

# COSEE-AK

## Communicating Ocean Science Workshop 2010

### Evaluation Report

David Plude and Andrea Anderson  
SoundView Evaluation and Research

## Summary

The Communicating Ocean Sciences Workshop, one of several pre-conference activities for the Alaska Marine Science Symposium, took place January 10, 2010. Attended by approximately 100 scientists, students, and informal science practitioners, the turnout was up almost 50% from the prior year. Five sessions on a variety of topics were evaluated at the end of the session, as was the SEANET meeting following the Workshop. About one-third of attendees actually completed the evaluation survey, and of those the majority were educators or program managers.

Findings from the event show that COSEE Alaska effectively identified areas of interest and need for the audience and provides programming that is useful and likely to be used. The Pribilof Islands-Fur Seal research, involving an ocean scientist, a teacher and Alaska Native students was most captivating and compelling to the audience. The presentation on COS/COSIA was equally interesting. Most difficult for the audience to imagine applying in their own professional setting was a presentation on connecting with Alaska Natives for scientific research. Since most survey respondents were educators, likely they were unable to visualize making a “research” connection.

Findings suggest a couple of recommended next steps. COSEE Alaska might consider doing a needs-assessment of scientists to determine topics of interest, an effective approach for evaluating impact, and a way to expand the COS Workshop to include scientist-specific, educator-specific, and scientist-educator interaction. A second issue facing COSEE Alaska is how to establish SEANET as a sustainable, independent organization. A third recommendation focuses on how to expand understanding, awareness and appreciation for Alaska Native traditional knowledge among educators and ocean scientists.

## Introduction and Background

COSEE Alaska: People, Oceans and Climate Change is one of 12 Centers for Ocean Science Education Excellence in the United States. The core mission for these centers is to provide support for ocean scientists to communicate with the public and to increase ocean science awareness and literacy among the citizens. COSEE Alaska aims to “spotlight the Arctic, the wealth of ocean and climate change research currently underway in Alaska, as well as the richness of Alaska’s local and traditional knowledge inherent in its indigenous populations.” Toward that end, COSEE Alaska sponsored a Communicating Ocean Science workshop at the Alaska Marine Science Symposium (AMSS) in January, 2010.

AMSS welcomed 800 scientists, public officials, educators, and native peoples who study the Arctic. Monday of that week included a half-day day workshop, *Communicating Ocean Science (COS)*. As part of AMSS, approximately 100 scientists, students, and informal science practitioners gathered in Anchorage to hear about efforts to bring ocean science understanding to the public. (This attendance is up almost 50% from last year.)

The objectives of the COS workshop were:

1. To provide information about exemplary Education and Outreach (E&O) efforts by marine scientists in Alaska.
2. Introduction and update on COSEE-AK activities and future plans.

3. Inform participants about significant formal and informal science education efforts, especially as related to traditional peoples and traditional knowledge.
4. Provide information and insights into online and electronic tools for E&O.

#### The Sessions:

- George Matsumoto, a National Advisory Board member, described the COSEE Network. This session was intended to contextualize the Alaska COSEE center as one in a broad network that focuses on expanding partnerships among scientists, educators and the public around ocean science research.
- Informal Educators Teaching Informal Audiences by Craig Strang, was focused on sharing a COSEE California program called Communicating Ocean Sciences with Informal Audiences (COSIA). COSIA built on the approaches initially conceived for the formal audience Communicating Ocean Sciences (COS) course. (The COS course has no connection with the AMSS COS Workshop.) Of particular interest for the Alaska audience was the description of how Hawaii has integrated traditional knowledge in the program.
- The use of Concept Maps and Online Resources was presented by Annette deCharon, Director of the COSEE Ocean Systems Center. Ocean scientists have been trained to use concept mapping to design effective teaching approaches for educating about ocean sciences. Many of the COSEE centers have adopted the instructional model for use in the local practices.
- George Matsumoto gave another presentation about science Research and Social Media. Matsumoto framed his presentation with the fact that since 2007 email has increased 27% while social networking is up 150%. Individuals born after 1990 are considered “digital natives” and generally have high-level skills in working a wide range of media. To improve outreach to younger members of the community, scientists might consider gaining greater facility with a wide range of social media.
- Communicating in Alaskan Native Communities was the session conducted by Vera Kingeekuk Metcalf, a member of the US Arctic Research Commission. Ms. Metcalf talked about the core values of Alaska Natives and the nature of traditional knowledge that has assured survival for centuries. She noted a positive overlap with Western science and offered specific ideas for how native communities could be involved in both ocean science research and education.
- Andrew Trites, ocean scientist, and Tonia Kushin, educator, presented the session Education about Fur Seal Research in the Pribilof Islands. Scientists, hopeful of getting community buy-in for their northern fur seal research project, decided to engage the school and children in learning about the research. Online interactions, a student field trip to the Vancouver Aquarium, and mutual respect and commitment made this a very successful model of outreach and education.

A final activity took place during and after lunch. It was the SEANET update by Marilyn Sigman, which resulted in plans for COS Workshop expansion and a commitment to support the National Marine Education Association conference in 2012.

### **Methods**

To evaluate the impact of the COS Workshop, participants were asked to complete a written survey in which they were questioned about their reactions to each of the topics. Specific questions addressed these dimensions:

- Prior knowledge of the topic
- Interest in the topic
- Usefulness of the topic
- Likelihood of the engaging with the topic in the future.

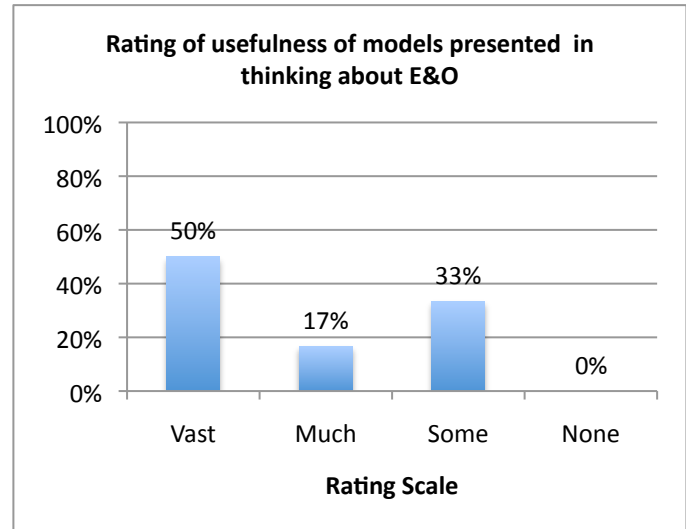
The rating scale used words to characterize how people felt, rather than a numerical rating scale. The options were to rate response to questions as “vast,” “much,” “some,” or “none.” 26 surveys were received and tabulated. (Approximately 32 % of those in attendance.)

## Findings

### 1. Mixed results for the overall usefulness rating for the COS Workshop reflects of the diversity of professional among the participants.

Half the participants (50%) rated the COS Workshop usefulness as “vast,” while one-third rated (33%) the usefulness as “some.” The specific phrasing of the question was about the usefulness of the workshop in connecting Alaska research with Education & Outreach.

The phrasing may have been problematic for many of the respondents who identified themselves as educators, and this may account for the bimodal response. Only four of the 26 surveys were identified as researchers, while the rest were either educators or program directors

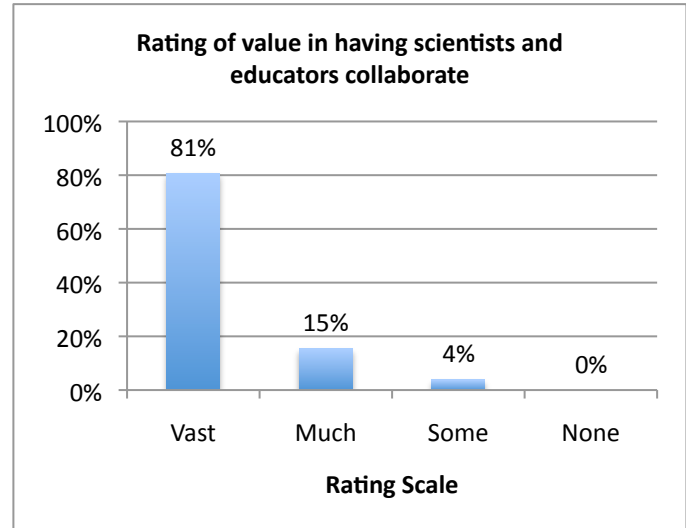


### 2. The opportunity for scientists and educators to interact is highly valued by all.

This Workshop is held at and during a major scientific conference. However educators are invited—encouraged—to attend. Educators significantly outnumber the scientists in responding to the survey. (There is evidence that the session is attended by significant numbers of scientists who decline to answer the surveys at the end of sessions).

Those who did respond overwhelmingly indicate that scientist and educator collaborations are positive.

- 81% rate collaboration value as “vast”
- 15% rate is as “much” value

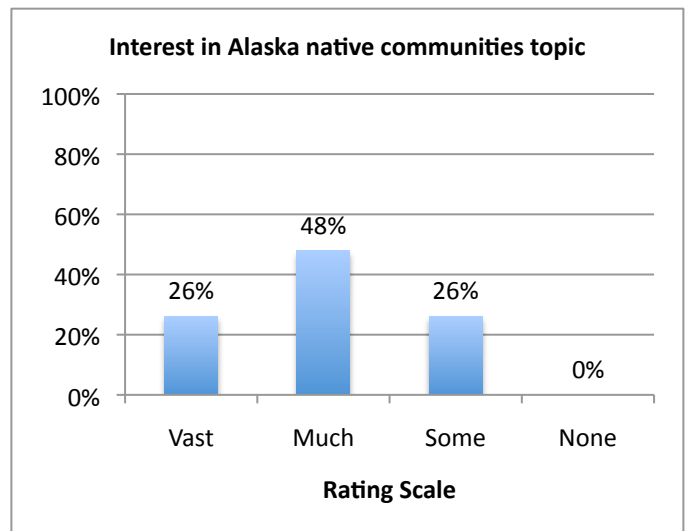
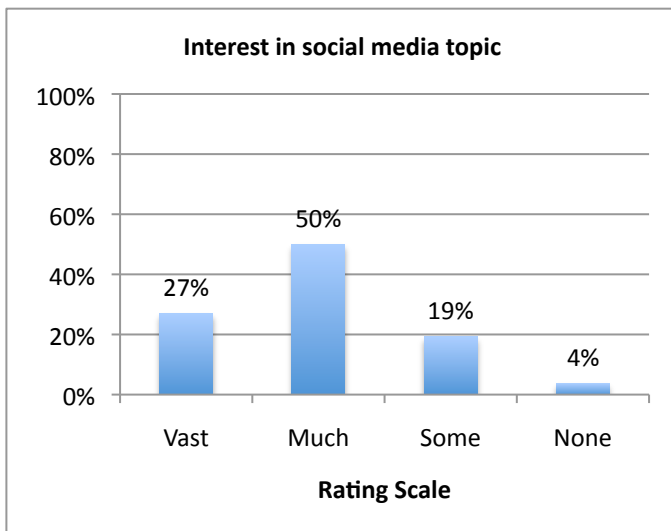
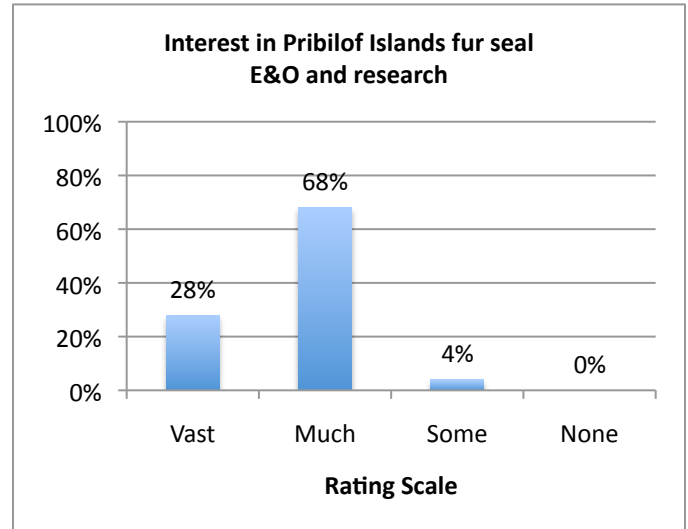


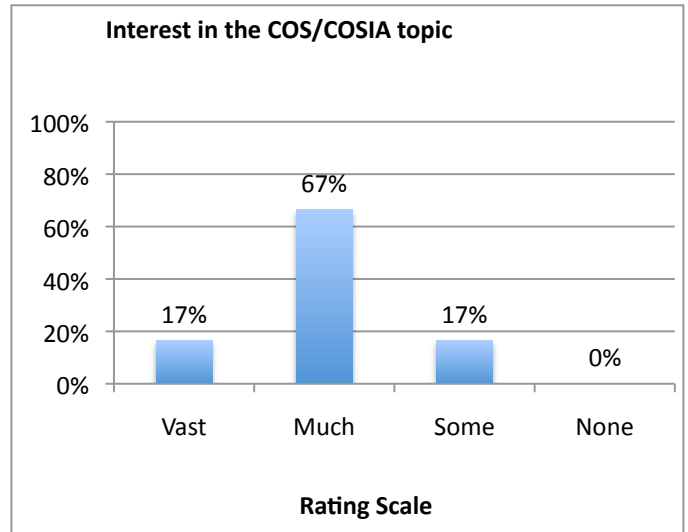
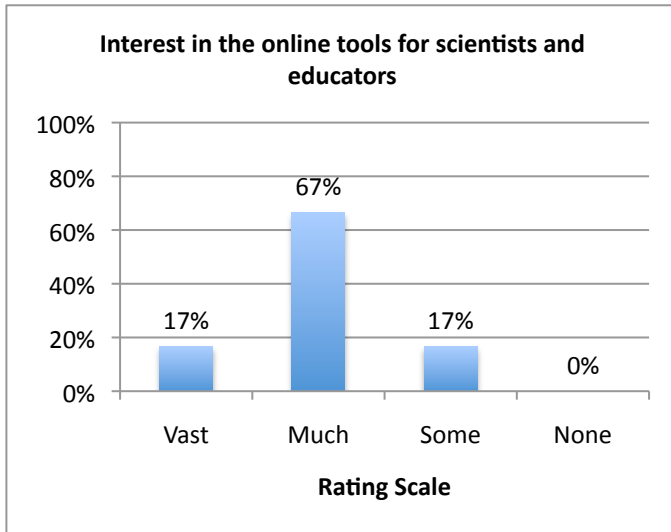
The question this finding raises is whether the scientists find collaboration with educators of value.

### 3. COSEE Alaska identified topics that were of high interest to participants;

More than one-fourth of the survey respondents rated their interest in three of the topics addressed in the Communicating Ocean Science workshop as “vast.” The following three topics received this rating, which was the highest rating option.

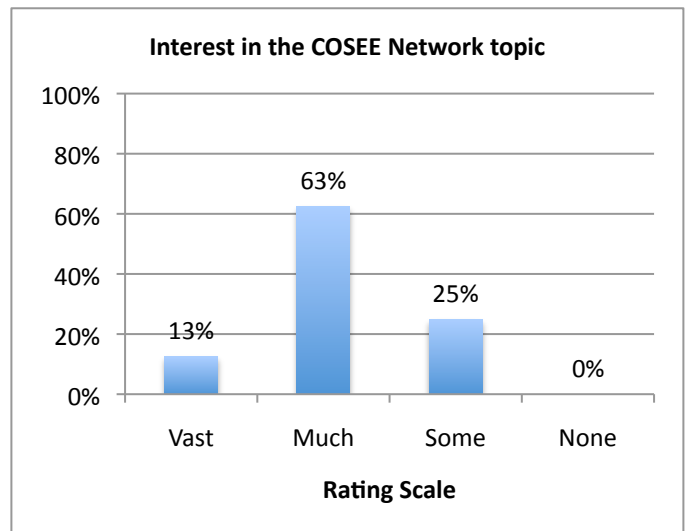
- Outreach and Education about Fur Seal Research in the Pribilof Islands
- Staying Connected by Keeping Current - ever-evolving social media to disseminate research news
- Research and Communication of Science in Alaska Native Communities





Overall the interest ratings were strong for each of the topics. Two-thirds of those who responded to the survey rated interest in the remaining three topics as “much” – the second highest rating option. Those topics were:

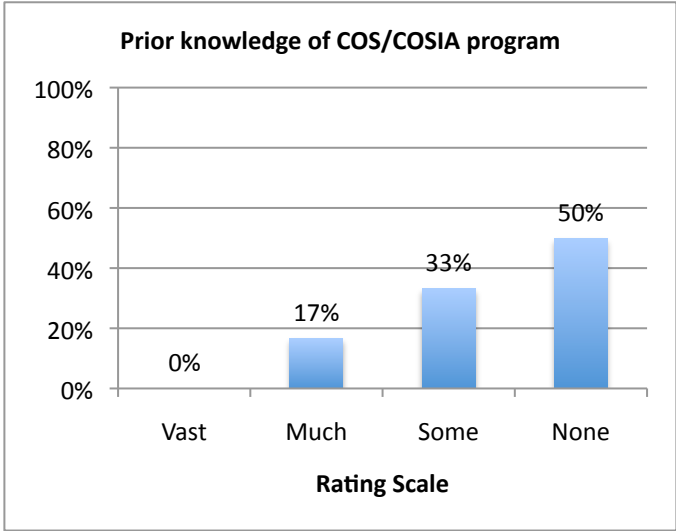
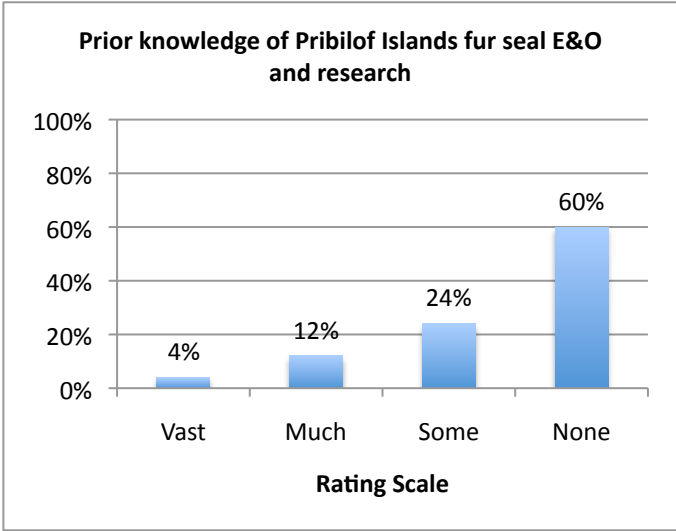
- Online Tools Help Get Scientists and Educators on the Same Page
- Communicating Ocean Sciences in Formal & Informal Education Environments - COS/COSIA course
- The Center for Ocean Sciences Education Excellence (COSEE) Network



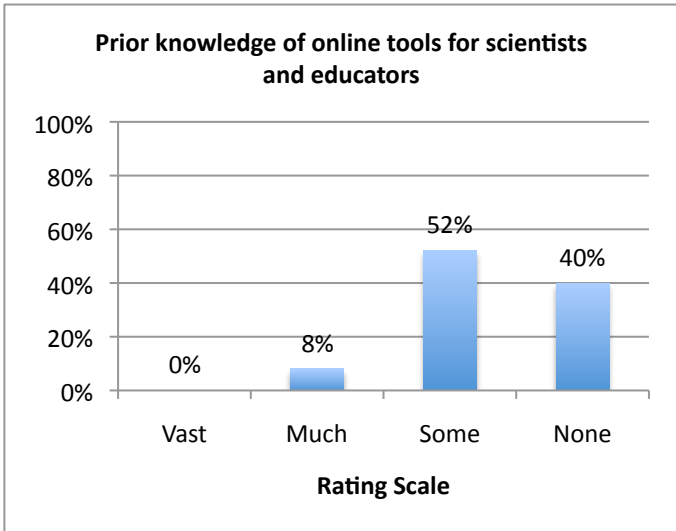
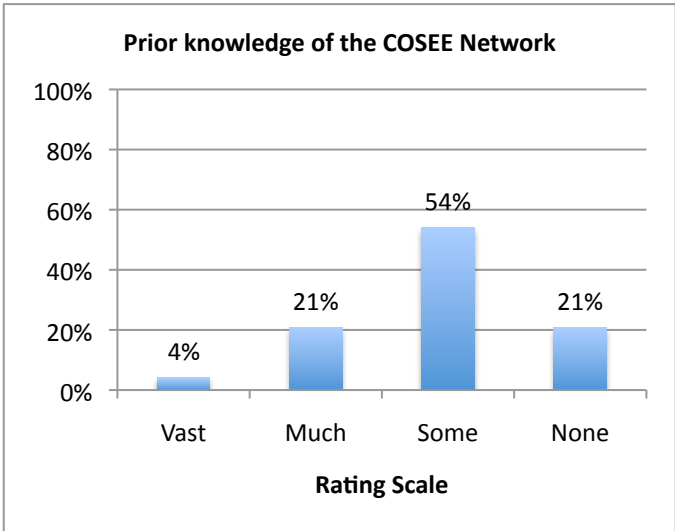
#### 4. Prior knowledge of topics was minimal

Participants in the workshop indicated modest to low prior knowledge for any of the topics presented at the Communicating Ocean Sciences Workshop. Likely this is why they interest ratings were so high.

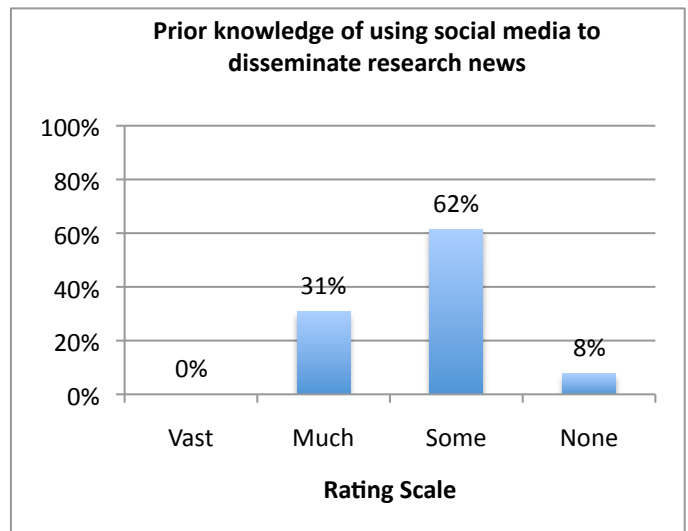
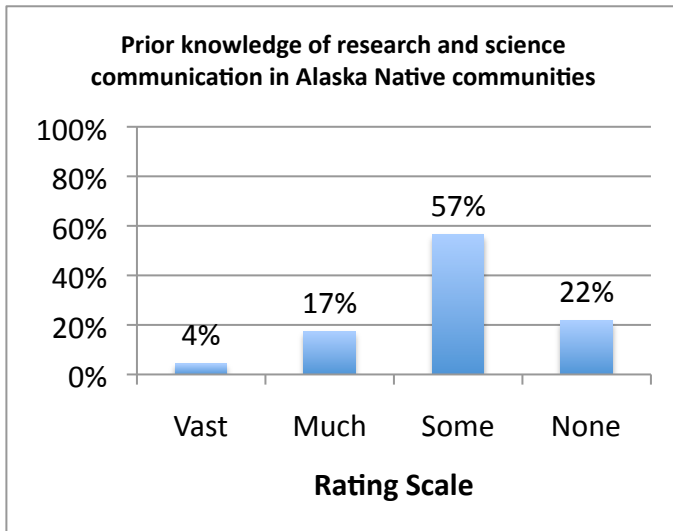
- For two topics, the highest percentage of respondents indicated no prior knowledge.
  - 60% had not prior awareness of the Pribilof Islands fur seal program involving St. Paul School children
  - 50% had no prior knowledge of a signature COSEE network activity – the COS/COSIA programs for graduate and undergraduate scientists to learn teaching techniques



- With the other four topics participants had had some prior awareness, but at a modest or even minimal level.
  - More than half of participants had some knowledge and awareness of the COSEE Network, online tools and the types of research and science communication happening in Alaska Native communities.
  - 62% had some knowledge of using social media to disseminate research news — likely because people are familiar with social networking from their personal interactions







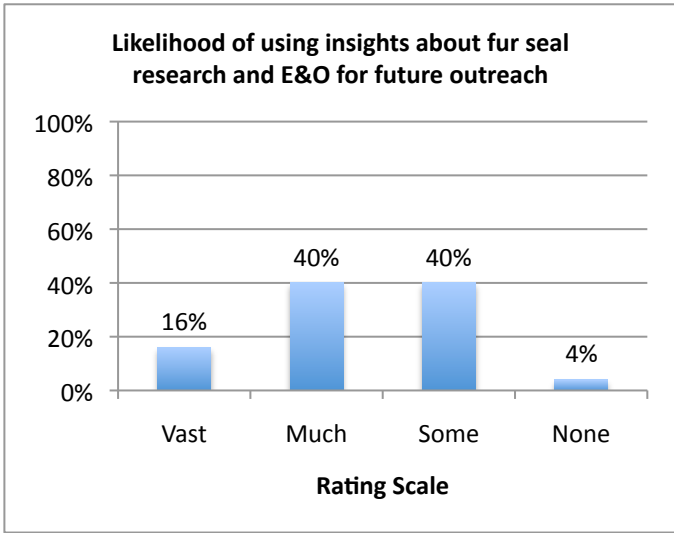
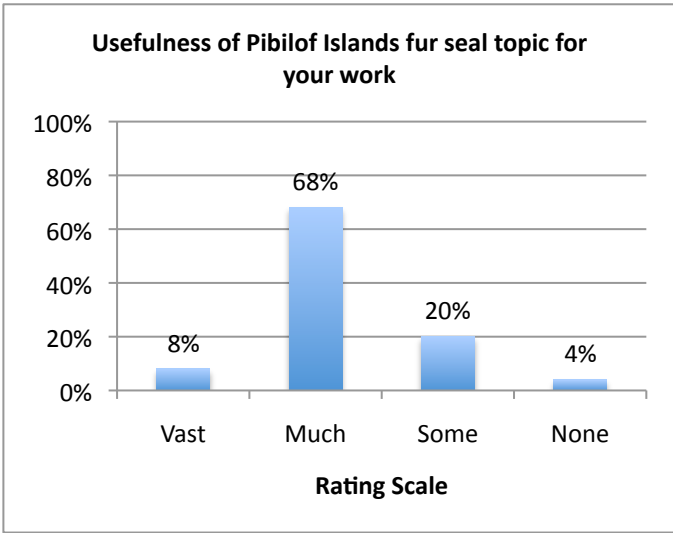
**5. Most of the sessions were deemed useful by participants, and except for two topics more than half the participants are quite likely to use the insights or perspectives gained**

Participants were interested but largely unaware of the content of topics selected for the Communicating Ocean Sciences Workshop. The next two questions answered by participants help illuminate whether the topics and the workshop actually offer a benefit. With essentially one exception, participants felt the presentations were useful.

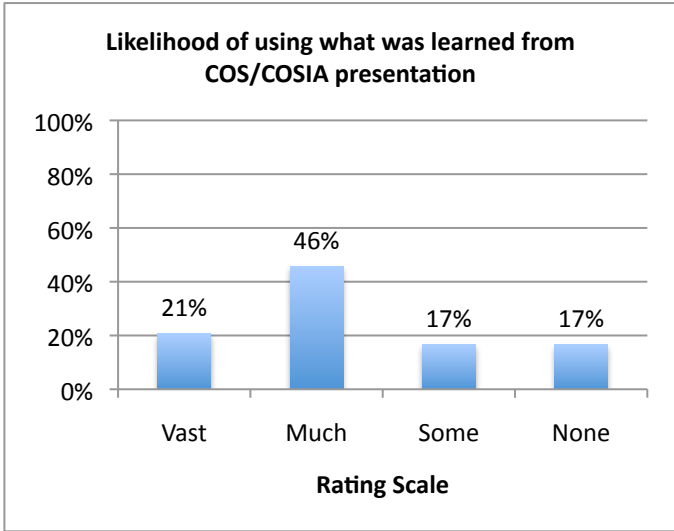
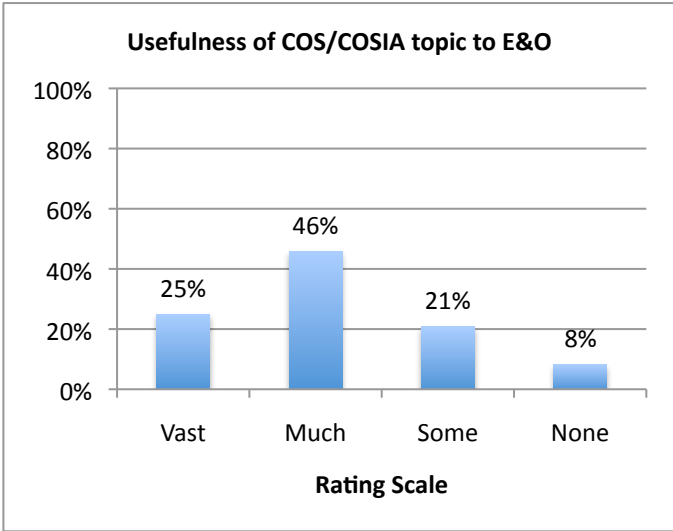
The two highest ranked topics reflect the interest participants have in unique and effective models for engaging scientists in education and outreach. Clearly the Pribilof Island fur seal project with students from St. Paul was unique and captivating, with participants beginning to imagine how the model might be expanded into their own work.

The COS and COSIA courses described by Craig Strang provided an image of how young scientists can learn about teaching practices that would be beneficial in working with Alaska Native populations. The positive reception by audience members is encouraging for the planned COSIA program at University of Alaska, Fairbanks.

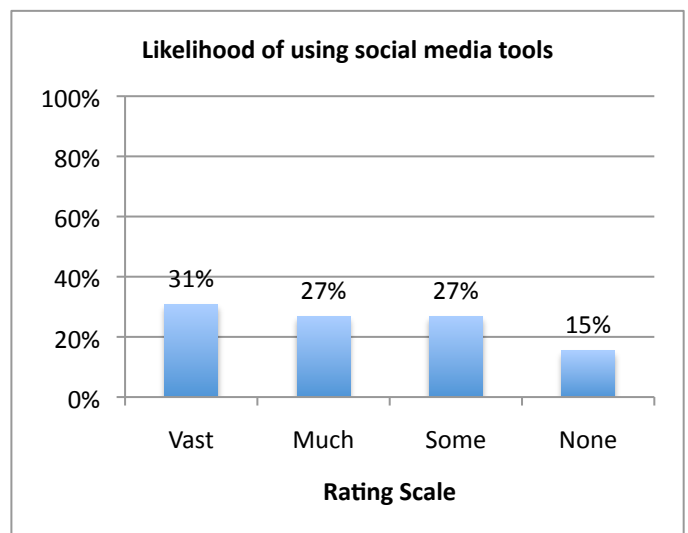
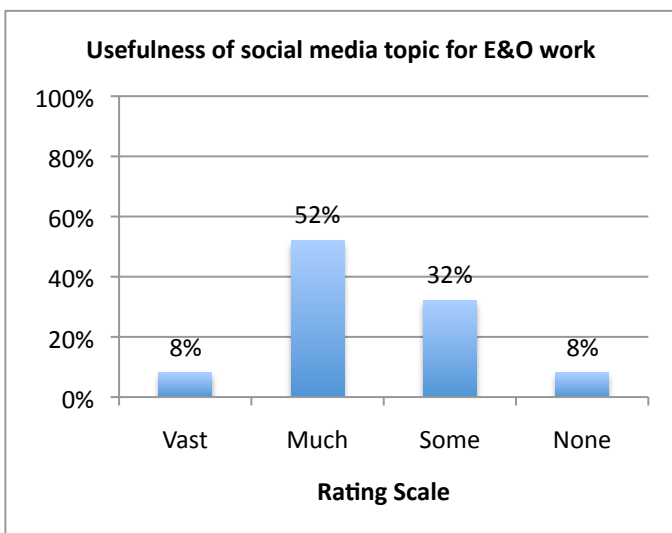
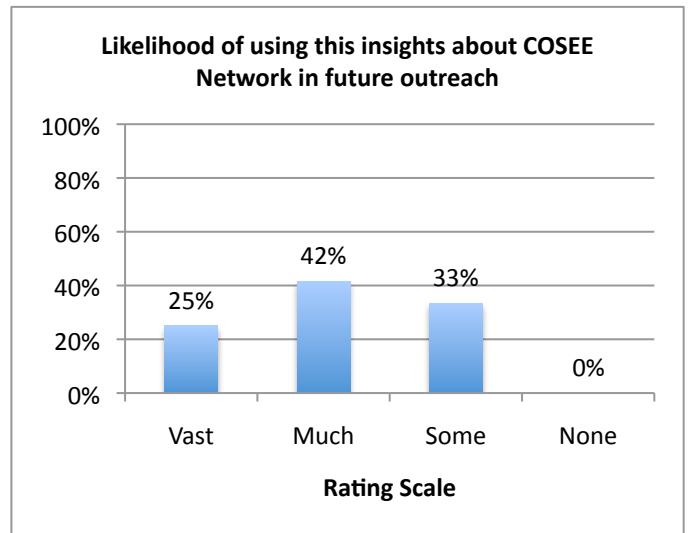
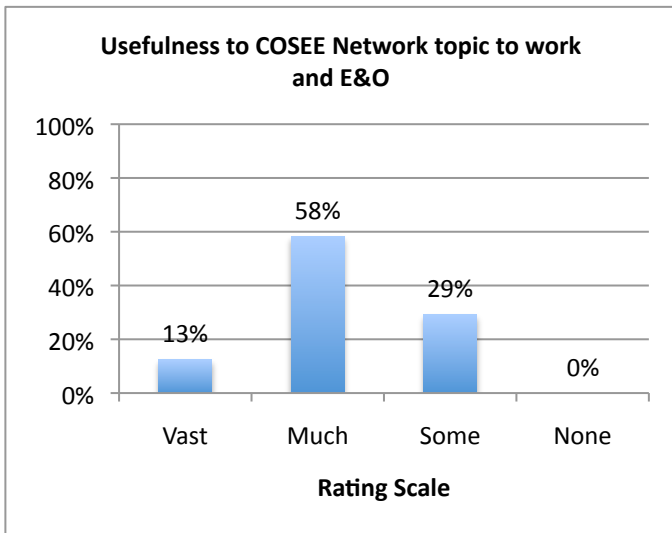
- The most useful presentation was the one on the Pribilof Islands fur seals —with 68% giving it a “much” rating and 8% giving a “vast” usefulness rating to the topic
- A total of 56% of the participants also suggested they are likely to use the insights about the Pribilof Islands education and outreach approach in their own work; with 16% rating their likely use as “vast” and 40% saying “much”



- The second highest rated topic for “usefulness” was the COS/COSIA presentation with a 25% “vastly” usefulness rating and a 46% “much” rating,
- The rating for likelihood of using what was learned was the highest for the COS/COSIA presentation. Two thirds (67%) rated their likelihood as “vast” or “much.”

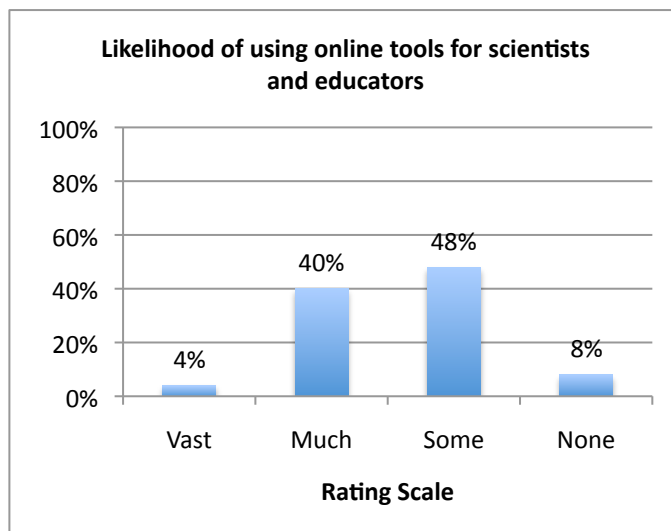
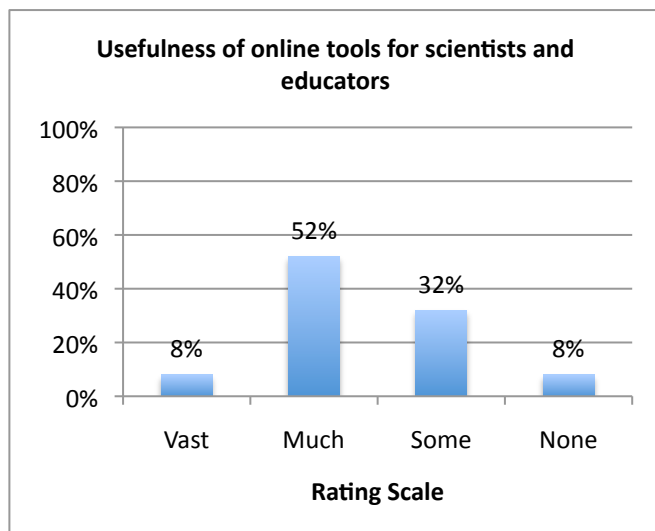


- More than half the participants gave the Social Media, COSEE Network, and Online Tools topics the second highest rating (i.e., “much” usefulness); however, the actual ratings about the likelihood of using the skills, content or insights gained were mixed. Again, this might reflect the fact that most of the respondents were educators.
  - 25% of the participants view the likelihood of using the Network as “vast” an upward shift from the 13% who rated the usefulness as “vast.”
  - 31% rated the likelihood of using social media tools as “vast” although 15% said there was no likelihood of using social media tools in the education and outreach efforts.



The online tools and concept mapping activity drew interest about its usefulness, but only a modest response about the likelihood of using it. Since this tool requires training for use it seems reasonable that participants might view it as useful, but unavailable.

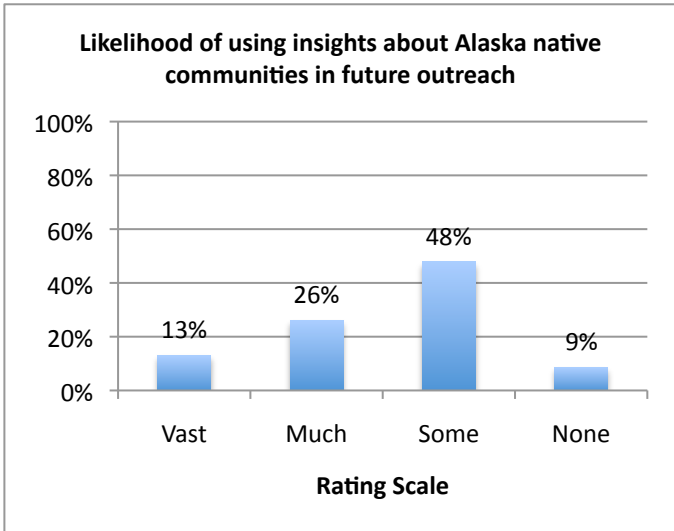
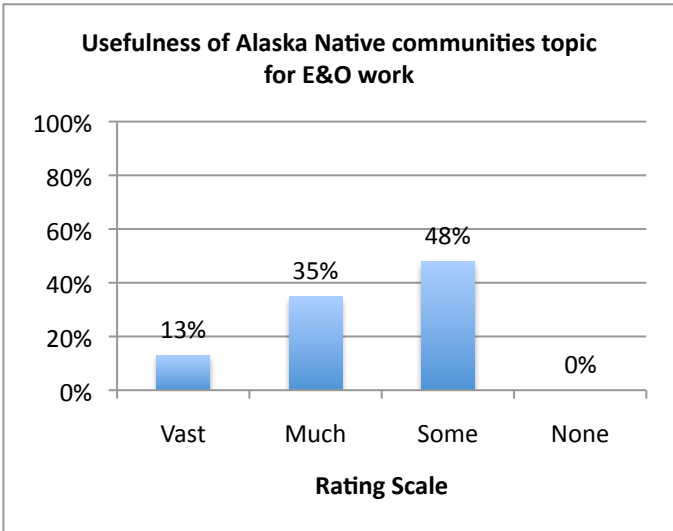
- 52% said the concept mapping and online tools had “much” usefulness
- 48% said they were “some” what likely to use these tools – more than both the “vast” and “much” responses put together.



The final session to report on is Communicating in Alaskan Native Communities by Vera Metcalf. The session by soft-spoken Metcalf was viewed as least useful and participants said they were only somewhat likely to use her insights in their own work.

- 48% rated the usefulness of the session as “some”
- 48% rated the likelihood of using the information as “some”

This particular finding is curious and possibly problematic. Alaska has a significant Native population who has real connections to and concerns about both ocean and climate change issues. The lack of perceived usefulness, among the strongly education-focused audience is notable. It raises many questions that COSEE Alaska might want to have answered. For instance, what did the non-responding scientists think about the session? Was this session more oriented to scientists and the educators found few ways to connect with the content?

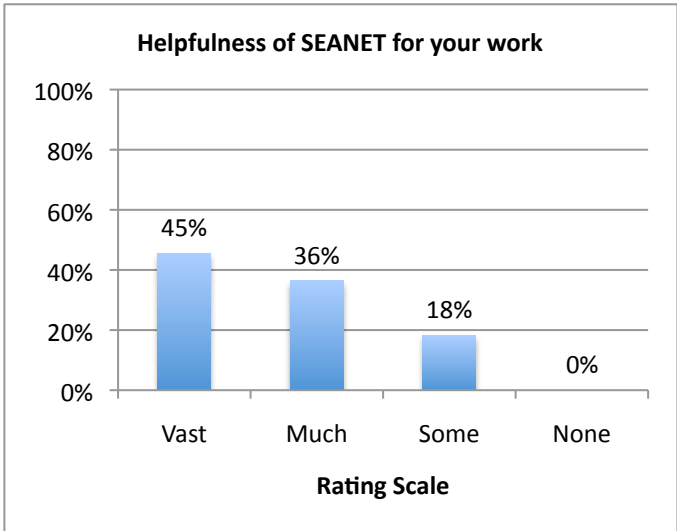


**6. SEANET is gaining credibility as a mechanism for scientists-educator interaction**

Following the COS Workshop those in attendance discussed the SEANET organization as an opportunity to interact and to engage with other ocean science education activities. Among the things discussed was extending the COS Workshop to include more educator-oriented sessions over the weekend prior to AMSS. SEANET members will take the lead in making this happen. SEANET members were also enlisted to host the National Marine Educators Association Conference in 2012. The conference is one of COSEE Alaska’s signature activities.

Overall the participants view the helpfulness of SEANET for the work as a strong positive.

- 48% indicate its helpfulness as “vast”
- 36% rated it “much” in terms of helpfulness.



## Conclusions

### 1. The workshop is a draw for educators, but there is lack of clarity about scientists' thoughts.

The difficulty in evaluating this activity as an effective program for scientists in learning about education and outreach is that few scientists respond to the survey. However, attendance at the session has grown in the last several years and the attendance sheet identifies a significant number of scientists. It appears they are choosing to come, like the content, but find surveys annoying.

### 2. The topic choices appear to meet the needs of educators and scientists.

Despite the fact that few scientists respond to the survey, their attendance at the sessions suggest that COSEE Alaska is making good choices in finding topics of interest. Some topics are readily applicable to the work conditions of the participants and they express a willingness to use the ideas generated from the workshops

### 3. SEANET appears to be making positive inroads as an organization for ocean scientists and educators.

Currently Alaska is a member of the Northwest Aquatic and Marine Educators Association, along with British Columbia, Washington and Oregon. Alaska is seeking to find a more localized organization that can serve the specific needs of Alaskans. Part of the impetus for forming SEANET was to capitalize on the foundational aspects of COSEE Alaska to launch this independent organization. It is hopeful that SEANET will continue as a sustainably organization after COSEE funding has disappeared.

## Recommendations

### 1. COSEE Alaska might consider how to expand the participation and increase the interest of scientists in the COS Workshop.

Clearly this workshop serves the needs of educators, but the lack of scientists' response to surveys raises the question of whether this workshop serves as intended. One step may be to conduct a needs assessment of scientists regarding session topics. Another step might be to host a workshop for scientists separate from teachers. An overlapping workshop session might include some hands on interactions between scientists and teachers.

### 2. COSEE Alaska might consider a specific strategy to launch SEANET as an independent organization.

While SEANET is being formed it helps to have COSEE organize and facilitate meetings and online connections. However, if SEANET is to become a sustainable organization, COSEE would do well to consider how to make those steps happen in a proactive way.

**3. COSEE Alaska might consider expanding the interactions between and among scientists, educators, and the Alaska Native population, perhaps going beyond the Science Fairs efforts.**

The presentation by the representative from the Alaska Native community was viewed as “somewhat” useful by 48% of the participants, with 48% saying the likelihood of using the information was “some.” Approximately a quarter of the school population is Alaska Native. Appreciating, supporting and integrating traditional knowledge into current science instruction would be beneficial. Also ocean scientists might benefit from greater understanding of Alaska Natives’ traditional knowledge of Alaska’s ecosystems. Since many of the Arctic, Bering Sea and Gulf of Alaska scientists come from out of state, a targeted workshop for these scientists might expand their ability and interest in providing education and outreach among community members from (for example) the coastal villages.