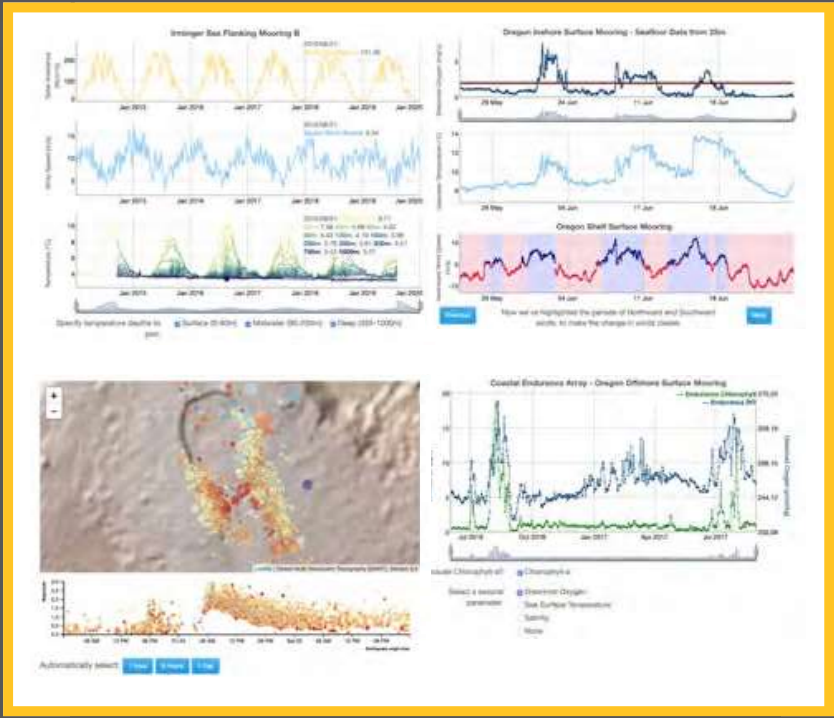
An Update on the OOI Data Explorations/Data Labs AGU Town Hall December , 2020

Janice McDonnell, Sage Lichtenwalner, Christine Bean, Dr. Ellen Altermatt, Dr. Anna Pfeiffer-Herbert, Denise Bristol, Catherine Halversen, Dr. Dax Soule, and Dr. Brooke Love



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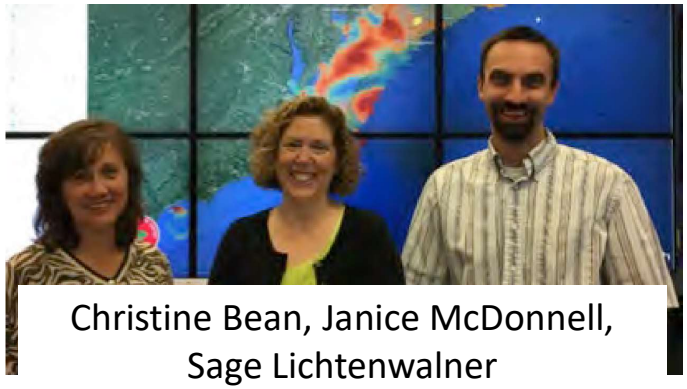
Grateful… to the National Science Foundation



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NSF Grant #1831625

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Updates

1. What are Data Labs?
2. Highlights of our 2020 Reach Survey Evaluation Report
3. Update - OOI Data Lab Manual
4. Update - Virtual REU
5. Summary – Join our community!

OOI Data Labs Project-
https://datalab.marine.rutgers.edu

Key Goals

- Build a **Community of Practice (CoP)** of undergraduate educators, interested in using OOI data with their students through
  - *Sustained professional development opportunities*
  - *Facilitating sharing of ideas and teaching practice*
- Make OOI data more **accessible** to educators and students

OOI Data Labs

A Summary of our project milestones

Comprehensive Database
Fall 2018

590 scientists

2 undergraduates built a database of professors from around the country teaching Oceanography 101 like courses.

Development Workshops
Spring 2019

56 professors

Attended 4 week long workshops:

- Princeton, NJ.
- New Brunswick, NJ.
- Monterey, CA.
- Bellingham, WA.

Implementation Workshops
Summer 2019

60 professors

Attended Earth Science Teachers Rendezvous Nashville, TN July 2019

Ocean Science Meeting San Diego, CA February 2020.

Webinar Series
Fall 2019-2020

19 professors

8 webinars featuring data labs developed by workshop participants.

Open Source OOI Data Lab Manual
Winter 2020

11 professors

Design workshop to develop an online lab manual for oceanography courses.

Fellowship Program
Winter 2020

10 fellows

6 professors are collecting data and feedback from students on the efficacy of the Data Labs.

4 are creating new Python notebooks with OOI data.

REU Program
Summer 2020

9 professors

Mentored students in a virtual REU using OOI data in an online REU program.

Cohort 1 Data Lab Manual Pilot
Fall 2020

20 professors

Are piloting the OOI Data Lab Manual created by 11 professors from the community.

Reach Survey Evaluation

Conducted by Dr. Ellen Altermatt, SERC at Carleton College

The purpose was to:

1. better understand current ***perceptions of and practices in using large, real-world oceanographic datasets*** in undergraduate classrooms,
2. assess ***levels of involvement*** in past and current OOI Ocean Data Labs initiatives,
3. examine the ***impact of participation*** in these initiatives on faculty teaching and perceptions of community belongingness, and
4. assess planned ***levels of future involvement*** and to understand how current resources might better meet community needs.

Survey Facts

- Sent to updated database of 590 professors
- Completed by 145 individuals (22.8% response rate).
- Analysis focused on n=133
  - 130 who indicated that they had taught an undergraduate-level oceanography course (or a related course with substantial oceanographic content) in the past two years.
  - An additional 3 respondents indicated that, although they had not recently taught this type of course, they planned to do so in the next two years.

A Vibrant Community of Practice

- Data Exploration pilot testers (27)
- Data Lab developers (56)
- 2020 Data Lab Fellows (11)
- Data Lab project team leaders

** 60 Implementation workshop attendees (not pictured on map)

https://datalab.marine.rutgers.edu/community-map/

Project Involvement

70% of n=133 involved in one or more Data Lab initiatives

Please check all the ways in which you have been involved with this project [OOI] prior to completing this survey.	n (% of 133 respondents)
Visited the OOI Ocean Data Labs Project website	**81 (60.9%)**
Joined the OOI Ocean Data Labs Project mailing list	**49 (36.8%)**
Introduced a colleague to the OOI Ocean Data Labs Project	**28 (21.1%)**
Attended a 2016-2017 OOI Teaching with Data Workshop	**15 (11.3%)**
Attended a 2018 OOI Early Career Scientist Data Workshop	**7 (5.3%)**
Attended a 2019 or 2020 OOI Ocean Data Labs Development Workshop (4.5 days)	**30 (22.6%)**
Attended a 2019 or 2020 OOI Ocean Data Labs Mini-Workshop (at the Earth Educators Rendezvous or the Ocean Sciences Meeting	17 (12.8%)
Attended a 2019 or 2020 OOI Ocean Data Labs Webinar	14 (10.5%)
Attended the 2020 OOI Ocean Data Labs Notebook Workshop	6 (4.5%)
Participated as an OOI Ocean Data Labs Project Fellow	5 (3.8%)
Used an OOI Data Exploration/Lab activity that I created in one or more of my courses	26 (19.5%)
Use an OOI Data Exploration/Lab activity that someone else created in one or more of my courses	32 (24.1%)
None of the above	39 (29.3%)
Other	5 (3.8%)

How did you hear about the OOI Data Labs project?

Response	n (% of 93 respondents)
Internet search	15 (16.1%)
Colleague referral	34 (6.6%)
Email Communication	44 (47.3%)
Other online communication (e.g. blog post)	9 (9.7%)
Printed communication (e.g. journal article)	3 (3.2%)
Professional conference	21 (22.6%)
Other	7 (7.5%)

Impact of Participation in OOI Data Labs

1=strongly disagree; 5= strongly agree

"I never used OOI data previously to attending the workshop and I did not know about the research arrays from the Ocean Observatories Initiative. I now introduce my students on these physical tools used to study the ocean remotely."

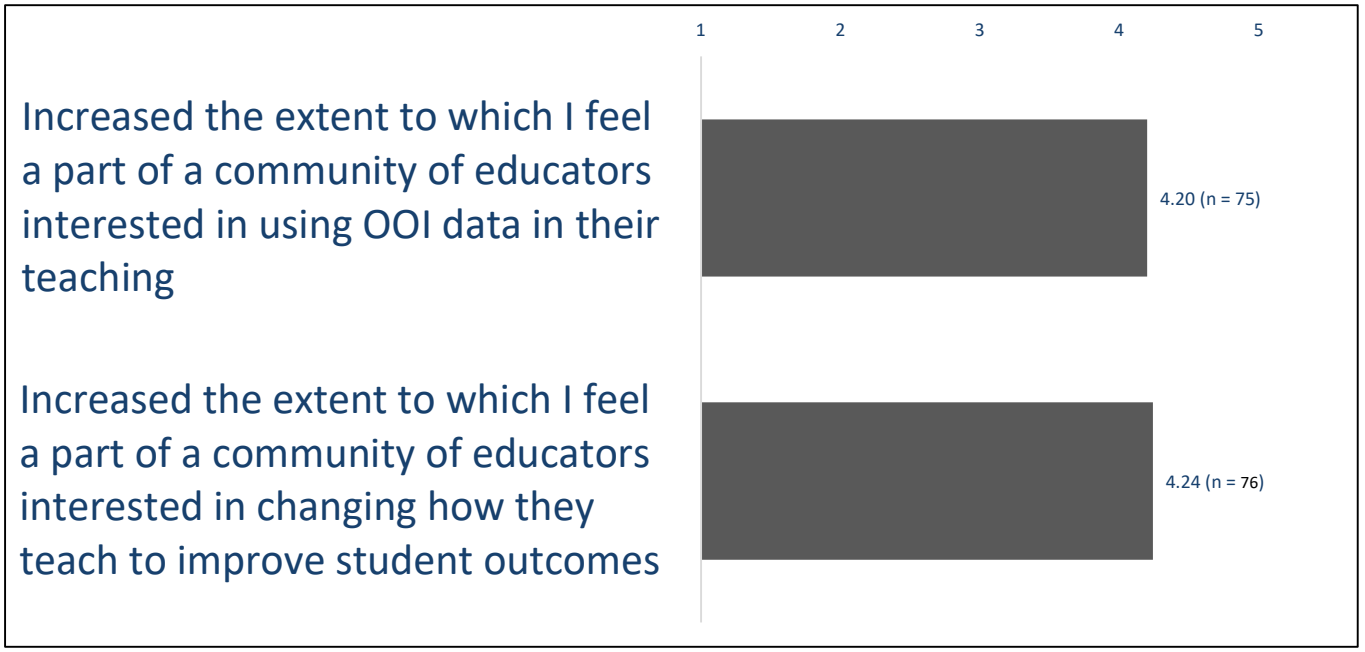
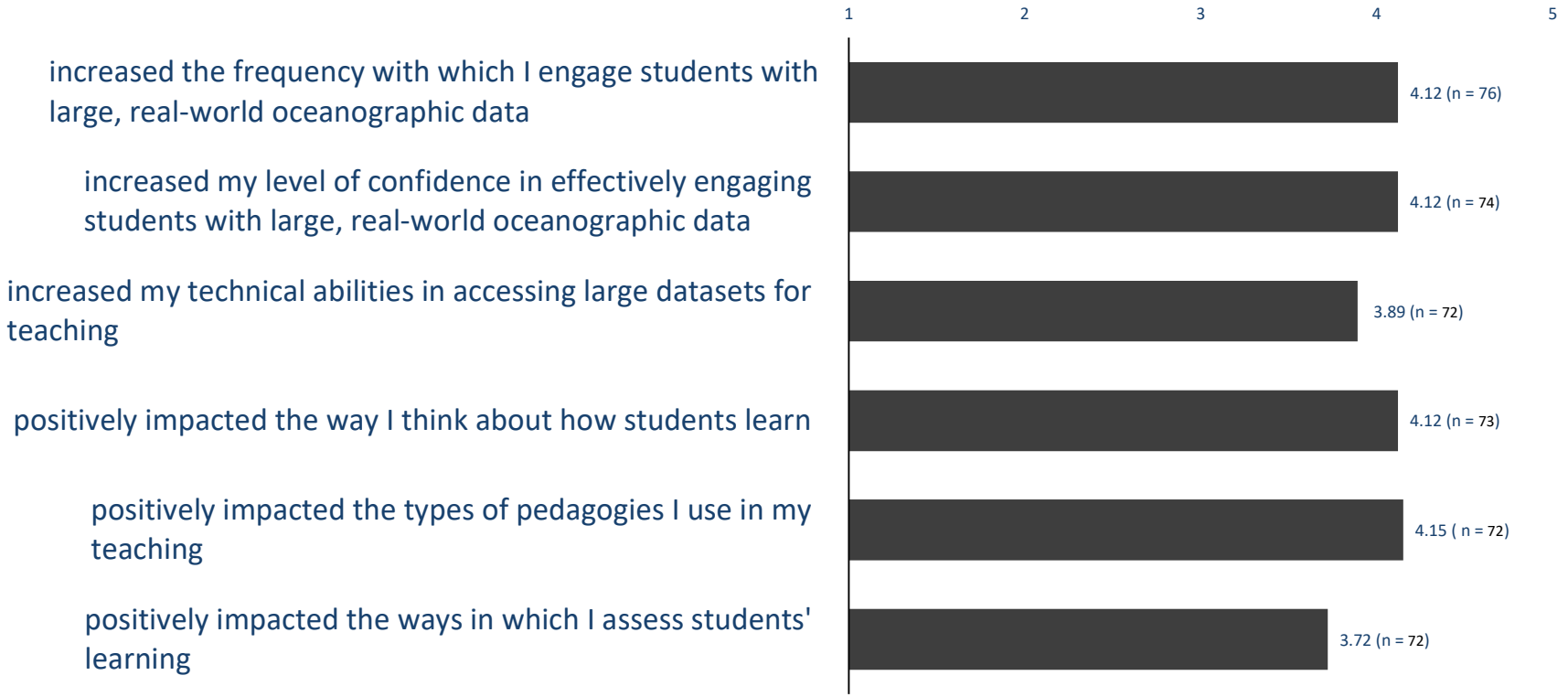


Figure 4. Mean ratings for the degree to which participants' involvement with the OOI Data Labs Project has influenced their teaching. (1- strongly disagree 5= strongly agree)



OOI Data Labs in a Pandemic

- *"I will increase the use of real data sets into lab environments. The involvement is depending on how labs are taught. The more labs are taught in a distance learning environment, the more I am relying on real data sets. Using real time data sets has multiple objectives: a) help students learn to analyze data, b) help students to deal with data messiness, c) help students to visualize data using software."*

- *"I am grateful that these resources are available, especially as I try to convert my class to a hybrid model with less access to field trips and collecting our own data (and potentially being fully remote). I look forward to working to incorporate these data and activities into my Biological Oceanography course in Fall 2020."*

- *"Thank goodness for Data labs! They have really been a remote learning life jacket!"*

OOI Data Lab Manual

- Community-generated from the idea to the authorship

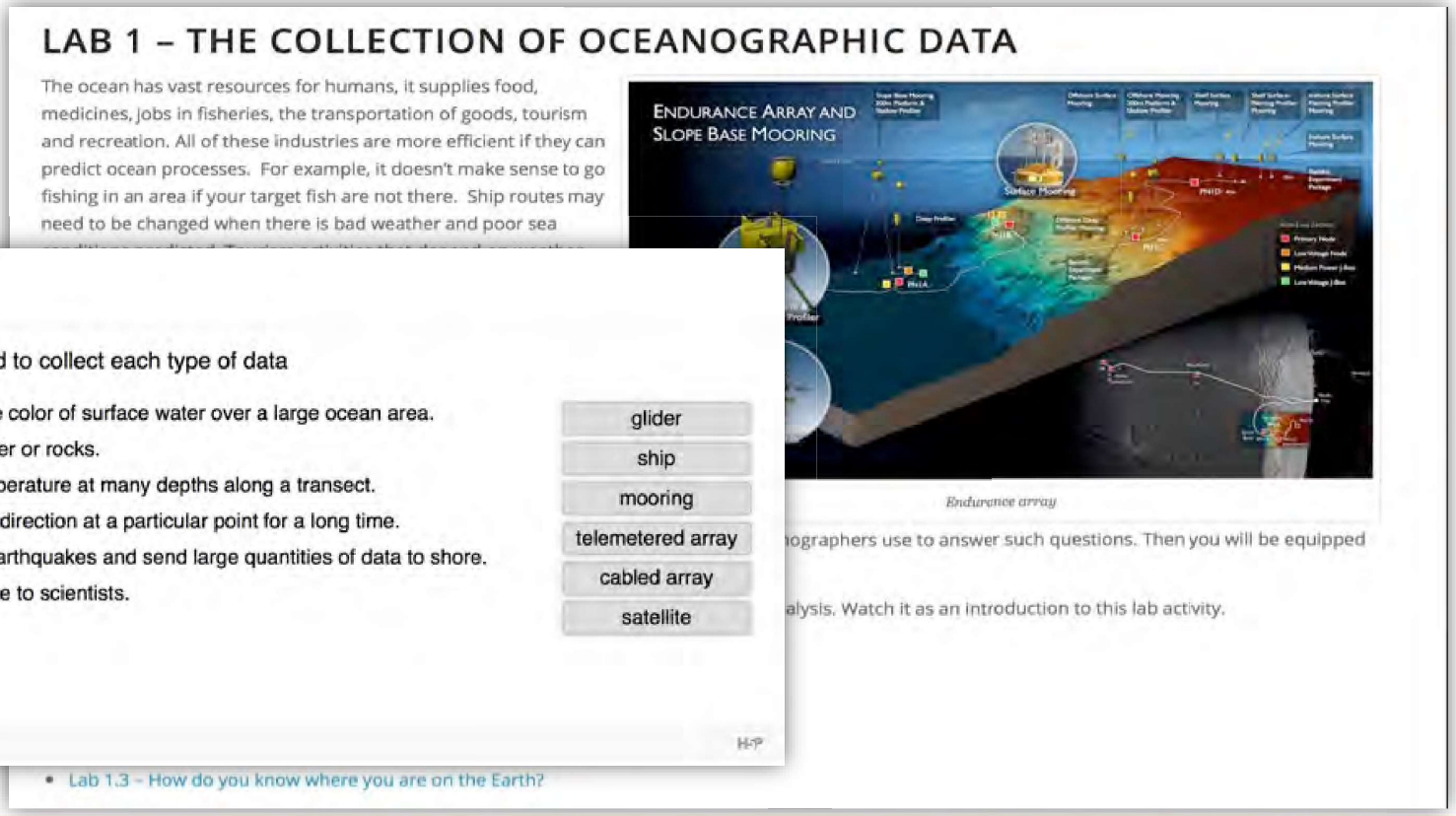
OOI Data Lab Manual

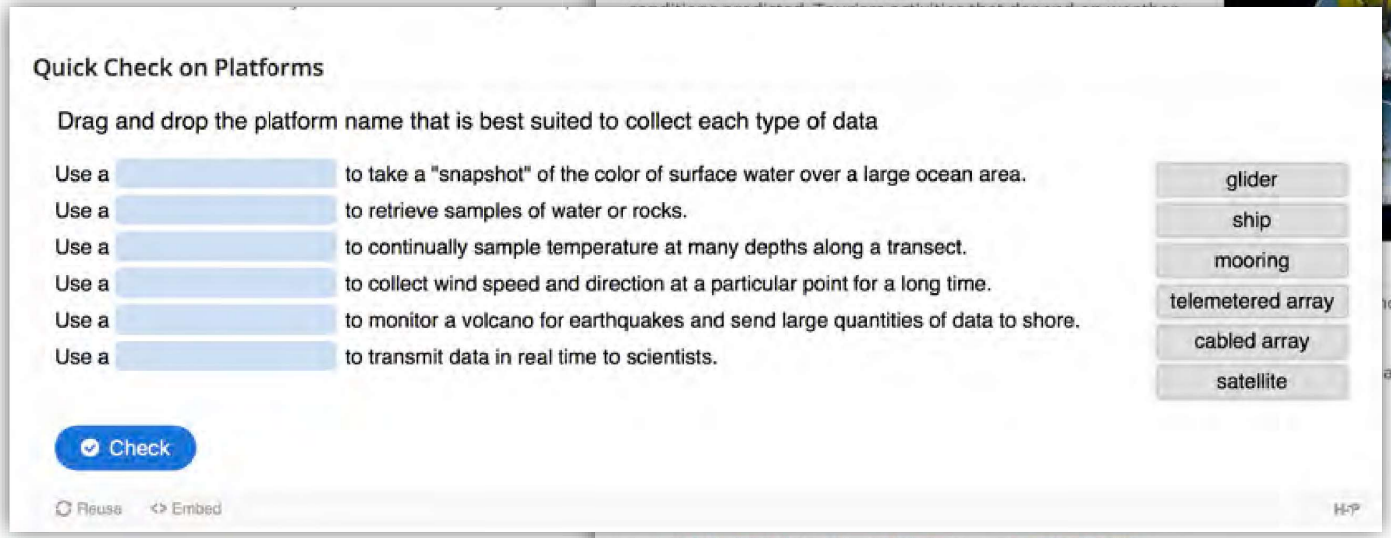
Lab Chapters

- Lab 1 – Introduction to the Ocean Observatories Initiative (OOI) – The collection of oceanographic data
- Lab 2 – Building Data Skills – The display of oceanographic data
- Lab 3 – Geology – Plate Tectonics and the Seafloor
- Lab 4 – Geology – Sea Floor Changes in a Volcanically Active Setting
- Lab 5 – Ocean Chemistry – Investigating Density and Stratification in the Ocean
- Lab 6 – Ocean Physics – Waves Generated by Large Storms
- Lab 7 – Primary Production – Identify factors that control Primary Production in the western temperate Atlantic Ocean
- Lab 8 – Anoxic Events – Solve the mystery of the dying crabs

OOI Data Lab Manual

- Fully fleshed out lessons
- Interactive quizzes
- Instructors guide





Virtual REU

8 student posters at AGU 2020

13 mentors from Data Lab community

Barr, J., C. Bean, and J. McDonnell. 2020. **Strategies for running a successful virtual career panel**. *Oceanography* 33(2), https://doi.org/10.5670/oceanog.2020.220.

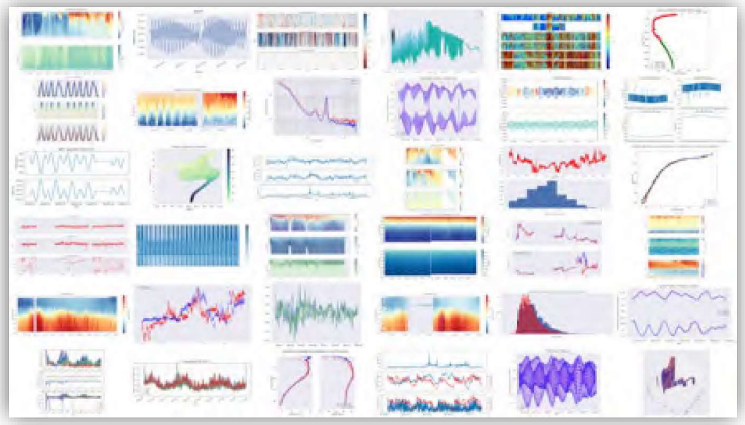
Building a CoP: Moving to the Center of the Community

Of the 116 we worked intensively with in workshops:

- 19 delivered OOI DL webinars, presenting the DL they had developed during workshop
- 11 became DL Fellows
- 11 are designing and building the DL Notebook
- 9 became peer presenters at mini workshops
- 10 presented on OOI at Ocean Sciences Meeting in San Diego, CA
- 13 volunteered to be an OOI Virtual REU mentor
- 20 are participating as Lab Manual testers
- The community is growing!

Summary

- Building a promising CoP
- Positive results of Reach Survey
- Active Blog and mailing list
- Webinar series Fall 2020, Spring 2021
- Video on Teaching with Data
- DL Online Manual for Oceanography 101
- Cohort I testing (Fall 2020) Cohort II (Spring 2021)

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