Work collaboratively with all parties. Seek partnerships and facilitate collaborative efforts.

I believe that the TSC is a much needed entity in the Lake Tahoe Basin, and I feel that they benefit both agencies and scientists in many ways.

Regional Government

I think that the TSC is inappropriately trying to control or influence the questions that management agencies want answered.

I think the ideas and concepts of the TSC are great and much needed, but as a project manager of large resource projects I still have not been closely coordinated with their activities. Hopefully this can improve in the future.

This survey is biased towards a positive response (e.g., see questions 6 and 7). As a resources manager in the Basin, the TSC is not fulfilling its mandate to provide environmental managers and decision makers with comprehensive and well-synthesized scientific findings drawn from research, monitoring, and modeling. The scientists that work with the TSC are stuck in their own agenda, and do not respond to managers' oft-expressed science and research needs. The TSC has actively blocked research projects that I need as a land manager. The working relationship between the science community and land managers in the Basin is very bad, and Zach Hymanson should be fired.

I believe the idea of the TSC is noble and could prove effective. However its current execution of the program is not adding any substantive value for my areas. Further, in cases where the cause, effect and solutions are known to a high degree of certainty, excess research may actually prevent progress due to the public/decision makers seeking 100% accuracy.

Interaction with TSC has been limited and survey responses reflect that. Survey response is based on the process for the Round 10 SNPLMA research proposals. Initially the process was well organized but the input mechanism for the end phase was not clear or systematic.

The concept is sound for the TSC but the execution has been slow and needs jump starting.

Science, research, and monitoring efforts are valuable services, but when the rubber hits the road they always appear to be under-funded!! As funding sources get tighter, it would be a healthy discussion to consider how the TSC and its associated vital services could be paid for via alternate sources of money. For instance, taking advantage of its relationships with UC Davis and UNR - a science based summer camp for kids could be a gold mine in terms of educational outreach, enhanced monitoring efforts, and funding; science based geo-caching events or treasure hunts could draw in and educate families; or (I am dreaming big on this one!) creating a science based eco event that pits teams of scientists against each other in a week long competition where an environmental issue is explored, and must include extensive field testing, could be outstanding. This last idea could be incredibly unique and draw in unusual sponsors. In fact, these last two ideas would actually make for fun and interesting reality TV shows - again - potentially pulling in sponsors like the Discovery channel! These events could be done via existing relationships and some out-of-the-box thinking. I don't think there are enough science based events like this and creating them could be a win-win for science and the Lake Tahoe economy. My goodness, the Discovery channel has followed one guy for seven years as he tries to put himself in harm's way to get a coveted shot from inside a twister in Storm-chasers! I am sure Lake Tahoe could muster a science based show to rival that one! Crazy ideas - I know - but maybe drastic times call for drastic measures! Perhaps it's time Tahoe used its incredible brain trust to free itself from government funding!!

Keep up the good work. Outreach to the public is the key. If more people are involved, more can be accomplished.

With 72% of fine particulate coming from urban runoff, it makes sense to have a comprehensive stormwater monitoring program that is sustainable.

Better information on role of TSC - what it needs and how we can utilize its services.

Local Government

I feel that the TSC has to prioritize its objectives and move toward accomplishing those objectives rather than being spread too thin trying to accomplish too much at one time.

TSC has done nothing but take money from project implementers in support of their own scientific agenda.

TSC should continue to focus on assistance with developing RSWMP that will be a benefit for all agencies and especially Lake Tahoe for reversing the downward trend of clarity.

Environmental Group

They tend to be hard to reach and unwilling or unable to share findings and reports with lay groups in the region.

There are two on-going needs in Lake Tahoe that I would like the TSC to consider helping fill - 1) enhancing public education and involvement efforts around research and monitoring and 2) supporting agencies to integrate efforts around research and monitoring.

Business/Property Rights Group

The TSC is a research arm but they must connect more with the implementers and close the loop on an adaptive cycle.

Research Scientist

It would be beneficial to TSC to be more inclusive and include scientists from other institutes in collaborative research. The UCD, DRI, UNR monopoly of research in the area is restrictive.

Bring in people who know how to manage scientific research. This is by far the worst managed research program I have ever had occasion to be involved in in my 30 year career.

TSC is a good and necessary effort; its problems are largely due to things beyond their control (politics, local, State, and Federal funding, etc.).

Humanities and arts research is, again, important to consider and include

One sometimes gets the impression that science in LTB is too focused on the simplest of metrics -- e.g., lake clarity, potential fire behavior -- instead of more a functional view that emphasizes long-term ecological processes and what to do about the complex tradeoffs that must be addressed here.

This is an important program. I would like to see a greater role for the organization in summarizing and making available research that has been conducted in the basin.

TSC has had little impact on these efforts, outside of a limited group of users who are also the creators of the information. The broader group of users is excluded. A standardized format for disseminating TSC results and impacts needs to be developed.

I would suggest that the funding be spread around more homogeneously, in terms of research topics. In the last decade the emphasis has been almost totally on dirt science. I suggest that there is far more going on in the lake, biologically, that is being totally missed. Nutrient sources are generated in other places, other than the dirt. There are huge implications for 'missing' the boat because the focus has been put in only one area.

Science in Tahoe is like herding cats.

They are an essential element of research progress and understanding by the scientific and public community about the ongoing environmental changes and environmental progress at Lake Tahoe.

I think the TSC provides a valuable service. However, I have found that managers are still not as receptive to the research process and are not willing to make concessions that facilitate robust experimental field designs. They are also not as receptive to the products. Although the USFS is a TSC member, they are obstructionist in some research efforts, especially those involving fuels reduction. I'm not sure how TSC can help to make inroads into an agency culture that does not have broad support for scientific inquiry and insists on measuring project success in strictly regulatory or monetary terms.