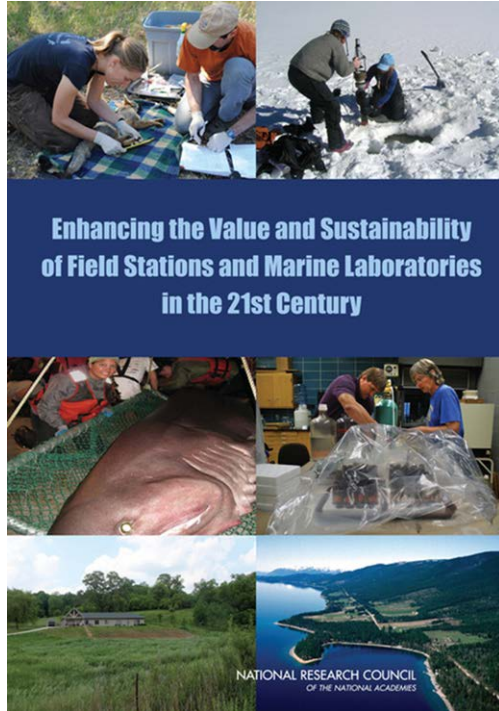


Kari O'Connell
STEM Research Center

DEMONSTRATING & IMPROVING THE VALUE OF UNDERGRADUATE FIELD EXPERIENCES

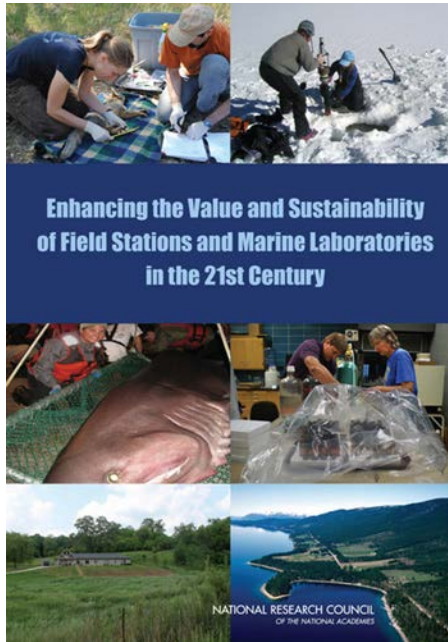


Oregon State
University



Key Recommendation:

Clearly document whether FSML place-based education has disproportionate impact



- “identify and support the development of ...educational assets.. by bringing together scientists from a number of disciplines, including the social sciences.”
- “expand opportunities at field stations to conduct...active learning activities to increase interest and persistence in STEM fields.”
- “seek opportunities for networking...NSF and other funding agencies could encourage networking of field stations....by giving preference to proposals that link multiple field stations.”
- “work together to develop a common set of metrics of performance and impact...that can be aggregated for regions and the entire nation.”



Undergraduate Field Experiences Research Network



RCN-UBE grant #173056



Undergraduate
Field Experiences
Research Network

UFERN will build a collaborative network that fosters undergraduate field experiences through achievement of four objectives:

1. Identifying & sharing **evidence-based models and practices**
2. Identifying, developing, and sharing **assessment tools**
3. Investigating how undergraduate field experiences may help **broaden the participation and retention** of students
4. Harnessing the power of a network to **do research on student learning.**

UFERN brings together --

| Undergraduate Field Educators | Social & Behavioral Scientists | Experts in broadening participation |
|--|--|---|
| <ul style="list-style-type: none">• Extended experiences• Geology field camps, ocean sciences, extended field courses | <ul style="list-style-type: none">• Research and service-learning experiences• Place-based education• Ecology and earth system science education | <ul style="list-style-type: none">• Recruiting, retention, support• Connections to underrepresented groups |

UFERN Leadership Team



Kari O'Connell, PI
Oregon State University



Kelly Hoke, Project Coordinator
Oregon State University



Alan Berkowitz, Co-PI
Cary Institute of Ecosystem Studies



Gillian Bowser, Co-PI
Colorado State University



Janet Branchaw, Co-PI
University of Wisconsin-Madison



UFERN Steering Committee

Paulinus Chigbu, Director of the NOAA Living Marine Resources Cooperative Science Centers and Professor at University of Maryland Eastern Shore

Mike De Luca, Senior Associate Director, Office of Research at Rutgers University, Manager, Jacques Cousteau National Estuarine Research Reserve, Director, Rutgers Aquaculture Innovation Center

Alison Jolley, Science Teaching and Learning Fellow, Earth, Ocean, and Atmospheric Sciences, University of British Columbia-Vancouver, Canada

Jimmy Lee, Assistant Professor at East Los Angeles Community College.

Chris Lorentz, Professor, Biological Sciences and Director, Biology Field Station
Thomas More University, President, Organization of Biological Field Stations

Julie Risien, Associate Director, STEM Research Center at OSU

Cathlyn Stylinski, Tenured Research Faculty, University of Maryland Center for Environmental Science.



UFERN Community

- 163 members of UFERN listserv
- Partnering with and connected to:



Organization of Biological Field Stations

Supporting environmental research, education, and public understanding

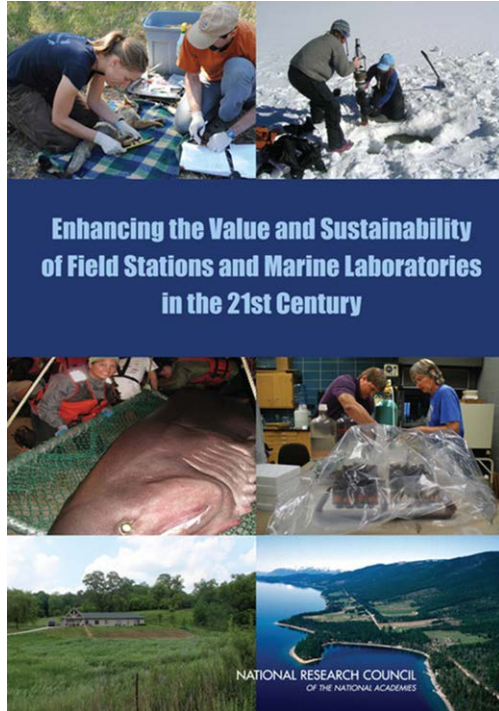




What is an Undergraduate Field Experience?

- Structured opportunities for **learning** in **nature** that provide undergraduate students with hands-on practice in **doing** disciplinary work
- Being **IN** the phenomenon of study
- Multiple disciplines and multiple designs, from extended courses at remote field stations and marine labs to “van on the side of the road.”

See Fleischner et al., 2017, O’Connell et al., *in press* for more discussion



**Enhancing the Value and Sustainability
of Field Stations and Marine Laboratories
in the 21st Century**

Key Recommendation:

**Clearly document whether
FSML place-based education
has disproportionate impact**



Key Challenges and Opportunities

- Who participates and who DOESN'T participate?
- Active learning
- Wide variation in structure of Undergraduate Field Learning Experiences



UFERN Initiatives

- **UFERN Landscape Study** - about the nature of undergraduate field experiences, paper coming out in Journal of Geosciences Education.
- **UFERN Framework** - highlights the factors that influence undergraduate field learning experiences for use as a guide for design of field programs, research, and evaluation. Paper in prep for Bioscience.
- **UFERN Assessment Toolkit** - Curated table of assessment tools for assessment of learning, program evaluation, research and a “how to” paper in prep for Life Sciences Education



UFERN Initiatives

- **Ongoing conversation** about promoting inclusion in undergraduate field experiences - paper coming out soon in ESA Bulletin
- **Webinars** - archived (theme of 21st century field education) & forthcoming
- **Mentor training** - “Train the Trainer” workshop for people who will train mentors at their field station, marine lab, or other field-based program

What are ways you as directors of marine labs and NAML as an organization can work with UFERN to address key challenges and opportunities for demonstrating and improving impact of undergraduate field experiences?



Rec. #1: Raise the level of importance and support for undergraduate field education at marine labs

- Support a robust NAML educator community of practice
- Support a network of place-based educators (OBFS and NAML)
- Support mentor training effort -
 - support NAML staff to participate
 - please share ideas with me for receptive program officers



Rec. #2: Facilitate and guide development of inclusive culture at your marine lab

- Consider the participants
 - Beyond recruiting
 - Create safe spaces





Rec. #3: Support network-level research

- Participate in research
- Use UFERN Framework to design undergraduate field experiences
- Share relevant RFPs with me or Mike De Luca



Rec. #4: Support sustainability of UFERN

- Share ideas with Mike De Luca



A big thank you!!!



Stay in touch

Website: <http://ufern.net/>

Listserv: bit.ly/UFERN-signup

Email: ufern.staff@gmail.com

Linkedin: search for UFERN group and request to join

Join us at the following meetings this summer:

- Earth Educator Rendezvous
- Ecological Society of America
- Organization of Biological Field Stations