



COSEE

CENTERS FOR OCEAN SCIENCES
EDUCATION EXCELLENCE

2008 Network Meeting

April 29th through May 1st 2008

USC Wrigley Marine Science Center
Santa Catalina Island, Two Harbors Area, California



Welcome



Our Objectives

- 1) To facilitate networking and sharing among COSEE center staff to determine the next big areas of collaboration between COSEE centers and external partners.
- 2) To provide professional development opportunities for members of the COSEE network.

Our goal for this COSEE Network meeting is to build on our partnerships internal and external to COSEE and reconnect as a community of partners in ocean science education. Many of our COSEE activities have focused on consensus and strategic thinking resulting in group output of ideas to move COSEE forward.

This meeting will be different.

The agenda has been designed to focus on the “individual learning” of network members. We invite you to learn, share, and reflect in this beautiful place about what is important to move you, your COSEE center, and the network forward in ocean science education.

A handwritten signature in blue ink that reads "Janice McDonnell".

Janice McDonnell
2007-2008 COSEE Council Chair

MEETINGS COMMITTEE:

Annette deCharon, Linda Duguay, Laura Murray,
Sarah Schoedinger and Gail Scowcroft



Schedule at a Glance

Day 1: Tuesday April 29, 2008

12:30 pm	Charter Boat to Catalina
4:00 pm	
2:00 pm	Group Arrival and check in Wrigley Marine Lab
5:30 pm	
6:00 pm	Beer and Wine Reception (Cafeteria) COSEE centers are invited to set up demonstrations, lesson ideas and posters for informal sharing.
7:00 pm	Dinner (Cafeteria)

Day 2: Wednesday, May 1, 2008

7:00 am	Council Meeting (Cafeteria - see separate agenda)
7:30 am	Breakfast
8:30 am	Welcome
9:00 am	Plenary Session (Lecture Hall) <i>Engaging Multicultural Audiences in COSEE</i>
11:30 am	Break and networking
12:00 pm	Lunch
1:00 pm	Break Out Workshops Workshop A: <i>COSEE ON LINE</i> (Lecture Hall) Workshop B: <i>The Role of Informal Learning Institutions in COSEE</i> (Boone Center)
3:00 pm	Break (coffee and cookies)
3:30 pm	Small group reflection
4:15 pm	Plenary and report out (Lecture Hall)
5:30 pm	Recognition of Dr. Sue Cook for her contributions to the COSEE Network
6:00 pm	Beer and Wine Reception (Cafeteria)
7:00 pm	Dinner (Cafeteria)

Day 3: Thursday, May 2, 2008

7:00 am	Council Meeting (Cafeteria)
7:30 am	Breakfast
8:30 am	Welcome Back
9:00 am	Break Out Workshops Workshop C: <i>Climate Change and COSEE</i> (Boone Center) Workshop D: <i>STEM Education</i> (Lecture Hall)
10:30 am	Break (coffee and muffins)
11:00 am	Reflection and Brainstorming in small groups
11:45 am	Lunch
12:30 pm	Pulling it all Together: Group Sharing Session (Lecture Hall)
1:30 pm	Meeting concludes and head down to Wrigley dock for ferry
2:00 pm	Ferry departs Wrigley Institute's dock
4:15 pm	Arrive at the San Pedro Catalina Express Terminal and take taxi/shuttles to the airport or hotels



Day 1: Tuesday, April 29th

- 12:30 PM Arrival Option #1
Catalina Express Ferry from ferry terminal in San Pedro to Wrigley Marine Science Center, Two Harbors, Catalina Island
- 4:00 PM Arrival Option # 2
Charter Boat (American Marine) from SCMI Lab on Terminal Island to Wrigley Marine Science Center, San Pedro to Two Harbors, Catalina Island
- 6:00 PM Wine and beer Reception (Cafeteria)
COSEE centers are invited to set up demonstrations/lesson ideas/posters for informal sharing. (Cafeteria)
- 7:00 PM Dinner (Cafeteria)

NOTES:





Day 2: Wednesday, April 30th

7:00 AM Business meeting COSEE Council (see Council Agenda)

7:30 AM Breakfast

8:30 AM **Welcome (Lecture Hall)**

Linda Duguay and Tony Michaels, COSEE West
Donal Manahan, Director of the Wrigley Institute, USC
Gail Scowcroft, COSEE Network Interim Director

Overview of Meeting and COSEE Blueprint

Janice McDonnell, COSEE Networked Ocean World and COSEE Council Chair

9:00 AM PLENARY: ENGAGING MULTICULTURAL AUDIENCES IN COSEE

The COSEE Network has prioritized efforts to increase the involvement of underrepresented and underserved audiences (referred to as multicultural audiences) in ocean sciences and ocean sciences education. A key recommendation from the COSEE Blueprint is to develop partnerships with diversity focused organizations that have programs that reach a diverse audience. In this Network discussion we will focus on how can COSEE make significant strides toward understanding and engaging multicultural audiences in ocean science and reflect on what the next steps are for achieving our Blueprint goals.

Facilitator: Sarah Schoedinger, NOAA Office of Education

Note Taker: Gwen Noda, COSEE West





PLENARY: SETTING THE STAGE

Keynote: *What do experience and the research literature say about the evolution of engaging with multicultural audiences?*

(25 minutes)

Chris Parsons, Word Craft

NOTES:



Chris Parsons, Word Craft

Chris is a writer, educator and evaluator dedicated to informal science education for more than 30 years. She is the founder and principal of Word Craft, started in 1986 and specializing in the development, writing and evaluation of science programs, exhibits, websites and teaching materials. She holds a BA in biology, MA in educational technology and MBA. Her COSEE role is as the evaluator for COSEE NOW and the former evaluator for COSEE Mid-Atlantic. Her home is in Monterey with her sweetheart Steve and shepherd Neeka.



PLENARY: DISCUSSION PANEL



Jenny de la Hoz, Monterey Bay Aquarium

Jenny de la Hoz has developed and delivered bilingual English and Spanish programs in the Education Department of the Monterey Bay Aquarium since 1998. She is currently overseeing a partnership program between the Aquarium and partners in the community of Watsonville. She has been teaching for over 14 years in both formal and informal educational settings. A native of Colombia, she learned to love the ocean when she was a little girl by watching Jacques Cousteau on television. Her personal mission is to share her passion about the ocean with children and families from all cultural backgrounds and co-create ways to help conserve it.



Deidre Gibson, Hampton University

During her tenure as an Asst. Professor of Marine Science at Hampton University, Deidre saw the need for Hampton students to be involved in more research and to gain exposure by interacting with some of the top researchers in the field. In her short time at Hampton University she has been able to contribute to the Department of Marine Science by bringing in several NSF supported education and outreach ocean science projects with the goals of enhancing undergraduate student performance and the likelihood of success in graduate school; diversifying the marine and ocean sciences workforce; increasing student communication skill sets; increasing awareness among marine science professionals of the importance of educational and outreach activities; and training and developing science content for K-12 teachers.



Kris Gutiérrez, UCLA

Kris received her Ph.D., English in Curriculum and Instruction, from the University of Colorado at Boulder. Her current research interests include a study of the sociocultural contexts of literacy development, particularly the study of the acquisition of academic literacy for language minority students. Her research also focuses on understanding the relationship between language, culture, development, and pedagogies of empowerment.



Dionne Hoskins, Savannah State University

Dionne received her B.S. degree in Marine Biology from Savannah State College in 1992 and her doctorate in Marine Sciences from the University of South Carolina in 1999. She worked briefly as a postdoctoral fellow in the newly established Marine, Environmental Science, and Biotechnology Research Center at SSU in 1999 but was tasked in 2000 by the Southeast Fisheries Science Center (SEFSC) of NOAA Fisheries to develop a Cooperative Marine Education and Research (CMER) program at the university, the first of its kind at a historically Black university. Since then, Dionne has worked as a Fishery Biologist through the Galveston Laboratory of NOAA Fisheries and as an Associate Graduate Professor in the Marine Science program at SSU. She is based in Savannah and works with undergraduate and graduate students on a variety of ecological research topics.



PLENARY DISCUSSION NOTES:

REFLECTION QUESTIONS

- How can/do COSEE Centers develop partnerships with diversity-focused organizations that have a diverse membership and/or programs that reach a diverse audience?
- How can COSEE use partnerships with diversity focused organizations and most effective practices to develop inclusive and collaborative programs for formal and informal audiences?
- How can COSEE better understand multicultural audiences and their views of the ocean? What are some techniques or strategies for engaging in meaningful partnerships with multicultural audiences?



- 11:30 AM Break and Networking
- 12:00 PM Lunch
- 1:00 PM Concurrent Sessions (Chose Workshop A or B)

WORKSHOP A: COSEE ONLINE: TEACHING & LEARNING IN CYBERSPACE
(Lecture Hall)

Our COSEE web presence is paramount in importance as COSEE develops as a viable network of collaborators. In this session, we will explore our national COSEE website and discuss how it might become an asset to our Center activities. We also will look forward to explore how we are using online and virtual technologies to build partnerships and expand opportunities for collaboration among Centers and external audiences.

Facilitator: Veronique Robigou, COSEE Ocean Learning Communities
Note Taker: Joanna Woerner, COSEE Coastal Trends

WORKSHOP B: TEACHING AND LEARNING: THE ROLE OF INFORMAL SCIENCE EDUCATION INSTITUTIONS IN COSEE
(Boone Center)

Informal Science Education Institutions (ISEIs) are part of the required triad of COSEE partners, but one we often do not talk enough about. In this session, we will explore the role of science centers, museums, and aquaria in COSEE. Is the Network incorporating ocean literacy concepts into the exhibits and programs in informal settings? What kinds of audiences are COSEE reaching through these venues? What are COSEE's impacts with these audiences?

Facilitator: Catherine Halversen, COSEE California
Note Taker: Jane Lee, COSEE West



WORKSHOP A: SETTING THE STAGE

Keynote: *Web Sites and Usability: What Users Really Do, and Why*
(30 minutes)

Cia Romano, Interface Guru

In this presentation, we will present video evidence from usability lab tests to demonstrate common usability problems as experienced (and described) by users. Fundamentals of human factors and basic evaluation criteria will be presented.

Keynote: *Review Status of COSEE.net: Building a COSEE Web Presence*
(20 minutes)

Annette deCharon, COSEE Ocean Systems

NOTES:



Cia Romano
Interface Guru

Cia Romano, Chief Executive Officer and Founder of Interface Guru®, is a respected evangelist for end users of digital media such as the Web, intranets, software and kiosks. A hands-on user interface researcher, Cia developed the widely disseminated **Usable Times 5™** criteria for ranking computer screen effectiveness – a major factor in profitability for companies and organizations conducting business online.



Annette deCharon
COSEE Ocean Systems

Annette is the Senior Marine Education Scientist, at the University of Maine. Since 1997, she has authored over 30 web-based and other multimedia publications including the award-winning "Phytopia: Discovery of the Marine Ecosystem" CD-ROM. She is currently Director COSEE-Ocean Systems where her long-term goal is to help the COSEE Network reach rural and inland audiences. Annette also serves as the education lead for NASA's upcoming Aquarius mission (2010 launch) which will measure global ocean surface salinity.



WORKSHOP A: DISCUSSION PANEL

Sean Graham, COSEE Ocean Systems

Sean is a Senior Interactive Software Developer at Raytheon RIS and an integral member of the COSEE-OS team. He has been designing and developing immersive, interactive applications for web and CD release for 11 years.



Sage Lichtenwalner, COSEE Networked Ocean World

Sage currently serves in a joint appointment between the IMCS Education & Outreach group and the COOL Operations Center, maintaining a crucial link between the researchers and technicians of the coastal observatory and ongoing efforts of the outreach staff. He is tasked with transitioning research data into operational products for use by general public and K-12 audiences, using a variety of data management, visualization and interactive web interface technologies. Because of this, he is often referred to as the group's "Data Translator." Sage has been involved with the design and development of dozens of web sites over the past 10 years, and actively follows developments in the fields of data visualization, online education and science communication.



Brian McCann, COSEE Gulf of Mexico

Dr. Brian McCann is an Assistant Research Professor at Mississippi State University where he coordinates programs and creates web-based curricula in the fields of Agriculture and the Earth Sciences. In addition to service on the Web Working Group and web administrator for the COSEE - Gulf of Mexico program, Dr. McCann is also the co-PI on a Math and Science Partnership grant through the Department of Education, and PI on several grants through the Sustainable Agriculture Research and Education (SARE) organization.



Cia Romano, Interface Guru

Interface Guru, Cia's consulting group, provides usability and information design services to a national clientele, emphasizing profitability and brand experience in environments ranging from enterprise-level Web sites to software, intranets, and interactive museum kiosks. Cia and her team have also developed guidelines for user interface on kiosks in public spaces.

Joe Wieclawek, COSEE Ocean Systems

Joe is a Technical Manager at Raytheon Company, which designs, develops, manufactures, integrates, supports and provides a range of technologically advanced products, services and solutions for governmental and commercial customers in the United States and abroad.



WORKSHOP A: DISCUSSION NOTES

REFLECTION QUESTIONS

- What are the challenges with online professional development programs? What works? What does not?
- How do we evaluate the success of our web presence?
- How can we collaborate more effectively online both internally and with external audiences?



WORKSHOP B: SETTING THE STAGE

Keynote: *Informal Science Education Institutions as Places to Learn Science*

Mike Schaddt, Cabrillo Marine Aquarium

NOTES:



**Mike Schaddt, Director,
Cabrillo Marine Aquarium**

Born, raised and educated in Southern California, Mike has been involved in formal and informal marine science education for more than 30 years. He graduated with a Bachelor's degree in Marine Biology and a Master's degree in Biology from CSULB. Mike has taught biology at local community colleges and brings to his job a strong background in science education. He has a keen interest in finding novel ways to motivate people to learn about and care for the oceans. His research interest is the natural history of plankton with special emphasis on deepsea forms. He has been a SCUBA diver for over 25 years and is an avid ocean swimmer spending many of his lunch hours swimming at Cabrillo Beach.

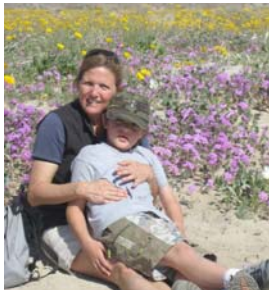


WORKSHOP B: DISCUSSION PANEL



Jeff Osowski, COSEE Networked Ocean World, Liberty Science Center

Dr. Osowski is Vice President for Learning and Teaching at Liberty Science Center. He is responsible for oversight of the development and delivery of all onsite, offsite and online education programs of Liberty Science Center; and he oversees development and implementation of the Science Center's teacher education programs. Jeff has focused the Science Center's education programs on the science issues that are most relevant and important in today's world, such as energy, global climate change, public health, the ocean environment, technology and environmental stewardship and he has led the development and implementation of a wide range of science education programs having a deep and sustained impact on students, teachers and families. Jeff holds a Ph.D. in cognitive psychology from Rutgers University, an M.A. in school psychology from Kean University and a B.A. in psychology from the University of Pennsylvania. His Ph.D. dissertation was on the creative thought process, especially in scientific thinking.



Cheryl Peach, COSEE California, Birch Aquarium

Cheryl Peach is Director of Science Education Partnerships at Scripps Institution of Oceanography, a Program Scientist at the Birch Aquarium at Scripps and the COSEE CA PI at Scripps. Cheryl served a three-year term as the Education and Diversity subcommittee Chair on the NSF Geosciences Directorate Advisory Committee, chaired the 2004 Geoscience Education Working Group II and co-authored the resulting NSF report, *Geoscience Education and Diversity: Vision for the Future and Strategies for Success*. Prior to her arrival at SIO, Cheryl spent 7 years as an oceanography faculty member and Interim Dean at the Sea Education Association (SEA). Cheryl has a Ph.D. in Geological Sciences from the Lamont-Doherty Earth Observatory at Columbia University.



Craig Strang, COSEE California, Communicating Ocean Science for Informal Audiences (COSIA)

Craig Strang is Associate Director of Lawrence Hall of Science and leads the School Programs Division and Center for School Change. He is the founding Director of MARE: Marine Activities, Resources & Education, a K-8 professional development/curriculum development program that works with whole schools to increase learning and language acquisition for English-language learners. Strang is the author of three sets of science and environmental education curriculum materials: Proyecto SOL: Science Oriented Learning, Project OCEAN, and MARE. He is a PI for the COSEE CA and was the first Chair of our COSEE Council.



- 3:00 PM Break (coffee and cookies)
- 3:30 PM Small group reflection on topics covered today
Brainstorm action items for COSEE in context of Blueprint
- 4:15 pm Plenary (Lecture Hall)
Session leaders present 5-7 minute summaries of reflection discussions.
Report out on small group reflections.
- 5:30 PM Cocktail Hour
Presentation and recognition of Dr. Sue Cook for her contributions to COSEE (Lecture Hall)
- 6:00 PM Beer and wine reception (Cafeteria)
- 7:00 PM Dinner



Day 3: Thursday, May 1st

- 7:00 AM COSEE Council Meeting (Cafeteria)
- 7:30 AM Breakfast for all
- 8:30 AM **Welcome Back and Announcements**
Janice McDonnell & Linda Duguay (Lecture Hall)
- 9:00 AM Concurrent Sessions (Chose Workshop C or D)

WORKSHOP C: CLIMATE CHANGE AND COSEE (Boone Center)

Climate change has been a hot topic in the public forum and within our COSEE Centers. The ocean is often left out of the discussion when it comes to understanding the cause and effects of a changing climate. In this discussion, we will look for potential collaborations and idea sharing related to climate change internal and external to our COSEE Network.

Facilitator: Peggy Hamner, COSEE West
Note Taker: Elizabeth Vernon, COSEE SouthEast

WORKSHOP D: STEM EDUCATION (Lecture Hall)

The COSEE Network has acknowledged the importance of increasing and diversifying the ocean workforce. The COSEE Blueprint prioritizes gathering and synthesizing the best information available to define and describe ocean-related jobs, their relationship to the ocean economy and present and future workforce trends (emphasis is placed on ocean science and technology occupations). There is a need to identify gaps between what ocean related employers want/need in their employees contrasted with current training practices. In this session we will discuss and share the latest research and information regarding ocean science workforce and discuss where COSEE can have an impact.

Facilitator: Lynne Whitley, COSEE West
Note Taker: Patricia Kwon, COSEE West



WORKSHOP C: SETTING THE STAGE

Keynote: *Climate Change from Research Perspective: What is important for COSEE?*
(20 minutes)

Tony Michaels

NOTES:



Tony Michaels
Professor of Biology and
CoPI of COSEE West

Tony's primary research interests over the past 21 years involve the role of biological community structure in the cycling and export of organic matter from the surface ocean. In recent years, this has grown to include the study of some unique biological processes, their disproportionate influence on nutrient and carbon cycles and their relative importance on global scales. As his career has evolved to include running the Wrigley Institute for Environmental Studies, Tony has been able to keep an active research program in this area. However, he has also started to add other research foci that reflect a broader set of marine and environmental interests.



WORKSHOP C: DISCUSSION PANEL



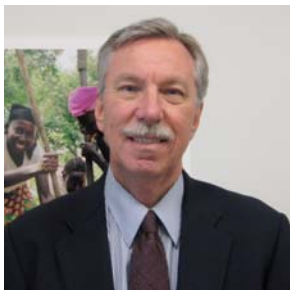
Annette deCharon, COSEE Ocean Systems

Annette is the Senior Marine Education Scientist, at the University of Maine. Since 1997, she has authored over 30 web-based and other multimedia publications including the award-winning "Phytopia: Discovery of the Marine Ecosystem" CD-ROM. She is currently Director COSEE-Ocean Systems where her long-term goal is to help the COSEE Network reach rural and inland audiences. Annette also serves as the education lead for NASA's upcoming Aquarius mission (2010 launch) which will measure global ocean surface salinity.



Roberta Johnson

Roberta is the Director of Education and Outreach, University Corporation for Atmospheric Research, a Research Scientist at the High Altitude Observatory, National Center for Atmospheric Research, and the Executive Director, National Earth Science Teachers Association Boulder, Colorado. She has a PhD in Geophysics and Space Physics from UCLA and has published over 30 papers in the area of upper mesosphere and lower thermosphere research as well as on educational programs. As director of the UCAR Education and Outreach Program, Roberta oversees services and resources for students, educators, and the public, including professional development programs for geoscience educators, web resources for students, educators, and the general public, event programming, exhibit development, and opportunities to increase the diversity of geoscience researchers.



Jeff Osowski, COSEE Networked Ocean World

Jeff is Vice President for Learning and Teaching at Liberty Science Center, having held that position since July 1, 2004. He is responsible for oversight of the development and delivery of all onsite, offsite and online education programs of Liberty Science Center; and he oversees development and implementation of the Science Center's teacher education programs. Jeff has focused the Science Center's education programs on the science issues that are most relevant and important in today's world, such as energy, global climate change, public health, the ocean environment, technology and environmental stewardship and he has led the development and implementation of a wide range of science education programs having a deep and sustained impact on students, teachers and families.



Laura Murray, COSEE Coastal Trends

Laura has her PhD from the College of William and Mary, Marine Science Institute, Gloucester Point, Virginia. Her current position is as Research Associate Professor, Director of COSEE Coastal Trends and Head of Environmental Science Education, Horn Point Environmental Laboratory University of Maryland Cambridge, MD. As an educator, her primary goal is to link the science research conducted with education. Currently our program includes courses and research fellowships for educators, scientists-educator partnerships, and hands-on programs for middle and high school students. As a scientist, her research interests focus mainly on the response of submersed aquatic vegetation to nutrient enrichment and in its restoration in the Chesapeake Bay.



WORKSHOP C: DISCUSSION NOTES

REFLECTION QUESTIONS

- How can we improve COSEE’s presence in climate change education and improve partnerships with those already working in the climate change arena?

- How can we engage the media in COSEE and climate change initiatives?



WORKSHOP D: SETTING THE STAGE

Keynote: *National Perspective*

Sally Goetz Shuler, Executive Director
National Science Resources Center

NOTES:



Sally Goetz Shuler

Two decades ago, Sally Goetz Shuler helped co-found the National Science Resources Center (NSRC), an organization dedicated to improving science learning and teaching throughout the world. As Executive Director Sally's leadership has created an organization, that includes the National Academies and the Smithsonian Institution, committed to establishing effective science programs for all students.

In 2007, Sally received a distinguished service award from the National Science Teachers Association for her contributions to science education. She has formed numerous strategic partnerships with academic institutions, corporations and museums that result in the development, implementation and evaluation of research-based products and services for improving science education programs.

In addition to the NSRC, her 30 years of national and international experience in K-16 science education include 15 years of teaching math and biology and serving as a chair, trustee or advisor for numerous boards and organizations, including COSEE. Sally has a master's in environmental health sciences from George Washington University, and a bachelor's from Edinboro State University.



WORKSHOP D: DISCUSSION PANEL



Bob Chen, COSEE New England Impacts of Scientist-Educator Partnerships and Higher Education in STEM education

Bob is an Associate Professor in the Department of Environmental, Coastal & Ocean Sciences at the University of Massachusetts. His research focuses on coastal ocean observations. He is a co-PI of COSEE-New England, PI of a watershed GK-12 program, and a co-PI of the Boston Science Partnership. He is interested in University-school district partnerships to develop sustainable educational programs that support the STEM pipeline, especially through environmental and ocean education.



Judy Lemus, COSEE West Working with a large Urban School District

Dr. Judy Lemus is on the faculty at the Hawaii Institute of Marine Biology as Academic Program Specialist, working to develop collaborative academic programs in research and education. She formerly co-directed the COSEE-West program at USC and was the Director of Education for the Wrigley Institute, where she created and administered educational programs for teachers, university students, and K-12 students. Dr. Lemus received graduate degrees in marine biology from UCLA (M.S.) and USC (Ph.D.).



Deidre Sullivan, MATE Program Assessment of Workforce Needs

Deidre is the PI and Director of the Marine Advanced Technology Education (MATE) Center at Monterey Peninsula College (MPC) in Monterey, CA. The MATE Center is a national partnership of community colleges, high schools, universities, informal educational organizations, research institutions, marine industries, and working professionals. MATE's mission is to improve marine technical education and increase the number of highly-skilled technical professionals who enter ocean-related occupations. The MATE Center is a partner of COSEE NOW.

Deidre conducts workforce research on the ocean economy and geospatial technologies. She is also the department chair for the Marine Science and Technology program at Monterey Peninsula College and teaches courses in seafloor mapping, GIS, and the Earth and marine sciences.



WORKSHOP D: DISCUSSION NOTES

REFLECTION QUESTIONS

- How can we find COSEE's niche in the STEM world?

- What kinds of partnerships are required?





- 10:30 AM Coffee Break (coffee and muffins)
- 11:00 AM Small Group Reflection
What is next for COSEE on these topical areas?
Brainstorm next steps for collaboration within the COSEE Network in context of Blueprint.
- 11:45 AM Lunch
- 12:30 PM Group Sharing Session: Pulling it all together
What are the new areas of collaboration for COSEE?
Session leaders present 5-7 minute summaries of reflection discussions.
- 1:30 PM Adjourn
- 2:00 PM Ferry departs Wrigley Institute's dock
- 4:15 PM Arrive at the San Pedro Catalina Express Terminal and take taxi/shuttles to the airport or hotels