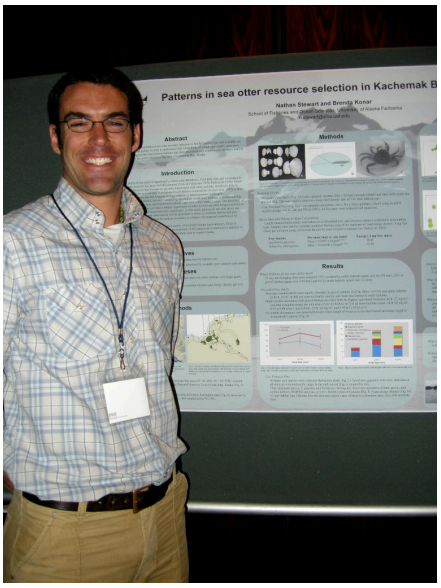

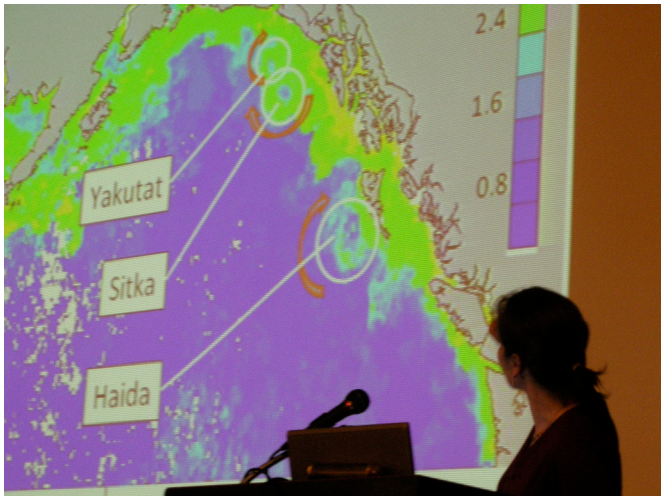

Communicating Ocean Science Workshop

January 2009

Activity Evaluation Report

COSEE Alaska

Andrea Anderson
SoundView Evaluation & Research

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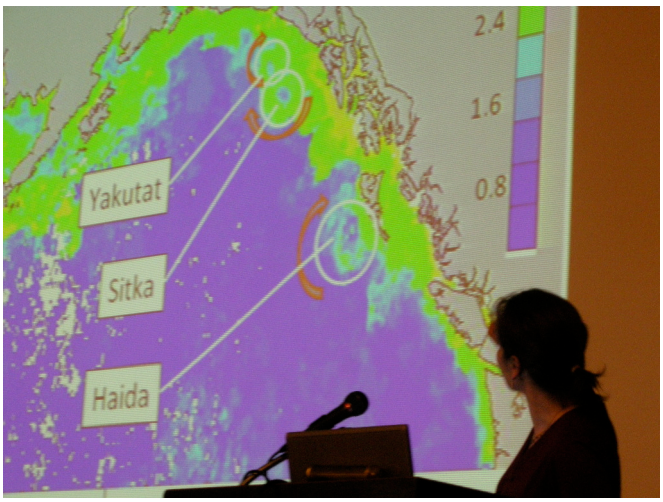
ACTIVITY EVALUATION:
Communicating Ocean Science—AMSS

By Andrea Anderson, Ph.D.,
Event Dates: January 19, 2009

Event Description

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, the most recently funded of the centers, 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. This report documents the impacts of that event.



Context

Anchorage in January is the destination for many of the nation's ocean scientists. More than 650 scientists conducting research in the Arctic Ocean, Bering Sea, and the Gulf of Alaska convene each year for four days of plenary sessions and workshops focused on each of these large marine ecosystems. In recent years, the North Pacific Research Board and the Alaska Ocean Observing System have sponsored a free workshop for scientists aimed at enhancing communication skills and strategies, networking scientists with educators, media and the public. This year, with the support of the newly formed COSEE Alaska, the workshop was held the morning of the opening session. More than 65 scientists, local science educators and community members attended the four-hour workshop, despite the existence of competing science workshop opportunities. Four programs were presented to the audience as exemplars of ocean science communication strategies.

COSEE Alaska developed new education features for the Symposium, expanded and enhanced the COS workshop to incorporate ocean science, climate change, and traditional and local knowledge, and used the session to further expand SEANET as a core communication strategy. The workshop targeted these core objectives:

- Increase collaboration and interaction among ocean scientists, educators, students, and coastal communities in Alaska and the nation with an emphasis on ocean climate change.
- Provide tools and services to help ocean scientists effectively participate in education and outreach with a focus on ocean climate change and ocean literacy.
- Enhance teacher capabilities for incorporating ocean climate change information and "place-based" knowledge into existing curricula.
- Increase access to and participation in ocean sciences by underrepresented and underserved populations.

- Increase and broaden communication about ocean science and traditional knowledge of ocean climate change to audiences in Alaska and the nation, including the COSEE network

Evaluation Methodology

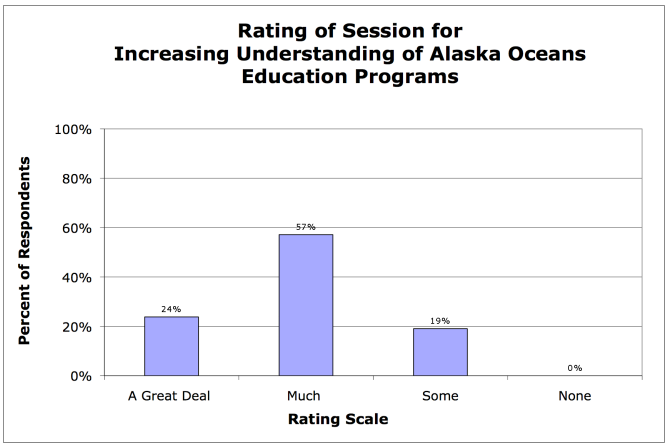
The purpose of the evaluation was to assess participants' views about the workshop. A post event survey asked participants to rate the usefulness of the topic, their interest in the topic, the likelihood of using the information and whether audience members had prior knowledge of the specific topics. Additional questions were aimed to help COSEE Alaska staff develop a better understanding of ways to serve this audience. The survey is included in the Appendix.

Survey data was tabulated; frequencies for each item were computed for the four presentations. Graphs were made to illustrate the findings and are included in the next section. Twenty-seven people filled out the survey, approximately half of those in attendance.

Findings

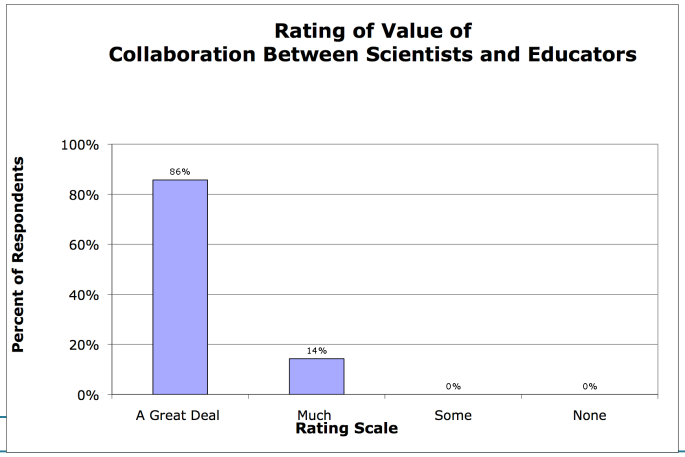
1. Participants found the sessions very useful for increasing understanding of Alaska oceans education programs.

Overall the survey respondents said the workshop helped increase their understanding of the Alaska Oceans education programs. Eighty one percent rated the sessions as either helping a "great deal" or offering "much" help.



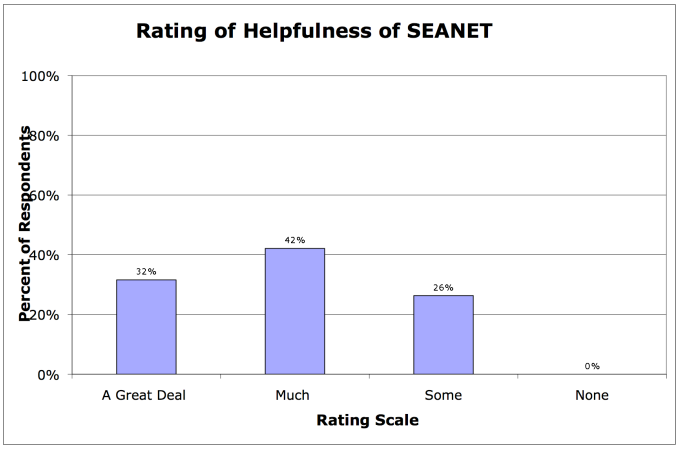
2. Participants believe it is valuable for scientists and educators to collaborate.

Collaboration is a significant value to those who attended the workshop. Of those responding to the survey, 100% rated the value as either "a great deal" or " much."



3. SEANET is viewed as a valuable and helpful resource to ocean scientists and educators.

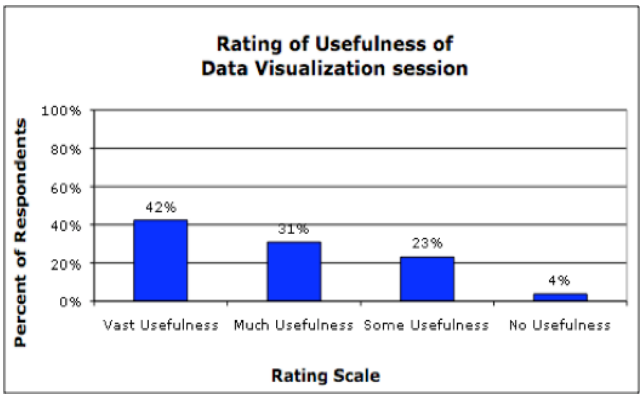
Nearly three quarters of respondents said that SEANET will be a "great deal" of help or provide "much" help to the scientists and educators in Alaska.

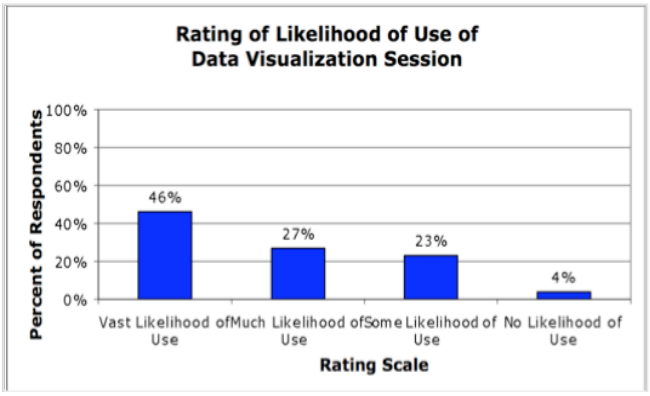


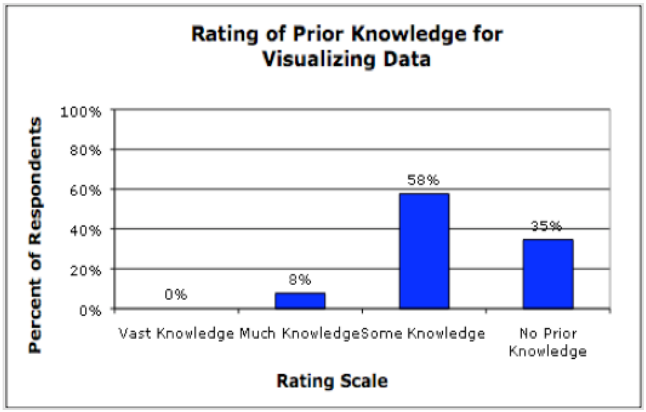
A discussion about SEANET at the conclusion of the program helped illuminate some of the ideas and opportunities that SEANET would offer. One consideration on the table was that SEANET become a chapter of the National Marine Education Association (NMEA) and that Alaska separate from the Northwest Aquatic and Marine Educators (NAME) chapter. It would allow Alaska its own identity and perhaps encourage more Alaskan teachers to participate—if they could attend conferences within the state rather than across the Northwest. It was clear however, from the discussion that Alaskans are not prepared to have SEANET become a separate chapter of (NMEA). Those present preferred to have Alaska remain affiliated with the Northwest Aquatic and Marine Educators (NAME) group.

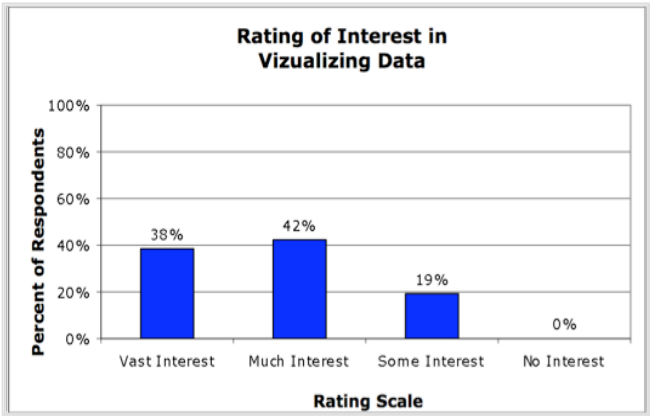
4. Data Visualization presentation was useful and concepts likely to be used by nearly half the participating scientists.

The Data Visualization presentation provided highly visual, frequently aesthetic and graphical ways to portray data. Very few individuals were knowledgeable about Data Visualizing as a technologically powered capacity to communicate often intellectually challenging concepts, with 93% claiming little prior knowledge. At the end of the session 80% claimed "vast" or "much" interest in this approach. Nearly half the respondents said they found the session useful and they were likely to use data visualization approaches in the future.







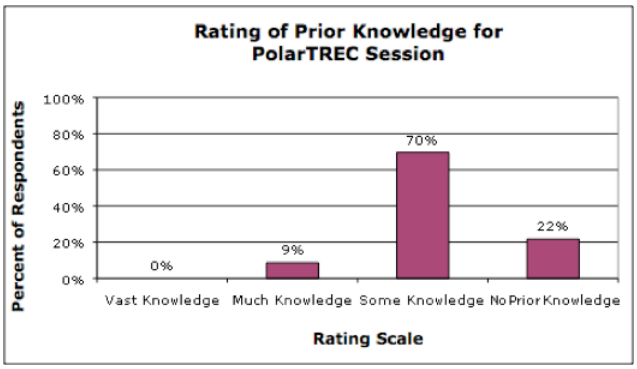


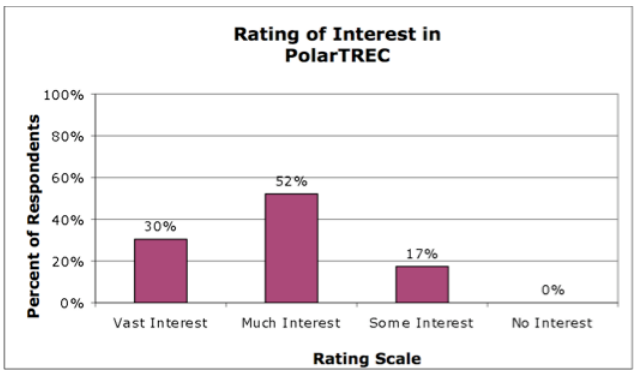
5. The session about PolarTREC was interesting and useful; scientists seem unlikely to replicate this model in their own research area.

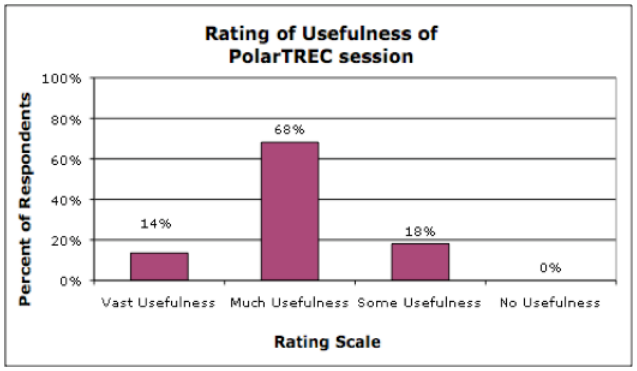
PolarTREC takes teachers to the Artic with the scientists and while in the polar regions teachers engage in research and communicate with their students. The scientists and educators learn from each other and develop strong interpersonal relationships. The session presented at the workshop involved both scientists and teachers.

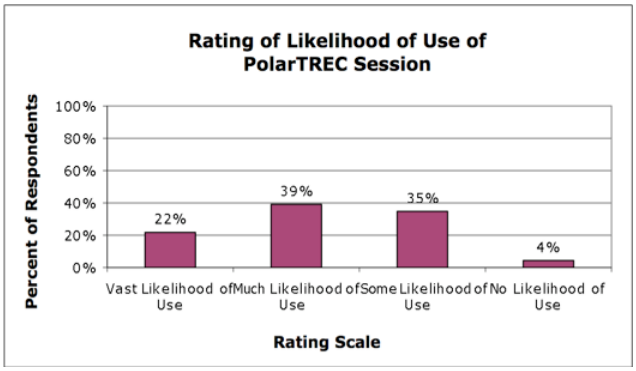
Most of the participants (70%) had *some* prior knowledge of PolarTREC, and the session generated a stronger level of interest (82%) in the project, if the two highest rating levels are combined. The survey respondents found "much" usefulness in the session, with more than two-thirds giving it that rating.

At the same time, the data give little clarity about whether scientists could use the lessons learned from the PolarTREC session. It may be that the type of research being conducted by the scientist would preclude involving teachers. Or it may be that scientists' feel organizing such an endeavor would be too challenging and time consuming. Additional research would need to be completed to understand how scientists utilize the lessons learned from this model whether or not they could replicated the experience.







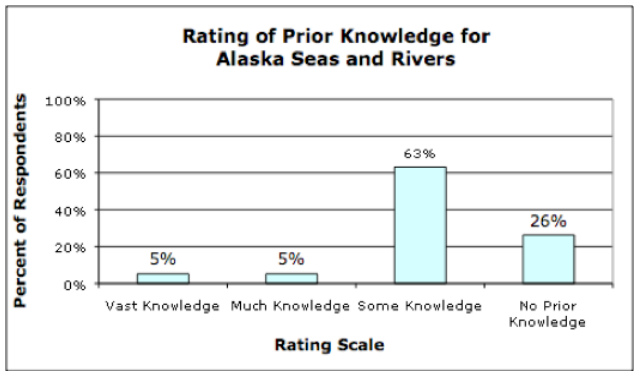


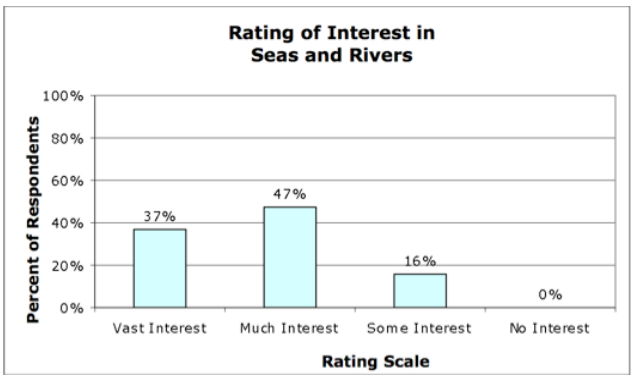
6. Alaska Seas and Rivers curriculum is new, interesting and potentially something for scientists to use.

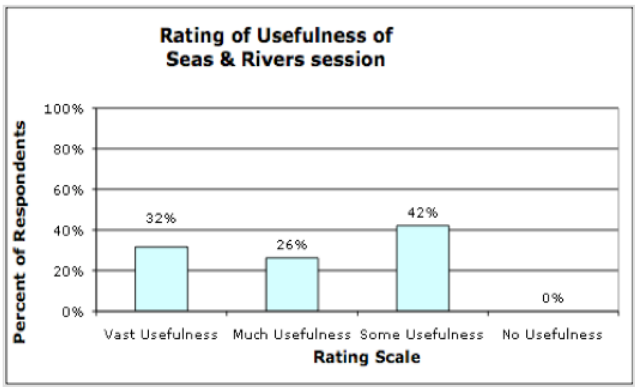
The Alaska Seas and Rivers presentation offered participants a new idea to consider. The presentation was primarily about a curriculum project currently in use in many of the schools. The session focused more on how those who had created the curriculum also developed a framework around the state standards. The presenters made clear that should scientists wish to contribute lessons based on their research there was already an organizer that would help make lessons fit the required curriculum.

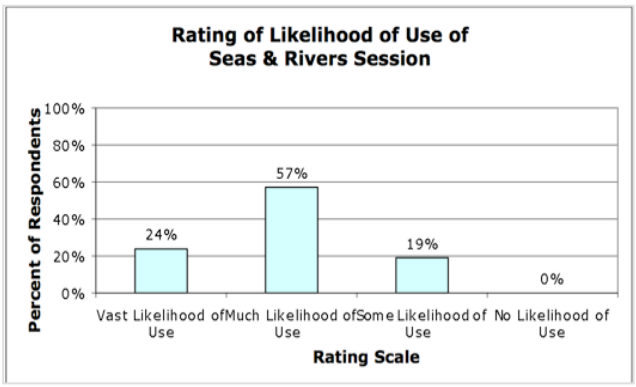
As seen in the following charts, the majority (89%) of those surveyed had little or no prior knowledge of the curriculum project. Likely this explains the relatively high interest participants had in the presentation. Eighty-four percent rated their interest in the session as "vast" or "much."

The usefulness of the session was less clear, with more than half giving a "vast" and "much" usefulness rating to the presentation, with 81% confirming there was either "vast" or "much" likelihood of using the materials.





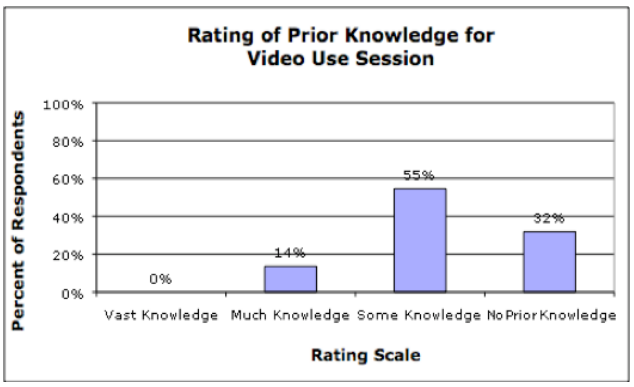


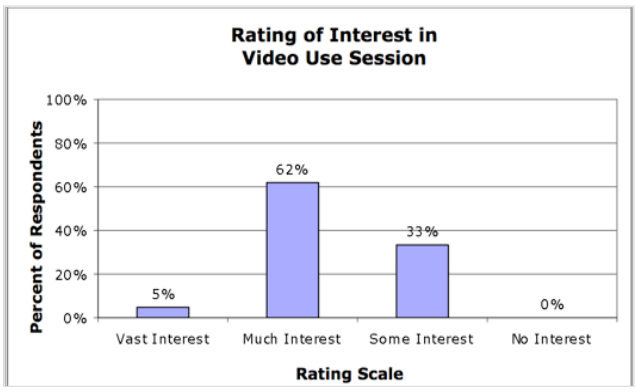


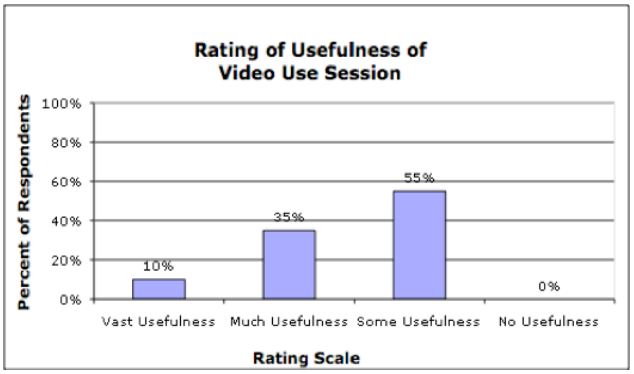
7. Video Use session complicated by faulty technology resulted in reduced impact on participants.

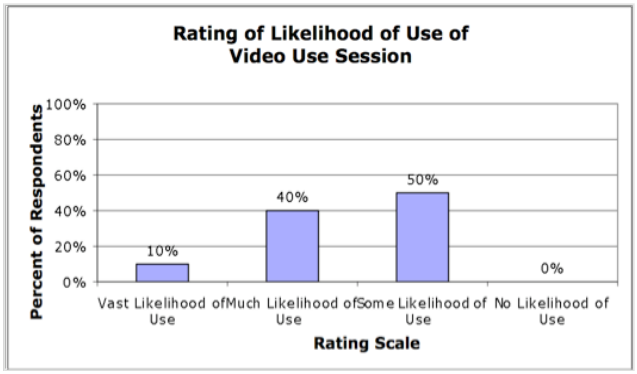
Approximately one third (32%) of the survey respondents had no prior experience with or knowledge of using videos for communicating their science. Slightly more than half (55%) indicated some prior knowledge. Respondents said they had an interest in learning more about using videos. In general the usefulness of the session was rated lower, than most sessions and there was somewhat less likelihood of using video in the future.

The Video Use session was challenged by technology that didn't work as planned. The presenter had to *talk* about video rather than showing examples. The presenter was unable to demonstrate how people have taken and used videos from fieldwork as an effective way to communicate the research experience and the findings.







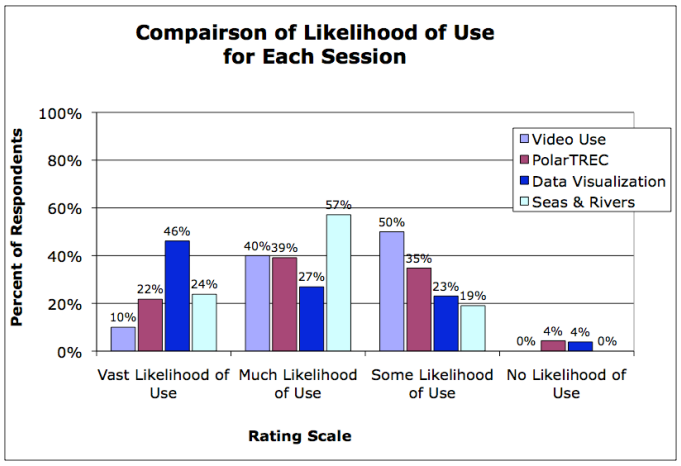


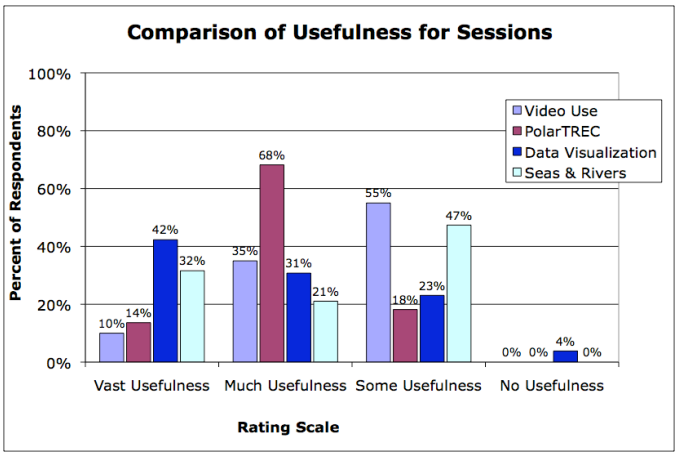
8. Participants gave thoughtful feedback about essential characteristics or attributes of an ocean focused, exemplary education program.

In response to the open-ended question about essential characteristics of exemplary education programs, participants provided useful feedback to the COSEE Alaska staff. The following list reflects the recommendations of the respondents about exemplary programs:

- Should be relevant to Alaskans and connect people the ocean
- Need to consider accessibility—content and exposure—easy for any user to access
- Should establish clear connections between research and tools that teachers can easily use in the classroom (and link to standards)
- Provide meaningful information (understandable data) that users can understand and talk about (only then can they make into useful to their own needs)
- Address issues with key questions to answer (especially issues that future careers can focus on)
- Provide training and support for teachers in using tools; conducting experiential education
- Have a global context – connecting students/participants of all geographies to the ocean(s)
- Are topical (what people see in the news and what they do not!)

> Big question! There are so many!
>
> I appreciated the "framework" slide that Marilyn showed as this was how the "professional teaching community" interfaced with "professional science community."
>
> I thought this was excellent. Good example top-down (fitting into existing standards) and bottom up (field trips, classroom experience) approaches used.
>
> Going beyond place-based – everyone should care!!
>
> -Participants' comments





- Flexible for both formal and informal; involving scientists and creating collaborations and partnerships

> Absolutely I will take advantage of this. Our winners go to ISEF also – please find out about SEAK regional fair – we have 125 projects – much larger than Anchorage Fair and 25% are ocean projects
>
> To be determined – but I very much look forward to exploring the opportunities to do so.
>
> -Participants' comments

9. Interest in and willingness to collaborate with COSEE Alaska is apparent in participants' responses.

In the final survey question participants were asked how they imagine working with COSEE Alaska to increase education about Alaska's oceans. Respondents urged the COSEE staff to:

- Draw from wealth of expertise, combine efforts for curriculum development and outreach
- Involve the Alaska region NOSB teachers and students in various marine education programs
- Define how to further both the Pratt Museum's mission in concert with COSEE's mission
- Cross reference polar/ocean resources, podcasts, and networks.
- Facilitate opportunities for teacher training and student field science camps at NOAA Kasitsna Bay Lab
- Facilitate connections between COSEE and ongoing NOAA/National ocean science ocean education efforts

Conclusions and Recommendations

A review of the stated COSEE Alaska objectives indicates that this event contributed positively toward achieving those aims. The surveyed participants represented a broad cross section of age groups and a representative sample of both scientists and educators. Ninety-four percent were women.

Like many COSEE events across the country, the findings reflect the concerns and interests of scientists who already have a strong interest in education. Even so, the data and findings remain useful for COSEE Alaska to proceed with future Communicating Ocean Science events.

The workshop sessions were interesting and useful to those who attended. The sessions offered new ideas for educational outreach and most audience members were interested in considering how to use the approaches with their own scientific outreach.

Audience members are very interested in linking scientists and educators in collaborative endeavors, even if as yet the strategies to do so are not crystallized. SEANET provides a great opportunity to help facilitate the collaborations, yet the concept is still somewhat vague for individuals. As SEANET gets more established and the COSEE Alaska website supports the efforts of SEANET, more people will engage. More people will perceive a helpful and easy way to enter into doing high quality education and outreach.

The Communicating Ocean Science workshop is a highly successful model for helping scientists share and learn about best practices for educating others about their research. The event also provides opportunities for scientists to hear from educators about possible ways to "plug into" effective educational practices. The workshop attracted approximately 65 individuals, a respectable number for a workshop, which was in competition with other concurrent sessions. It is about ten percent of those attending the Symposium. The COS workshop gives COSEE Alaska a strong foundation to increase the capacity of scientists and educators to create and share best practices for Education and Public Outreach (EPO.)

The Communicating Ocean Science workshop is a highly successful model for helping scientists share and learn about best practices for educating others about their research. The event also provides opportunities for scientists to hear from educators about possible ways to "plug into" effective educational practices. The workshop attracted approximately 65 individuals, a respectable number for a workshop, but is about ten percent of those attending the Symposium. The COS workshop gives COSEE Alaska a strong foundation to increase the capacity of scientists and educators to create and share best practices for Education and Public Outreach (EPO.)

Below are some recommendations for COSEE Alaska to consider for the future.

1. COSEE Alaska might consider strategies for expanding the COS program to reach more scientists.

As noted above the Communicating Ocean Science workshop gives COSEE Alaska a solid base from which to grow this program. Some approaches to be considered involve those who have participated in the program already. For next year's session they might be asked to bring other individuals from their labs to participate. This might include some graduate students. As graduate students are the future, such an effort might, with time, increase the number of ocean scientists doing education and outreach using best practices.

Most people refrain from new endeavors because they can't see what is in it for them. As a first step COSEE Alaska might entice new members with an incentive—a chance to win a valued piece of equipment, or an airline ticket for the next year's Symposium, or even a $25 gift certificate to Amazon.com. It should be something that would excite them sufficiently to get in the door. Once inside, the program must help the scientists and educators see how they could and will benefit from educational outreach.

2. COSEE Alaska might consider a follow up with participants to see how they incorporate best practice ideas in their own E&O.

Part of the mandate for COSEE centers is to catalyze more efforts to education students, teachers and the general public. Equally important is to understand how the current COSEE efforts are having an impact on scientists. Following up with former participants—through formal surveys or informal conversations—will start to generate a database of E&O ideas. The follow up might also reinforce and remind participants of their original intentions to work with education in new ways.

3. COSEE Alaska might consider sharing the COS models with the other COSEE centers.

It would be in COSEE Alaska's interest to share this model as another way to get scientists involved in education. It could illuminate new approaches for the other COSEE centers. Possible venues for a presentation might include the education-focused conferences, such as NMEA and NAME, but COSEE Alaska staff might also consider sharing the model at Ocean Sciences 2010 or other ocean-science conferences. It might even be worthwhile presenting about the idea to the broader AMSS conference, since many of the participating scientists come from other States where other COSEEs are operational.

Appendix

Communicating Ocean Science Workshop

SEANET

January 19, 2009

8 a.m. to 1:30 p.m.

Hotel Captain Cook Foredeck (Ballroom)

2009 Alaska Marine Science Symposium

Nora L.Deans, Moderator

Share highlights of exciting programs and events that communicate information about Alaska's oceans to national, regional and local audiences.

We welcome scientists, educators, writers, editors, media and anyone interested in sharing research results with diverse audiences to join us for lively discussion.

We'll formalize a network among those focusing on communicating ocean science in Alaska – SEANET (Scientists and Educators of Alaska Network)

And we'll discuss criteria for an annual award for the best education and outreach focusing on Alaska's seas – "Alaska's Science Idol" awards.

Welcome, Introductions – Nora L. Deans

"Don't Zoom, Don't Pan" – Tips for taking videos in the field – Deborah Mercy

Communicating Ocean Science at Sea – Scientists and Teachers Sharing Research Experiences in Remote Locations – Janet Warburten, Kristen Timm, PolarTREC

Alaska Seas and Rivers

Sharing Science by Visualizing Data – Bochanek,

COSEE Alaska: People Oceans and Climate Change

Discussion

SEANET -- LUNCH provided

EVALUATION
Communicating Ocean Science Workshop—SEANET
January 19, 2009

SESSION #1 - Don't Zoom, Don't Pan-

1.	Rate your **prior knowledge** of this topic	None	Some	Much	Vast
2.	Rate your **interest** in this topic	None	Some	Much	Vast
3.	Rate the **usefulness** of this topic to your work.	None	Some	Much	Vast
4.	Rate the **likelihood of using** what you learned about this topic	None	Some	Much	Vast

SESSION #2 – Scientists and Teachers Sharing Research Experiences in Remote Locations –

1.	Rate your **prior knowledge** of this topic	None	Some	Much	Vast
2.	Rate your **interest** in this topic	None	Some	Much	Vast
3.	Rate the **usefulness** of this topic to your work.	None	Some	Much	Vast
4.	Rate the **likelihood of using** what you learned about this topic	None	Some	Much	Vast

SESSION #3 – Sharing Science By Visualizing Data

1.	Rate your **prior knowledge** of this topic	None	Some	Much	Vast
2.	Rate your **interest** in this topic	None	Some	Much	Vast
3.	Rate the **usefulness** of this topic to your work.	None	Some	Much	Vast
4.	Rate the **likelihood of using** what you learned about this topic	None	Some	Much	Vast

SESSION #4 – Alaska Seas and Rivers Curriculum

1.	Rate your **prior knowledge** of this topic	None	Some	Much	Vast
2.	Rate your **interest** in this topic	None	Some	Much	Vast
3.	Rate the **usefulness** of this topic to your work.	None	Some	Much	Vast
4.	Rate the **likelihood of using** what you learned about this topic	None	Some	Much	Vast

OVERALL

How useful were these sessions in increasing your understanding of Alaska Oceans education program?	Not at all	Some	Much	A great deal
How valuable is it to have scientists and educators collaborate?	Not at all	Some	Much	A great deal
How helpful do you think SEANET will be for the work you do?	Not at all	Some	Much	A great deal

What do you think are essential characteristics or attributes of an ocean-focused exemplary education program?

How do you imagine working with COSEE Alaska to increase education about Alaska's oceans?

OPTIONAL
Your Name_____Best way to contact you for follow up: Phone/Email_____

_____

Job Title/Focus_____ Gender: M F

Age Range: (Circle one) < 21 22 — 30 31 — 40 41 — 50 51-60 60+