What BI Plans Does NSF Fund?
Examples from Ocean Science

Dr. Sue Cook, Co-PI & BI Coach
COSEE Florida
Ocean Research & Conservation Association
COSEE: Centers for Ocean Sciences Education Excellence

Funded by NSF Ocean Sciences since 2002
COSEE Florida 2010-2015

Indian River State College

Smithsonian Marine Station at Fort Pierce

Ocean Research & Conservation Association

Florida Institute of Technology
www.cosee.net for more information
NSF Ocean Sciences Awards: A spectrum of BI plan types

83 active awards, 2012
Keyword search of abstracts
Florida’s Ocean Scientists

Five research universities with substantial NSF support for ocean science

Additional institutions with OS/marine science faculty receiving NSF awards
Broader Impacts, 2012 OCE awards

Three ‘hot topics’:
• Ocean’s role in climate
• Currents and chemical cycles
• Ecosystem health
Broader Impacts, 2012 OCE awards
Three categories in more depth

Graduate student training
Graduate Training

- Support/Research training: 90%
- Community/K12 interactions: 6%
- International exchange: 4%
NSF’s Innovation in Graduate Education Challenge

• What be done to better prepare today’s students for tomorrow’s opportunities and challenges?

• National competition with recognition by NSF and significant $ prizes

• Over 500 student essays judged by panels of students & higher education experts

• Finalist (top 10%) posters showcased at NSF; attendee vote for Community Choice award
NSF’s Graduate Education Challenge

• Awards announced June 13, 2013


• Key areas: career development, communication skills, curriculum reform & mentorship

• Student ideas = good examples of what the community (and NSF) considers transformative/creative
Categories in more depth

K 12 activities
K-12 Activities

- Teacher PD/interactions: 35%
- Curricula/videos: 24%
- Student research/lab visits/near peer mentoring: 38%
- No detail: 3%
Specific examples

• Teacher Professional Development
  – Collaborations with COSEE REPT (Research Experiences for Pre-Service Teachers)

• K-12 Student Research
  – Involvement of minority students in OS field research
Categories in more depth

Public outreach
Specific examples

• Public outreach through exhibits, displays & activities at regional museums and nature centers

• Science cafes

• Partnerships with ‘citizen science’ volunteers
A well-written BI plan

• Should describe (paraphrased from GPG, Chapter II.C.e.d.i)
  – what the PI wants to do
  – why he/she wants to do it
  – how she/he plans to do it
  – how will he/she know if the plan is successful
  – what benefits will accrue if the project is successful
A well-written BI plan

• Does NOT have to be focused on K-12 Education or Public Outreach

• Is focused on one or two primary objectives (avoids the ‘checklist trap’)

• Describes the basics of how the work will be done

• Convinces reviewers that the work will be creative, innovative and worth funding
Where do PIs need help?

• Adding enough detail in a limited space

• Linking to prior education research (what has worked in the past)

• Emphasizing what is new and creative (transformative?) about the BI approach

• Assessment with a focus on outcomes
Resources

COSEE Florida

• COSEE Florida BI 2.0 FAQs.
• Upcoming Fall and Winter workshops: BI 2.0 (for scientists); BIS-SUS (for informal educators/facilitators working with ocean scientists)
• One on one coaching for marine and coastal scientists preparing proposals

COSEE Network

• Broader Impacts Wizard, COSEE NOW (Networked Ocean World). (coseenow.net/wizard)