

COSIEN

Communicating Ocean Sciences Informal Education Network

A community of scientists & educators that is ...

- ... united by our passion for ocean/climate science & our commitment to communicate it effectively to the public.
- ... dedicated to developing our knowledge & skills to teach & communicate science through:
 - an understanding of the research on learning,
 - developing habits of reflection, and
 - participation in a professional learning community.

Why a Network Approach?

- To leverage and take advantage of a collaborative community of existing partnerships created between ocean/climate scientists and ISE educators to communicate ocean sciences concepts and research
- To strengthen, support and expand this community of knowledgeable individuals and partnerships across institutions that draw on each other's expertise & support ocean sciences education, locally and nationally.
- To create opportunities for future valuable work through relationship building and to catalyze the knowledge sharing, mutual engagement and support possible in a network.



National Reach

- Reflecting on Practice
- Communicating Ocean Sciences

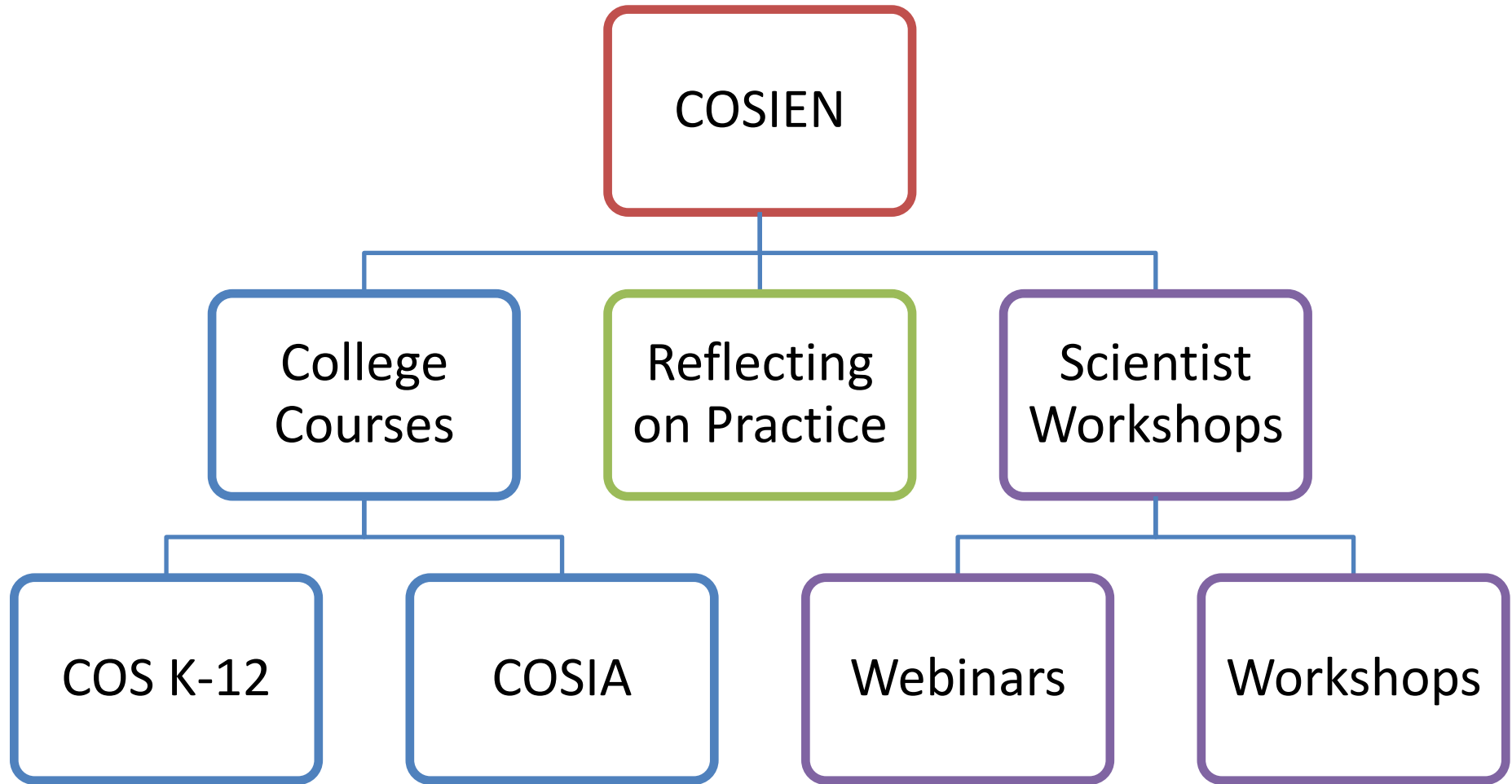
Regional Hubs

- University of Southern California & Aquarium of the Pacific
- Rutgers University & Liberty Science Center
- UC San Diego/Scripps Institution of Oceanography & Birch Aquarium at Scripps
- Hampton University & Virginia Aquarium
- Purdue University & 4H

Central Hub

- Lawrence Hall of Science/UC Berkeley

COSIEN



COS K-12 & COSIA ...

- ... are **college courses** for undergraduate & graduate students in ocean sciences majors
- ... are **team-taught** by a scientist & a K-12 or an informal educator
- ... introduce students to current **research on learning & inquiry-based pedagogy**
- ... immerse students in **practical experiences**, in K-12 classrooms or informal environments, to apply their understanding of effective communication



3 Primary Goals

1. Provide a model for establishing substantive, **long-term partnerships between scientists & educators** to meet their respective needs to promote Ocean Literacy.

2. **Introduce diverse future scientists to the importance of Ocean Literacy, K-12 & informal education, & the "Broader Impact" of their work in ocean sciences.**

3. **Provide diverse role models & inquiry-based ocean sciences experiences for children & families visiting informal science institutions or for K-12 students in local classrooms.**



Reflecting on Practice

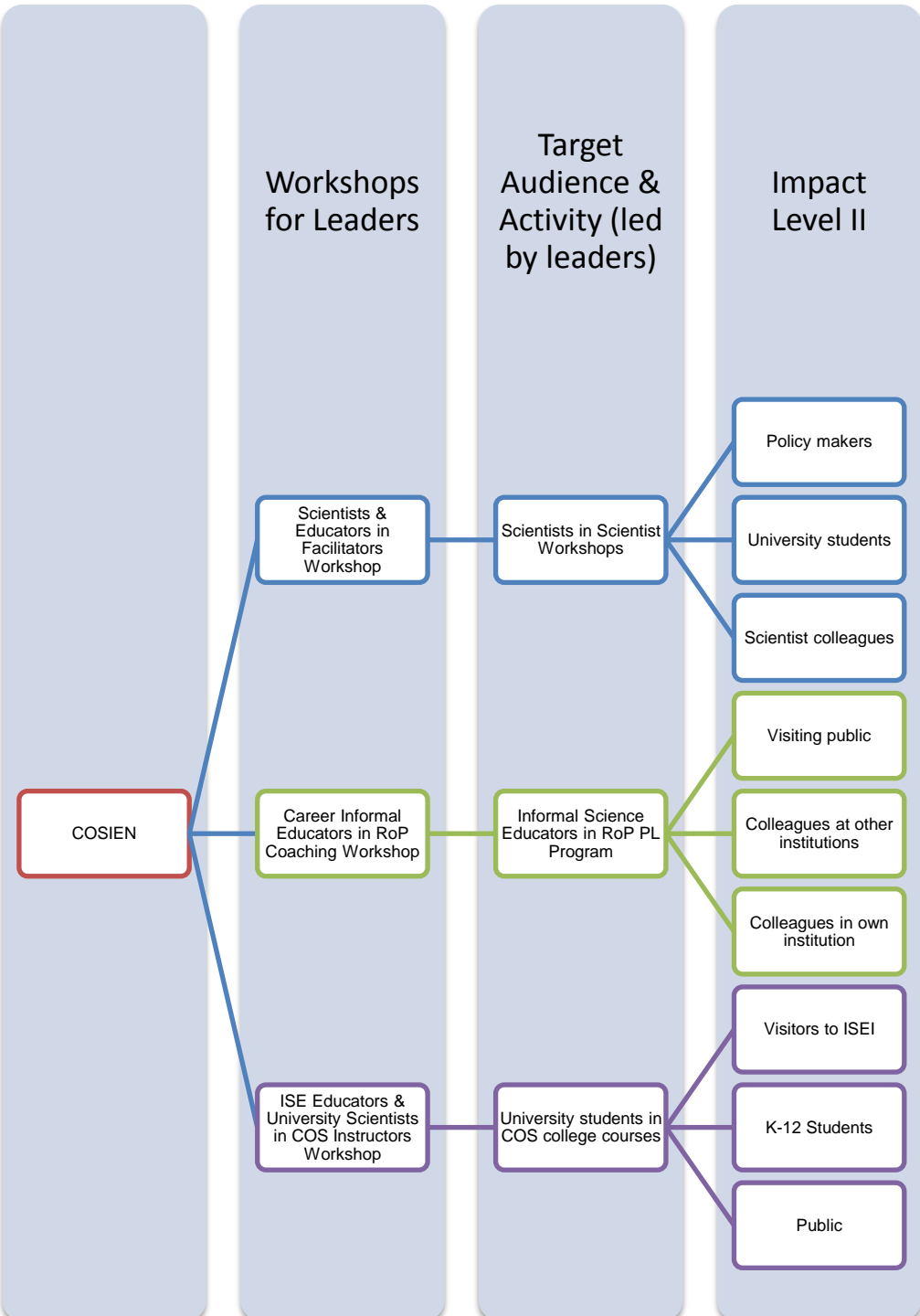
- A **professional development** program for informal educators
- Immerses informal science educators in discussions about, reflections on, & applications of **research & theory on learning & teaching science**
- Implemented by informal educators for colleagues in their own institutions



3 Primary Goals



1. **Connect practitioners with literature** on learning & teaching to inform & ground their practice, and build a shared language among professionals.
2. **Engage practitioners in habits of reflections** through observing their own teaching, as a means to develop their practice & make it public.
3. **Nurture a tradition of continued professional learning** among participants, & build a professional learning community.



We're studying:

- Impact on students taking the college courses; and instructors & institutions teaching the college courses
- Development of partnerships between scientists & educators & development of a network of partnerships
- Changes in practice for scientists & educators
- Creation of personal and institutional relationships that support ocean science education.
- Working capital put in place including resources, tools and knowledge.
- The health and strength of COSIEN as a network organization with a strong management and administrative capacity.

COSIEN (Network) Evaluation Approach

Inverness Research
17 November 2011

The Beginning

- *COSIA*
 - Communities of Practice lens (IHEs & ISEIs)
 - Brokering/boundary crossing
 - Hybrid communities
 - Increased capacity to partner
 - Increased capital of various forms
 - LHS as a critical broker and locus of support for partners
 - Emerging network

For COSIEN

Guided by Characteristics of a Healthy
Network *framework*

The Defining Features of Effective Networks

A network works well when members of the network:

- have a shared sense of purpose
- have a collective and shared identity
- do work together
- have deep knowledge and trust of each other
- develop leadership in a collective and distributed fashion
- assume shared responsibility for the mission of the network

Key Attributes of Network Bonds

*AUTONOMY /
INDEPENDENCE*

**CONNECTIONS AND
COMMUNITY**

SHARED MISSION,
VISION, VALUES,
CULTURE....

COSIEN Network Eval

- To date we've been focused primarily on the nature and characteristics of the Network and the work of the network
- How is COSIA a network?
- What is the role of the work (the strong, well-designed course and program itself) in the network?
- Looking at the role of LHS as the Center of the Network and the role of the regional hubs

COSIA Network Eval

- What is the nature of the network linkages and interactions?
- How do these linkages and connections add value to the work of the partners and to the initiative (as opposed to having individual and isolated partnerships)?
- How, if at all, does the COSIA community and network as a whole add value to the work of the partners?

Documenting the Reach and Impact of the Network

Methods: Mixed-method approach

- Collecting quantitative data on
 - numbers of partners (primary, secondary, tertiary),
 - number/level of collaborations,
 - extent of knowledge/perceived value and quality of network members' work,
 - benefits from and contributions to Network

Documenting the Reach and Impact of the Network

- Focus groups with regional hub leaders (roles in region/roles in Network)
- Semi-structured interviews with hubs
- Mapping the network, in terms of the reach of the regional hubs
- In the spirit of networking, recently recruited someone to help us conduct a modified Social Network Analysis (to build our own intellectual capital)