Abstract ID: 1488268

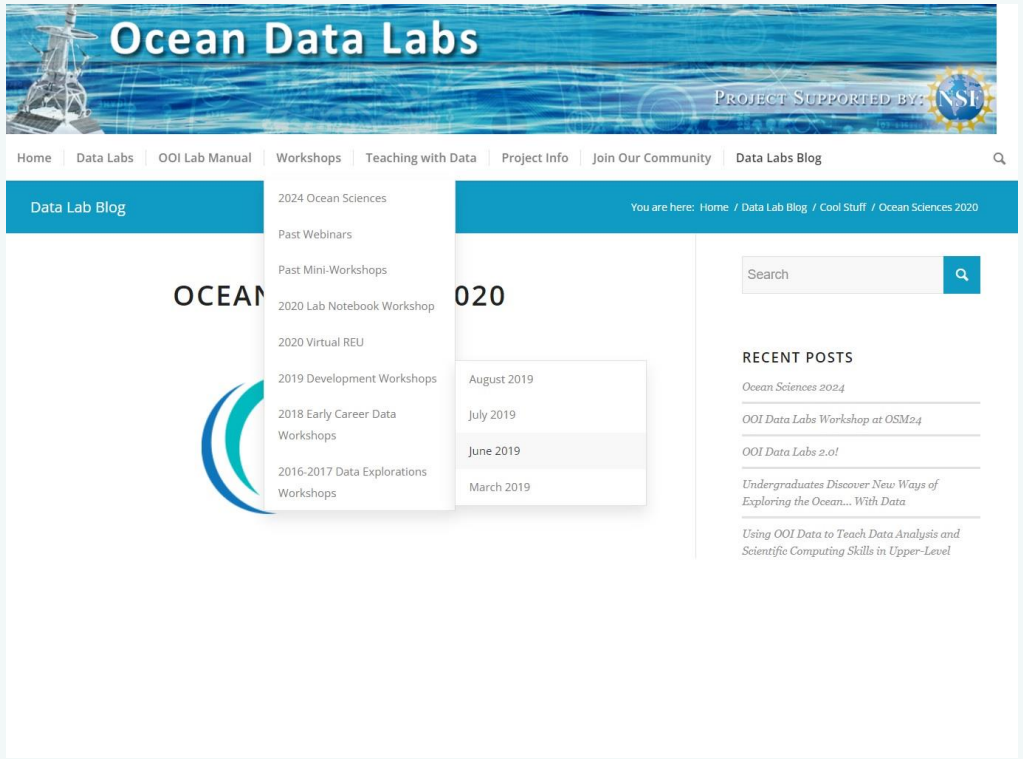
Assessment Data Indicate OOI Data Lab Activities Enhance Student Success

Claire Condie, Middlesex College

February 23, 2024

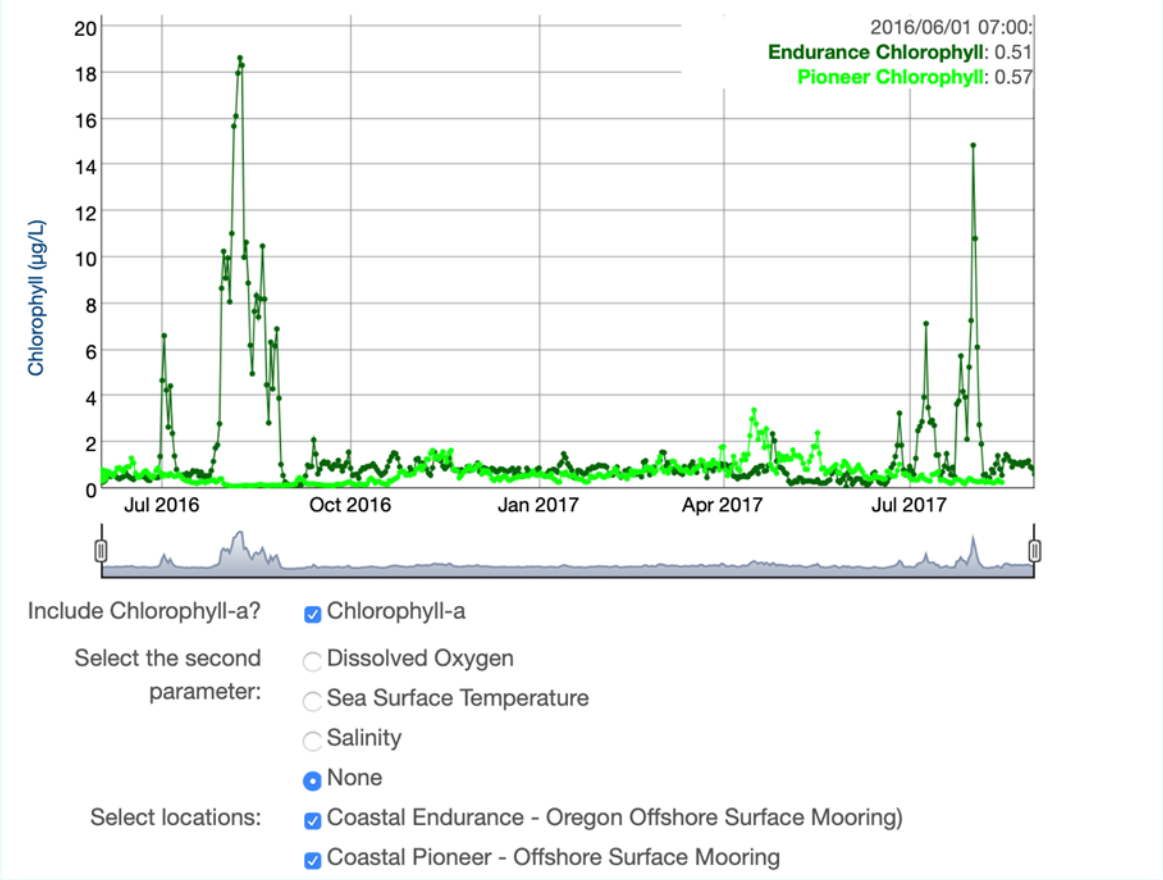
Introduction

- Natural Science Department Middlesex College, NJ
- GEN Science Courses
- Student population
- Modalities
- Assessment background
- My involvement with Ocean Data Labs
- Exercises I use in earth science courses
- Review of my assessment data



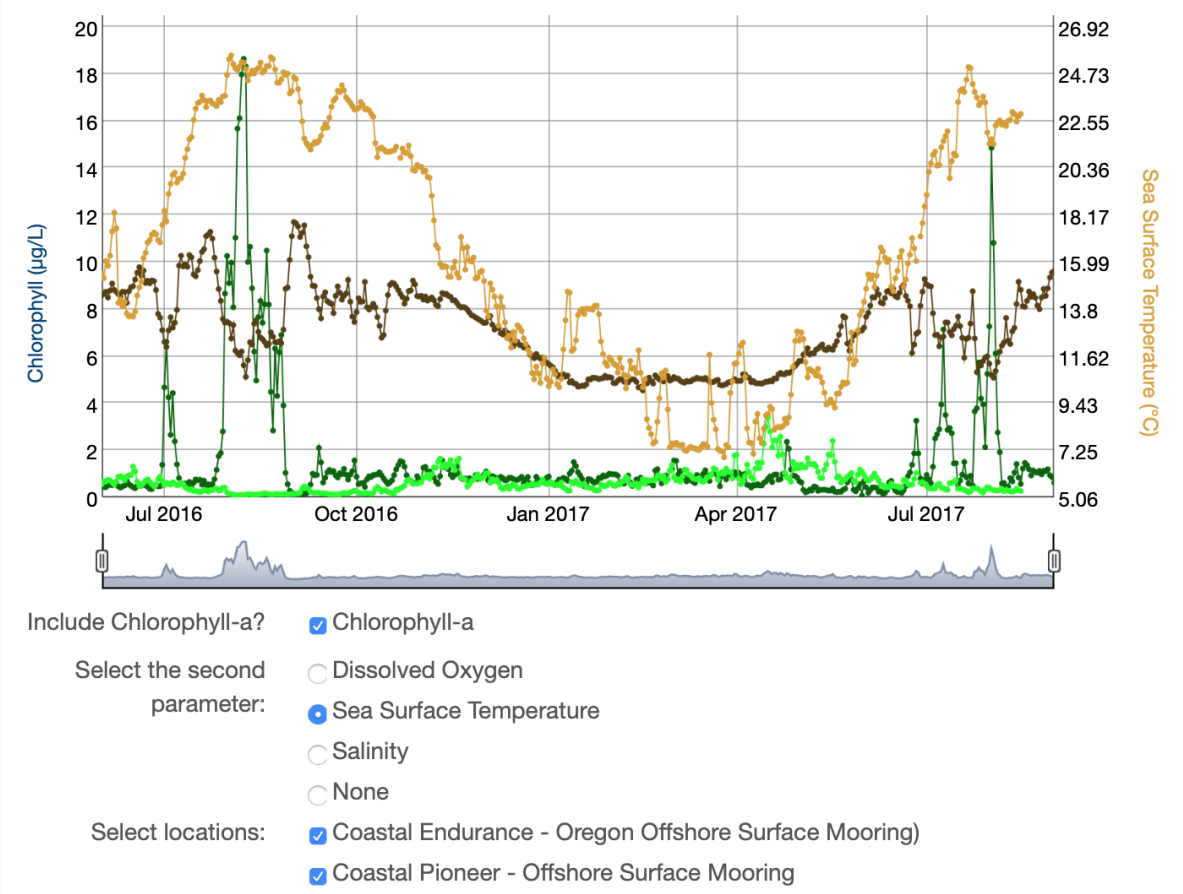
Chlorophyll-a in Upwelling and Stratified Temperate Regions

Karen Baker, Orange Coast College; Claire Condie, Middlesex College; Robert Ellis, Orange Coast College; Colleen Petrik, Texas A&M University



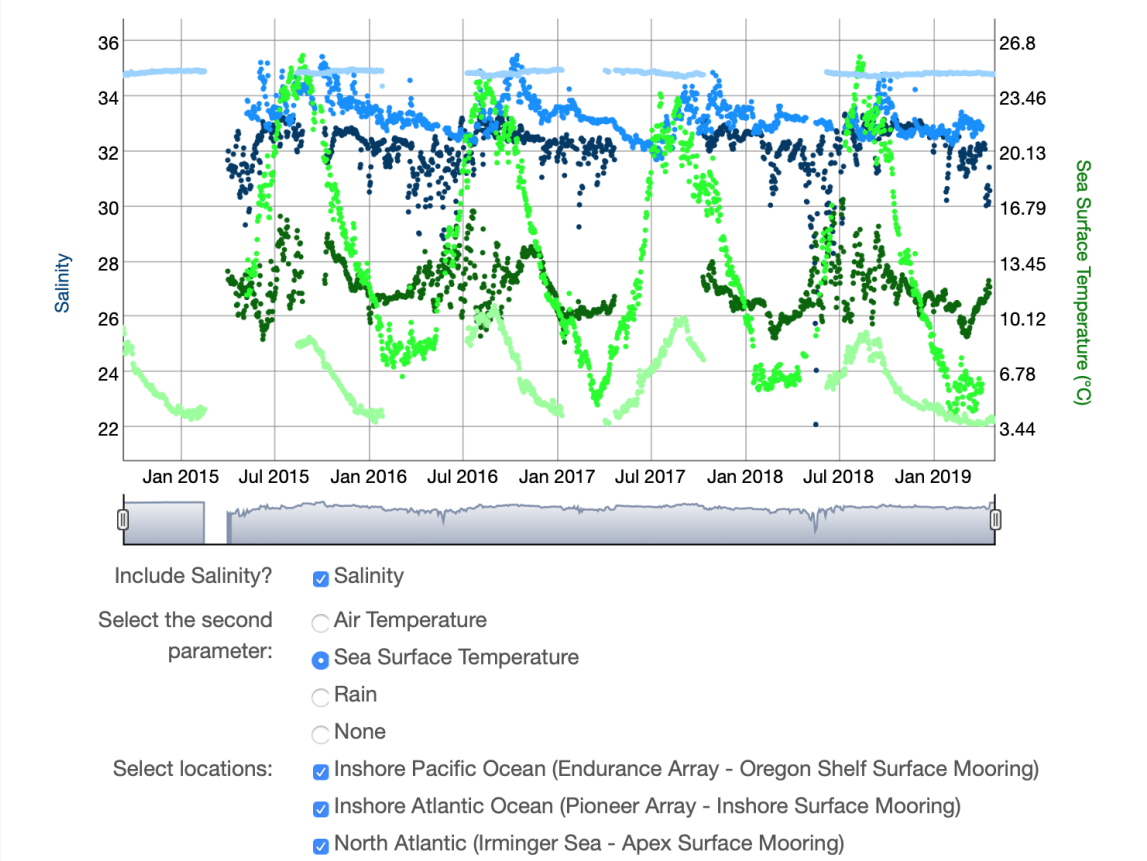
Chlorophyll-a in Upwelling and Stratified Temperate Regions

Karen Baker, Orange Coast College; Claire Condie, Middlesex College; Robert Ellis, Orange Coast College; Colleen Petrik, Texas A&M University



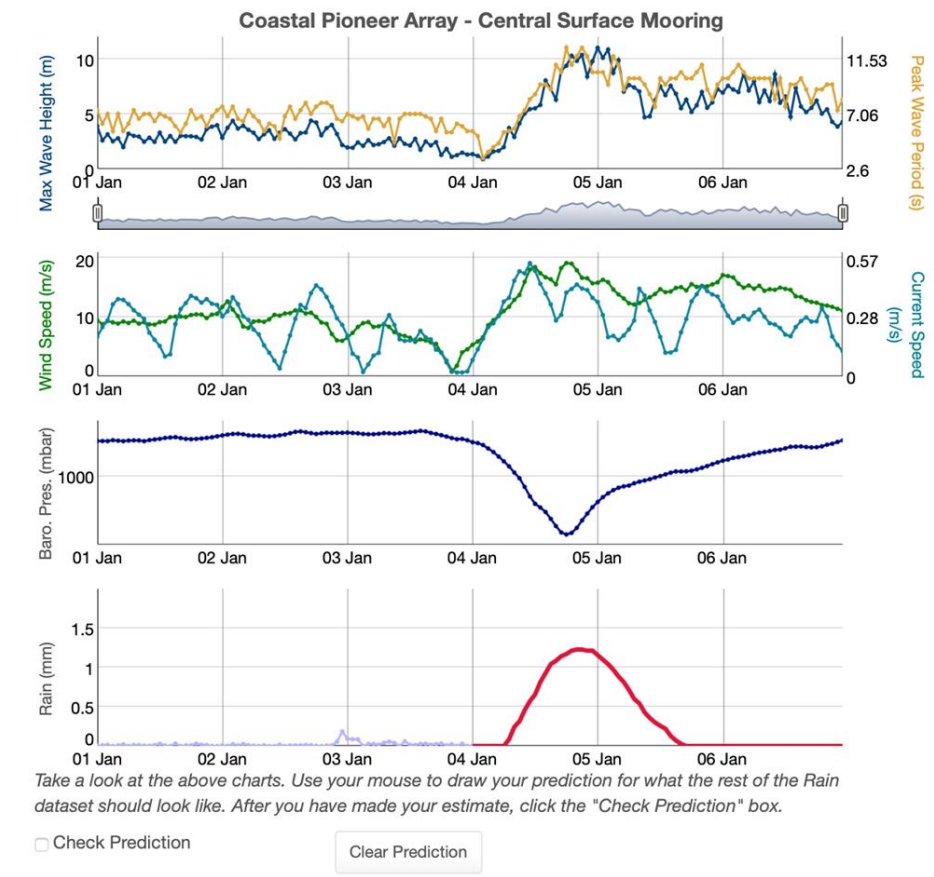
Compare Variables and Locations: Salinity vs SST

Michael Phillips, Illinois Valley Community College; Karen Helgers, SUNY Ulster; Jessica Olney, Hillsborough Community College; Matthew Semcheski, Florida Keys Community College



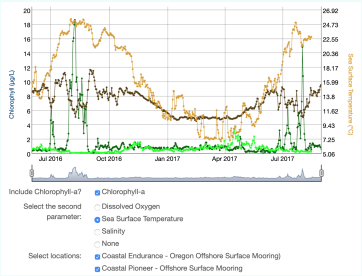
Dynamic Air-Sea Interactions

Jacqui Degan, Cape Fear Community College; Melissa Hicks, Onondaga Community College; Siddhartha Mitra, East Carolina University; Paul Webb, Roger Wiliams University



Assessment Data:
Chlorophyll-a in Upwelling and Stratified Temperate Regions

Karen Baker, Orange Coast College; Claire Condie, Middlesex College; Robert Ellis, Orange Coast College; Colleen Petrik, Texas A&M University



SCI 160 Oceanography

Which axis represents the independent variable?

LO: Graph interpretation

Classification: Easy

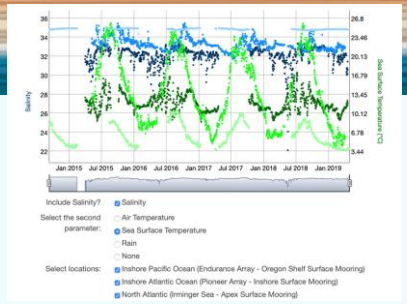
OOI labs

Year	2023	2023	2022	2022	2021	2021	2020	2020	2019	2019	2018	2018	2017	2017
Pre or Post	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre
# of Students	20	20	15	16	36	36	30	28	29	30	28	30	20	19
Correct Answer	20	10	15	9	34	27	26	15	21	17	22	14	16	4
% Correct	100%	50%	100%	56%	94%	75%	87%	54%	72%	57%	79%	47%	80%	21%

RESULT: Assessment data indicates **increased** student retention

Assessment Data:
Compare Variables and Locations: Salinity vs SST

Michael Phillips, Illinois Valley Community College; Karen Helgers, SUNY Ulster; Jessica Olney, Hillsborough Community College; Matthew Semcheski, Florida Keys Community College



SCI 160 Oceanography

What is the relationship between surface water salinity and precipitation?

LO: Salinity Variations

Classification: Moderate

OOI labs

Year	2023	2023	2022	2022	2021	2021	2020	2020	2019	2019	2018	2018	2017	2017
Pre or Post	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre
# of Students	20	20	15	16	36	36	30	28	29	30	28	30	20	19
Correct Answer	19	11	14	11	34	30	28	20	24	22	24	20	15	14
% Correct	95%	55%	93%	69%	94%	83%	93%	71%	83%	73%	86%	67%	75%	74%

RESULT: Assessment data indicates **increased** student retention

Assessment:

Chlorophyll-a in Upwelling and Stratified Temperate Regions

Karen Baker, Orange Coast College; Claire Condie, Middlesex College; Robert Ellis, Orange Coast College; Colleen Petrik, Texas A&M University

SCI 160 Oceanography

How do you get deep nutrients back up to the euphotic zone where light is?

LO: Upwelling

Classification: Challenging

OOI labs

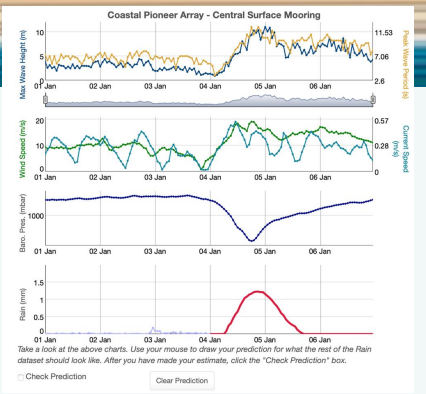
Year	2023	2023	2022	2022	2021	2021	2020	2020	2019	2019	2018	2018	2017	2017
Pre or Post	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre
# of Students	20	20	15	16	36	36	30	28	29	30	28	30	20	19
Correct Answer	19	13	14	11	32	21	27	12	19	14	20	11	15	2
% Correct	95%	65%	93%	69%	89%	58%	90%	43%	66%	47%	71%	37%	75%	11%

RESULT: Assessment data indicates **increased** student retention

Assessment:

Dynamic Air-Sea Interactions

Jacqui Degan, Cape Fear Community College; Melissa Hicks, Onondaga Community College; Siddhartha Mitra, East Carolina University; Paul Webb, Roger Wiliams University



SCI 157 Meteorology
Which axis represents the independent variable?
LO: Graph interpretation
Classification: Easy

OOI labs

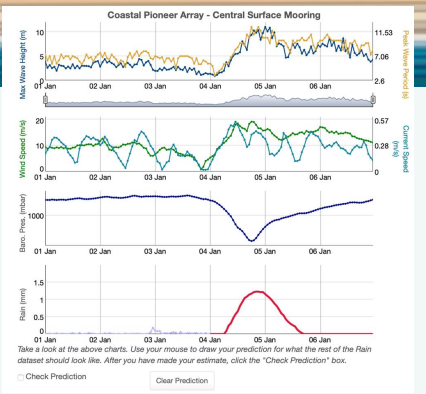
Year	2023	2023	2022	2022	2021	2021	2020	2020	2019	2019	2018	2018	2017	2017
Pre or Post	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre
# of Students	18	18	12	12	13	13	18	20	20	20	20	20	20	19
Correct Answer	18	12	12	7	10	6	16	15	15	8	16	9	15	7
% Correct	100%	67%	100%	58%	77%	46%	89%	75%	75%	40%	80%	45%	75%	37%

RESULT: Assessment data indicates **increased** student retention

Assessment:

Dynamic Air-Sea Interactions

Jacqui Degan, Cape Fear Community College; Melissa Hicks, Onondaga Community College; Siddhartha Mitra, East Carolina University; Paul Webb, Roger Wiliams University



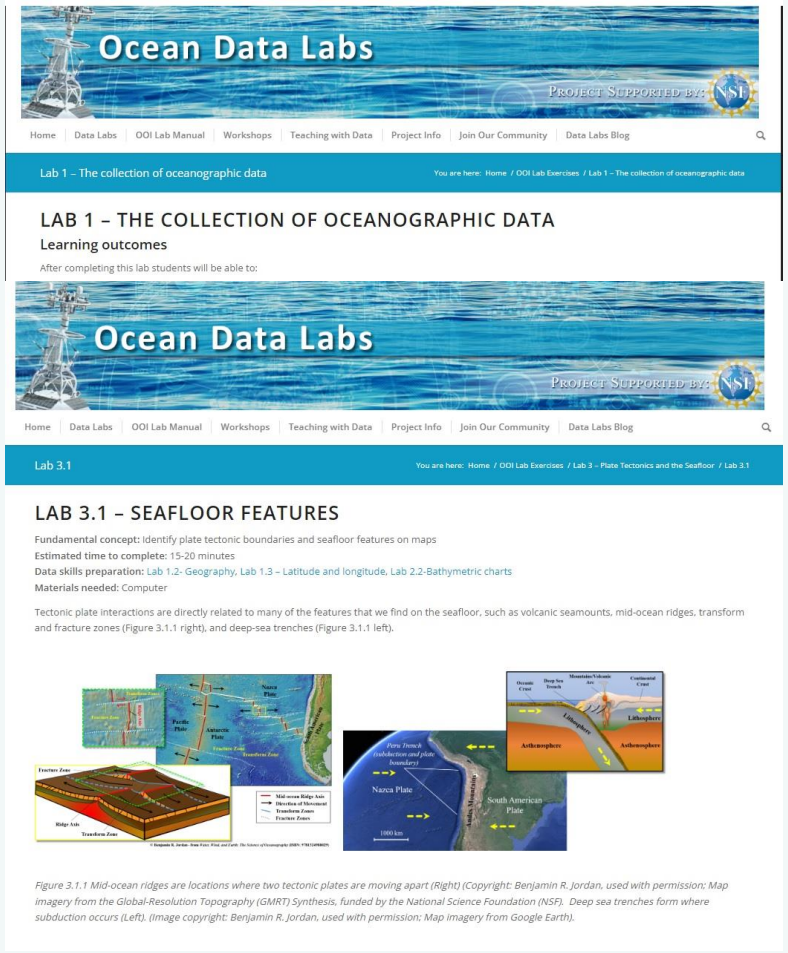
SCI 157 Meteorology
What is the relationship between air pressure and wind speed
LO: Wind speed and barometric pressure
Classification: Moderate

OOI labs

Year	2023	2023	2022	2022	2021	2021	2020	2020	2019	2019	2018	2018	2017	2017
Pre or Post	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre
# of Students	18	18	12	12	13	13	18	20	20	20	20	20	20	19
Correct Answer	17	13	11	6	12	7	15	11	16	9	15	7	14	5
% Correct	94%	72%	92%	50%	92%	54%	83%	55%	80%	45%	75%	35%	70%	26%

RESULT: Assessment data indicates **increased** student retention

OOI Ocean Data Lab: Spring 2024 Assessment



SCI 160 Oceanography
Unit 1
Added exercise Lab 1 and 3.1 to course classwork

OOI labs

Year	2024	2023	2022	2020	2019
# of Students	19	20	15	30	29
Class Average	80	74	72	73	74

RESULT: Assessment data indicates **increased** student retention

Takeaways:

- OOI data labs can successfully be used in a variety of earth science courses
- OOI data labs can be successfully used in different modalities
- Assessment data outcomes indicate the scaffolded approach of OOI data lab exercises enhances earth science learning outcomes
- Assessment data display an increase in student retention after OOI data lab exercises were incorporated into the course curriculum