



Oceanography 101 – Intro to Oceanography
Online – Asynchronous - Canvas
Fall 2023 Semester- San Diego Mesa College
Instructor: Ray Rector

First Day Agenda



Course Description
Review Course Syllabus
Class Introductions
Intro to Our World Ocean



Course Description



- Concepts, Features, and Processes of the Ocean, Seafloor and Marine Life
- Course Topics:
 - ★ Origin & Evolution of Earth's Ocean
 - ★ Plate Tectonics
 - ★ Seafloors and Marine Sediments
 - ★ Physical & Chemical Nature of Seawater
 - ★ Atmospheric Circulation
 - ★ Ocean Circulation
 - ★ Waves and Tides
 - ★ Shorelines
 - ★ Marine Life and Ecosystems
 - ★ Environmental Concerns

Course Design



Purely Online, Asynchronous,
Canvas-Based Format

Course Activities Include:

E-Textbook study

Video-taped lecture slides

Ocean Sci video documentaries

Online interactive exercises

Lecture discussion forums

Demonstrations

Virtual oceanography fieldtrips

Geologic science research



Course Syllabus



[Canvas Course Page](#)

- Basic Logistics
- Course Objectives
- Important Enrollment Dates
- Instructor's Attendance Policy
- Classroom Do's and Don'ts
- Assessments
- Grading
- Field Trips
- Extra Credit
- [Classroom Websites](#)
- Schedule of Study
- Tips on Course Success

WWW.SEASCISURF.COM

Mesa OCEA101 - Online

Course Syllabus

Oceanography Syllabus

Fall 2023

San Diego Mesa College

OCEA101 – THE OCEANS - (Purely Online/Asynchronous - Canvas) – CRN: 42491

UNITS: 3 Lecture-hour Units; Letter Grade; Student may petition for Credit/No Credit (FT).

DEGREE APPLICABILITY: Yes - Associate Degree Credit

TRANSFERABILITY: Transferable to UC, CSU

COURSE DURATION: August 21, 2023 through December 16, 2023; Purely Online and Asynchronous

INSTRUCTOR: Ray Rector **INSTRUCTOR CONTACT:** e-mail: oceanprof@seascisurf.com

OFFICE HOURS: Wednesdays: 6:00pm to 7:30pm Canvas Discussion Board/Zoom/Chat, Email, and by Appointment

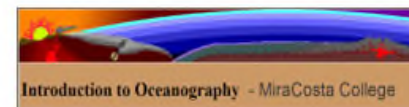
COURSE CANVAS URL: <https://sdccd.instructure.com/login/canvas>

PREREQUISITES: Advisory: ENGL 101 and MATH 38 or Milestone M30 Limitation on Enrollment: This course is not open to students with previous credit for PHYN 120.

COURSE DESCRIPTION: This course is a study of the major features and processes of the world's oceans. Topics include the origin and history of ocean basins; atmospheric and ocean circulation; and the dynamics of waves, tides, and coastlines. Students explore the oceans as a resource for people and analyze and evaluate human impacts on marine environments. This course is intended for all students interested in the world's oceans.

NO TEXYBOOK PURCHASE REQUIRED.

REQUIRED NO-COST OPEN-SOURCE E-TEXTBOOK:
[Oceanography 101](#) - Author: MiraCosta College



Digital Copy: [HTTPS://WWW.OERCOMMONS.ORG/COURSES/OCEANOGRAPHY-101-MIRACOSTA/VIEW](https://www.oercommons.org/courses/oceanography-101-miracosta/view)

Course Learning Outcomes

Course Attendance and Enrollment

STUDENT LEARNING OUTCOMES: Upon completion of this course, students should be able to:

1. Explain the theory of plate tectonics and relate it to the formation of major sea floor features.
2. Reconstruct the circulation patterns of atmosphere and ocean circulation systems, and analyze their interrelationships.
3. Describe the major principles involved in the formation and behavior of waves and tides, and evaluate their effects on coastal processes.
4. Summarize the major physical properties of the oceans and evaluate how each one affects marine communities and marine life.
5. Summarize the major types of marine pollution, including global warming, and evaluate how each one affects marine communities and marine life.

CLASS ATTENDANCE, AND ENROLLMENT NOTES, AND DEADLINES: ALL STUDENTS registered in this course prior to the start date MUST sign-in into the official Canvas course page sometime on or before the end of the FOURTH DAY of classes on the first week of the semester - **Thursday, August 24, 2023**, in order to stay registered in the course. If you do not log by the above date, then I will drop you and give your seat to a waitlisted student.

The last day to withdraw with a refund and with no grade (no "W" placed on permanent record.) is **Friday September 1, 2023**. The very last day to drop a class with a "W" is **Friday, October 27, 2023** (the official withdrawal deadline). If you fail to withdraw by **10/27/23** and/or stop participating in class, then a final grade must be assigned to you. The deadline to file a petition for PASS/NO PASS grade option is **Friday, October 27, 2023**.

It is the student's responsibility to add, drop, or withdraw from classes before the deadlines stated in the class schedule. Petitions to add, drop, or withdraw after the deadline will not be approved without written proof of circumstances beyond the student's control, which made her/him unable to meet the deadline. Lack of money to pay fees is not considered an extenuating circumstance. Students anticipating difficulty in paying fees before the deadline should check with the Financial Aid Office about sources of funds or other alternatives for which they may be eligible.

Disability Accommodations and Online Course Policies

ACCOMMODATION OF DISABILITY: If you have a disability, you are encouraged to contact Disabled Students Programs & Services at 619-388-2780, email mesadsps@sdccd.edu or stop by I-405 in the Student Services Building. They will help you determine what assistance is available for you. Current students who have received services from Mesa DSPS within the last year you can request an accommodation letter for the current or upcoming semester through the [MyDSPS Portal](#). Please submit your DSPS paperwork to the instructor in a timely manner.

STATEMENT OF RETENTION: Students, please discuss your plans to withdraw from class with your instructor(s). They may have options for you that may allow you to continue in class.

INSTRUCTOR'S ONLINE COURSE POLICIES

A. Student Work Load Obligations: Independent direction, discipline and motivation of the student are critical to both learning course content and academic success in this online course. It will be up to you, the student, for staying up with homework assignments, quizzes, and exams. Make sure and consult the instructor and/or fellow classmates about anything in this course that you find difficult and/or confusing. There are no make-up exams or accepted late work, unless the student provides proof of some compelling reason for the make-up. It is the student's responsibility to contact me personally to forewarn me of any problem in completing the regular-scheduled exams or other coursework by their due dates. Business, pleasure, or being generally ill, is not a compelling reason. Being deadly sick, or having a death in the family is good reason. Be ready to supply proper documentation.

B. Instructor-Initiated Contact Policy: This course is taught as a completely on-line course. That is, the communication between the instructor and the students, as well as among students, takes place via electronic means on the Internet. The instructor will be initiating contact with students on a nearly daily basis, via announcements, discussion board posts, email, and by phone. Students are expected to log into this class's SDCCD Canvas course page regularly (several time per week) to update communication with instructor and fellow students.

Course Policies and Online Netiquette

C. Course Assignments and Testing: Assignments, either for discussion on the bulletin board, or for completion and return to the instructor, will be posted on the course Canvas classroom page. Student contributions will be evaluated on both the quality (intelligent use of scientific terminology learned from using the textbook and other sources) and quantity (frequency and length) of comments. Reports from students, which are submitted directly to the instructor, will be evaluated based on quality (use of appropriate scientific vocabulary, for instance) and on rigor of the analysis. Testing will occur via the Internet within the Canvas course platform, and tests will use a variety of formats (true-false, multiple choice, matching, short answer, and essay). Quizzes are untimed, open book and students get three attempts per quiz. Exams are timed, open book, and students get only one attempt per exam.

D. Deadlines and Backing-up: Quizzes will be available each week and will appear with a due date. Availability for quizzes and exams prior to the finishing deadline is roughly three to four days. The research writing assignment will not be accepted or submitted following the due date. Note that because it sometimes happens that computer networks (including your own computer) are down or unavailable, it is preferable to get assignments done a day or two earlier, to avoid trying to post an assignment on the very last minute of the due date, only to find that one's Internet Service Provider is down, for example. ALSO, as with any writing endeavor on a computer, YOU MUST ALWAYS BACK-UP ALL YOUR WORK on an external memory device, in timely increments. The excuse that you permanently lost your entire writing assignment file during a computer crash is not acceptable, because those sorts of mishaps are totally avoidable by doing regular backup. Additionally, you need to make sure to have a planned BACK-UP COMPUTER at your disposal: family members, friends, or library, school, or even your own secondary computer/smart phone.

E. Online Netiquette and Student Code of Conduct: This class will be conducted in accordance with the college code of student conduct and basic standards of academic honesty. Students are expected to respect and obey standards of student conduct while interacting online in this course. As your instructor, I have the following expectations of your academic behavior while online:

Promote a positive learning environment by exhibiting mutual respect and consideration of the feelings, ideas, and contributions of others, as reflected in your written dialog. Demonstrate a genuine desire to learn, interact, and improve.

Cheating and Plagiarism Policy

Cheating, plagiarism, or other forms of academic dishonesty are totally unacceptable and will not be tolerated in this class. Violations of standards of academic honesty will be reported to the school dean for appropriate action. A detailed explanation of academic integrity of students is found below:

The academic integrity of the students in this course and the MiraCosta Community College District Standards of Student Conduct, require that all student work including, but not limited to, discussion postings, assignments, essays, papers, and exams be free of plagiarism. Students must fully cite any text, graphics, or others' ideas they include in that work. Please review [the Standards Of Student Conduct document](#)

As part of my commitment to academic integrity, student work in this course may be submitted to an online plagiarism checking service.

Any student caught cheating or plagiarizing will be subject to the disciplinary procedures given in District Policy 3100, which may include receiving a failing grade for the assignment. Any cheating or plagiarism will be reported to the Dean of Student Affairs. Specifically, the following behaviors are examples of cheating/plagiarism (this list is not exhaustive).

1. Copying directly from the textbook. Note: you can summarize the information from when completing homework assignments, but please phrase homework answers in your own words!
2. Using unauthorized notes while taking an exam, or copying another student's work.
3. Sharing exam answers or collaborating with another student during an exam.
4. Turning in homework that contains large blocks of text that are identical or nearly identical to another student's (both parties will receive zero score).
5. Copying from any source (including the Internet) without citing the source.
6. Turning in work completed for another class (unless pre-authorized by the instructor).
7. Passing off any work as your own that is not. This includes use of work completed by other students.
8. To avoid any possibility of someone else plagiarizing your work, I highly recommend that you not share any content-specific material, such as test questions and answers and assignment responses, with any other students.

Please note that if I receive any course work from two or more students that is identical or strikingly similar, I reserve the right to assign all such students a score of zero for the assignment in question. Also please note that if I suspect academic dishonesty on an assignment or an exam, I reserve the right to schedule a one-on-one Zoom meeting to give you the opportunity to demonstrate that you understand the answer(s) you supplied. If a student is unable to demonstrate their understanding of an exam/assignment answer, I reserve the right to assign the student a score of zero for that exam/assignment.

Course Grading Policy

GRADING/LEARNING ASSESSMENTS: Grading is based on points earned by completing assignments and tests and participating in class. Final course grades are based purely on point percentages without any type of weighting. The following is the course grading points breakdown based on the assessment activity:

I. Quizzes (10 @ 30 points each) = 300 points; Three (3) attempts per quiz; Untimed/Open book.

II. Exams (2 @ 150 points each) = 300 points; Two (2) attempts per exam; Timed/Open book

III. Assignments (3 total @ 130 possible points: 1) Personal Greeting assignment = 20 pts; 2) Ocean Concern in the News Assignment = 50 points; 3) Birch Aquarium Assignment = 70 points

IV. Late Work Policy: Late work only accepted with a timely, legitimate, well-documented excuse.

V. Extra Credit Policy: Extra credit is available – up to 35 points maximum. There are several extra credit assignments available: they include virtual fieldtrips, and a couple other research activities. Up to 35 points of extra credit is allowed in this course. Extra credit assignments are listed in the Extra Credit Folder. The very last day to turn in extra credit work is **Friday, December 15th, 2023**.

VII. Grading Scale: Your final grade is based purely on total percentage out of possible 730 points

100% – 90% = A

89% -- 80% = B

79% -- 70% = C

69% -- 55% = D

Less than 55% = F

Note: *Minor adjustments to the deadlines and total course grade points may be made by instructor during the semester. If changes are made, the instructor will inform the students in a timely manner.*

Important Deadlines And Test Dates

Below are the important dates for this course (not counting quizzes):

- 1) Quiz and Exam completion dates are all on Sundays.
- 2) Class Personal Introduction Discussion Assignment due by Thursday, August 24, 2023
- 3) Last day to drop class without a "W" is Friday, September 1, 2023
- 4) Midterm exam completion date is Sunday, October 22, 2023
- 5) Ocean Concerns in-the-News Assignment Article Post due Sunday, October 29, 2023
- 6) Ocean Concerns in-the-News Assignment Reply Posts due Sunday, November 12, 2023
- 7) Last day to drop class with a "W" (withdraw) is Friday, November 17, 2023
- 8) Birch Aquarium Fieldtrip Assignment due Sunday, December 10, 2023
- 9) Last day to change grade modality to Pass/No Pass is Tuesday, December 12, 2023
- 10) Last day to turn in extra credit is Friday, December 15, 2023
- 11) Final exam completion date is Sunday, December 17, 2023

Course Testing Schedule:

Quiz I: Sunday August 27

Quiz II: Sunday September 17

Quiz III: Sunday October 1

Quiz IV: Sunday October 8

Quiz V: Sunday October 15

Midterm Exam: Sun October 22

Quiz VI: Sunday November 5

Quiz VII: Sunday November 12

Quiz VIII: Sunday November 19

Quiz IX: Sunday December 3

Quiz X: Sunday December 10

Final Exam: Sunday December 17

Course Learning Resources

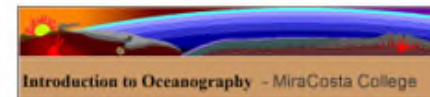
STUDY MATERIALS FOR THIS COURSE: There are FOUR primary sources of oceanographic information at your disposal for successfully completing this course - they are: **1)** Course Textbook: the required, free open-source website textbook that is listed below; and/or an optional/ supplemental textbook (listed below); **2)** The Endless Voyage Streaming Video documentaries, **3)** The instructor's PowerPoint lecture slides and recorded lectures; and **4)** the oceanography lecture slide video tutorials.

1) Course Textbooks:

The first and foremost course resource is your textbook. Carefully read and study all assigned textbook reading prior to completing the associated quizzes, exams, and assignments. Note below that there are two additional textbooks, one no-cost, one cost, that you can supplement or switch with the MiraCosta 101 text. The listed cost textbook has a complimentary textbook support site, which has additional resources and activities to help master the curriculum, which includes many good animations.

REQUIRED NO-COST OPEN-SOURCE E-TEXTBOOK:

[Oceanography 101](#) - Author: MiraCosta College



Digital Copy: [HTTPS://WWW.OERCOMMONS.ORG/COURSES/OCEANOGRAPHY-101-MIRACOSTA/VIEW](https://www.oercommons.org/courses/oceanography-101-miracosta/view)

Optional/Supplemental No-Cost Open-Source E-Textbook:

[Introduction to Ocean Sciences](#) - 4th Ed. Author: Segar

Digital Copy: <https://www.reefimages.com/oceans/SegarOcean4Book.pdf>

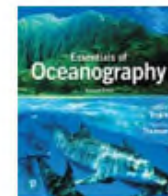


Optional/Supplemental Pay Textbook:

[Essentials of Oceanography](#) - 13th Ed; Authors: Trujillo & Thurman

Print ISBN: 9780321814050, 0321814053

eText ISBN: 9780133558890, 01335588942) Ocean Video



Course Learning Resources

2) Oceanography Video Documentaries: [Endless Voyage Video Series](#)

The “Endless Voyage” oceanography instructional video series – a set of 26 half-hour lessons that requires a high-speed connection to watch. The “Endless Voyage” video series number(s) correspond to the specific topic(s) of homework study each week within the class schedule below the textbook chapter reading assignments. Note that information found within the “Endless Voyage” videos is included in the test questions within the quizzes and exams.

3) Professor’s Recorded Lectures and PowerPoints: [Professor’s PP Slides](#)

The professor’s recorded lectures and PowerPoint slide presentations provide a wealth of useful information that closely align with the textbook, EV videos, and test questions. Watch the professor’s lectures and view the complimentary PowerPoint presentations prior to completing the associated quizzes, exams, and assignments. The professor’s recorded lectures and PowerPoints can be accessed from the Canvas course site, and specific lectures and PowerPoints are listed for each week of class in the course schedule.

4) Ocean Topics Tutorial Videos: [Introduction to Ocean Lecture Series](#)

An additional set of recorded videos of short earth science slide show presentations, in which each video showcases a specific oceanographic topic, has been created by professor Katryn Wiese of the Earth Sciences Department at City College of San Francisco. These short tutorial videos can be very helpful learning tool to the student for better understanding and reinforcing of the information found in the textbooks and the professor’s lectures. A specific set of these tutorial videos are listed for each week of the course in the schedule, which corresponds to the oceanographic topics covered for that week.

Course Schedule – Weeks 1 and 2

SD Mesa College Intro to Oceanography 101 Schedule – Fall 2023

<u>Week #/Days</u> and <u>Due Dates</u>	<u>Study Topics, Tests and Assignments</u>	<u>Homework Study Assignments</u> Oceanography 101 (MCO Text) Intro to Ocean Sciences (IOS Text) Essentials of Oceanography (EO Text) Endless Voyage Videos (EV videos) Prof's PP Slides : (PPP – Prof's Slides) Video Slide Tutorials : (VSL – Tutorials)
Week 1 8/21 – 8/27	Course Introduction Importance of Studying the Ocean Brief History of Marine Science The Scientific Method Origin of Earth, Moon, Ocean, & Life	Course Syllabus and Schedule MCO Ch 1 , 2 and/or (IOS Ch 1 , 2 ; EO Ch 1) EV Videos 1 , 2 PPP 1 , 2 VSL 1 , 2 , 3 , 4 , 5
<u>Thur 8/24</u>	Personal Intro to Class Assignment	Submit by posting on Discussion Board
Sun 8/27	Quiz 1 – Syllabus & Schedule	Course Syllabus and Schedule
Week 2 8/28 – 9/3	Geologic Time and Age of the Earth Earth's Layered Physiology Earth's Interior Continental Drift Hypothesis	MCO Ch 3 , 4 and/or (IOS Ch 4 ; EO Ch 2) EV Video 3 , 4 PPP 3 , 4 VSL 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15
Friday 9/1	Last day to withdraw from class with NO <u>"W"</u>	

Course Schedule – Weeks 3 through 6

Week 3 9/4 – 9/10	Plate Tectonic Theory Seafloor Spreading and Subduction Evidence for the Plate Tectonic Theory	MCO Ch 3 , 4 and/or (IOS Ch 4 ; EO Ch 2) EV Video 3 , 4 PPP 3 , 4 VSL 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15
Week 4 9/11 – 9/17	Methods of Studying the Seafloor Continental Margin Seafloor Deep-Ocean Basin Seafloor	MCO Ch 5 and/or (IOS Ch 3 ; EO Ch 3) EV Videos 5 PPP 5 VSL 16
Sun 9/17	Quiz 2 – Origins and Plate Tectonics	MCO Ch 1–4; IOS Ch 2-4; EO Ch1, 2
Week 5 9/18– 9/24	Marine Sediments	MCO Ch 6 and/or (IOS Ch 6 ; EO Ch 4) EV Videos 6 PPP 6 VSL 17
Week 6 9/25 – 10/1	Physical and Chemical Properties of Seawater	MCO Ch 7 and/or (IOS Ch 5 ; EO Ch 5) EV Videos 7 , 8 PPP 7 VSL 18 , 19 , 20 , 21 , 22 , 23 , 24 , 25 , 26
Sun 10/1	Quiz 3 – Seafloors and Marine Sediments	MCO Ch 5, 6 ; IOS Ch 3-6; EO Ch 3, 4

Course Schedule – Weeks 6 through 9

Week 6 9/25 – 10/1	Physical and Chemical Properties of Seawater	MCO Ch 7 and/or (IOS Ch 5 ; EO Ch 5) EV Videos 7 , 8 PPP 7 VSL 18 , 19 , 20 , 21 , 22 , 23 , 24 , 25 , 26
Sunday 10/1	Quiz 3 – Seafloors and Marine Sediments	MCO Ch 5, 6 ; IOS Ch 3-6; EO Ch 3, 4
Week 7 10/2 - 10/8	Atmospheric Properties, Processes & Circulation; Storm Systems, Weather Patterns and Climate	MCO Ch 8 and/or (IOS Ch 7 ; EO Ch 6) EV Video 10 PPP 8 VSL 27 , 28 , 29 , 30 , 31
Sunday 10/8	Quiz 4 - Seawater Properties	MCO Chapter 7; IOS Ch 5; EO Chapter 5
Week 8 10/9 - 10/15	Ocean Circulation Ocean surface currents and Gyres Upwelling and Downwelling Thermohaline Deep circulation El Nino and the Southern Oscillation (ENSO)	MCO Ch 9 and/or (IOS Ch 8 ; EO Ch 7) EV Videos 11 and 12 PPP 9 VSL 32 , 33 , 34 , 35
Sunday 10/15	Quiz 5 – Atmosphere and Ocean Circulation	MCO Ch1– 9 ; IOS Ch 1-8; EO Ch 1-7
Midterm Week 10/16 - 10/22	Ocean Waves – Causes and Dynamics Wind Waves - Origin and Behavior Breaking Waves – Surfing Origin and nature of Tsunamis	MCO Ch 10 and/or (IOS Ch 9 ; EO Ch 9) EV Videos 13 and 14 PPP 10 , 11 VSL 36 , 37
Sunday 10/22	Midterm Exam	Midterm Study Guide MCO Ch 7, 8 ; IOS Ch 7-8; EO Ch 6, 7

Course Schedule – Weeks 11 through 13

Week 11 10/30 - 11/5	Coasts, Beaches, and Shoreline Processes Human Influences on Coastal Environments	MCO Ch 12 and/or (IOS Ch 11 ; EO Ch 10) EV Videos 16 , 17 PPP 13 , 14 VSL 41 , 42 , 43 , 44
Sun 11/5	Quiz 6 - Ocean Waves & Tides	MCO Ch 9, 10 ; IOS 9, 10; EO Ch 8, 9
Week 12 11/6 – 11/12	Marine Life - Physical Factors and Habitats Marine Life - Evolution & Classification Primary Productivity and Marine Food Webs Phytoplankton and Seaweeds Marine Zooplankton, Decomposers, and the Marine Biological Pump	MCO Ch 13 and 14 or (IOS Ch 12 EO Ch 12) EV Videos 18 , 19 , 20 PPP 15 , 16 , 18 VSL 45 , 46 , 47 , 48 , 47 , 48 , 49 , 50 , 51 , 52 , 53 , 54 ,
Sun 11/12	Quiz 7 - Shorelines and Coastal Waters	MCO Ch 11 ; IOS Ch 11; EO Ch 11, 12;
Sun 11/12	Ocean-in-the- News Assignment – Part 2	Post Replies on Discussion Board
Week 13 11/13 - 11/19	Intro to Marine Communities Marine Invertebrates Marine Vertebrates Pelagic Marine Communities Benthic Marine Communities	MCO Ch 15 , 16 and/or (IOS Ch 13 , 14 ; EO Ch 13 14 , 15) EV Videos 21 , 22 , and 23 PPP 16 , 17 , 19 , 20 , 21 VSL 55 , 56 , 57
Sun 11/19	Quiz 8 - Marine Life I – Overview, Primary Productivity and Plankton	MCO Ch 12-14; IOS Ch 14-15; EO Ch13- 14

Course Schedule – Weeks 14 through Finals

Thanksgiving Week 11/20 to 11/26	No Course Work	No Tests or Assignments
Week 14 11/27- 12/3	Marine Fisheries - Environmental Concerns and Habitat Destruction Marine Resources - Concerns and Management	MCO Ch 15 , 16 and/or (IOS Ch 15 , 16 ; EO Ch 14 , 15) EV Video 24 PPP 22 VSL 54 , 55 , 56 , 57 58
Sun 12/3	Quiz 9 - Marine Life II – Marine Animals, Marine Communities, and the Fisheries	MCO Ch 15 , 16 ; EO Ch 14 , 15
Week 15 12/4- 12/10	Environmental Concerns – Coastal Pollution and Climate Change	MCO Ch 17 or (IOS Ch 16 ; EO Ch 11 . 16) EV Video 25 PPP 23 , 24 VSL 58 . 59 . 60
Sun 12/10	Quiz 10 - Marine Pollution & Climate Change	MCO Ch 17 ; IOS Ch 16 ; EO Ch 11 , 16
Sun 12/10	Birch Aquarium Fieldtrip Assignment	See Birch Aquarium Fieldtrip Module
Finals Week 12/11 - 12/17	Review/Study for Final Exam	Final Study Guide
Tues 12/12	Deadline to file a petition for PASS/NO PASS grade option	
Fri 12/15	Extra Credit due date	Submit in Assignment Folder
Sun 12/17	Final Exam	MCO Ch 10 – 17 ; IOS Ch 9 - 16 ; EO Ch 8 - 16
Please Note: This is a tentative schedule and may be changed by the instructor at any time during the semester. Students will be notified in a timely basis if changes are made.		

Course Schedule – Weeks 15 - 17

Week 15 11/27- 12/3	Marine Fisheries - Environmental Concerns and Habitat Destruction Marine Resources - Concerns and Management	MCO Ch 15 , 16 and/or (IOS Ch 15 , 16 ; EO Ch 14 , 15) EV Video 24 PPP 22 VSL 54 , 55 , 56 , 57 58
Sunday 12/3	Quiz 9 - Marine Life II – Marine Animals, Marine Communities, and the Fisheries	MCO Ch 15 , 16 ; EO Ch 14 , 15
Week 16 12/4- 12/10	Environmental Concerns – Coastal Pollution and Climate Change	MCO Ch 17 or (IOS Ch 16 ; EO Ch 11 , 16) EV Video 25 PPP 23 , 24 VSL 58 , 59 , 60
Sunday 12/10	Quiz 10 - Marine Pollution & Climate Change	MCO Ch 17 ; IOS Ch 16 ; EO Ch 11 , 16
Sunday 12/10	Birch Aquarium Fieldtrip Assignment	See Birch Aquarium Fieldtrip Module
Finals Week 12/11 - 12/17	Review/Study for Final Exam	Final Study Guide
Friday 12/15	Extra Credit due date	Submit in Assignment Folder
Saturday 12/16	Pass/No Pass grade option deadline	Last day to change grade to Pass/No Pass
Sunday 12/17	Final Exam	MCO Ch 10 – 17 ; IOS Ch 9 - 16 ; EO Ch 8 - 16

Please Note: This is a tentative schedule and may be changed by the instructor at any time during the semester. Students will be notified in a timely basis if changes are made.

Wise Suggestions for my Students of Oceanography



- 50% Motivation – 50% Perspiration
- READ BOTH the assigned text reading and Power Point BEFORE watching the corresponding recorded lecture
- TAKE thorough study notes
- ASK lots of questions
- BE a regular/active participant in the class
- WATCH the Endless Voyage videos
- WATCH/STUDY the tutorial videos
- STUDY the exam study guides before taking exams
- UTILIZE the ALL course resources
- GO on instructor-guided weekend field trips
- DO some extra credit
- HAVE FUN learning about the Ocean

OCEA101 Canvas Home Page

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Fall 2023

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Welcome to Ocean 101 Lecture Online - Fall 2023



17-Week Fall Semester - August 21st to December 16th, 2023

Asynchronous - No Set Meeting Days/Times

Personal Introductions



Introduce yourself to fellow students the first week of class



Who are You?

Your Name

Academic focus

Personal interests

Why take Oceanography?

**Most memorable time you
have been on/near/in the
ocean?**

Image of Yourself

**Post Your Personal Introduction on
the Discussion Board by Thursday
August 24th**

Who am I?

- Academic Background
- Personal Connection with the Ocean
- Purpose in Classroom
- Education Philosophy

Your Ocean Professor:

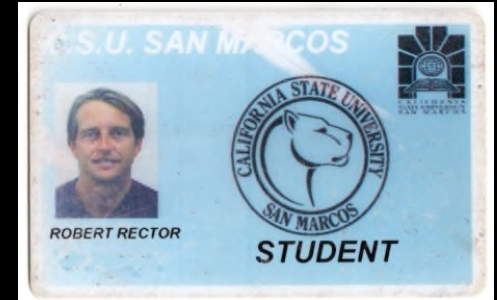


EARTH SCIENCE EDUCATION

California Single Subject Teaching Credential – Geosciences -

California State University, San Marcos, CA

- 35 graduate-level semester units completed; GPA = 3.9
- Cross-Cultural Language and Academic Development
- Additional emphasis of technology in the classroom



Earth Science Doctoral Program – Volcanism and Tectonics

University of California Riverside, Riverside, CA.

- 38 graduate-level semester units completed; GPA = 3.9
- Graduate Division Fellowship
- Mineralogical Society of America scholarship



Master of Science Degree – Igneous Petrology

San Diego State University, San Diego, CA

- 35 graduate-level semester units completed; GPA=3.9
- Achievement Rewards for College Scientists Scholarship

Bachelor of Science Degree - Magna Cum Laude - Geology

San Diego State University, San Diego, CA

- 172 semester units completed; GPA = 3.8
- Outstanding Senior Research Award--College of Sciences
- Outstanding Research Award—Department Of Geology

Engineering Undergraduate Program

California State University, Northridge, CA

- Marine Engineering emphasis



TEACHING EARTH SCIENCE

Cuyamaca College, El Cajon, CA

2013 - 2017

- ❖ Oceanography Lecture

University of San Diego, San Diego, CA

2007 - Present

- ❖ Earth Science Laboratory

MiraCosta College, Oceanside, CA

2004 - Present

- ❖ Oceanography Lecture and Laboratory
- ❖ Online Geology

San Diego Miramar College, San Diego, CA

2003 - Present

- ❖ Geology Laboratory
- ❖ Online Oceanography Lecture

San Diego Mesa College, San Diego, CA

2002 - Present

- ❖ Online Geology Lecture
- ❖ Geology Laboratory

University of California Riverside, Riverside, CA

1994-1997

- ❖ General geology, Historical geology, Mineralogy, Optical mineralogy, Igneous petrology, and Metamorphic petrology

San Diego State University, San Diego, CA

1991-1993

- ❖ General geology laboratory
- ❖ Advanced field geology course in Baja, Mexico.

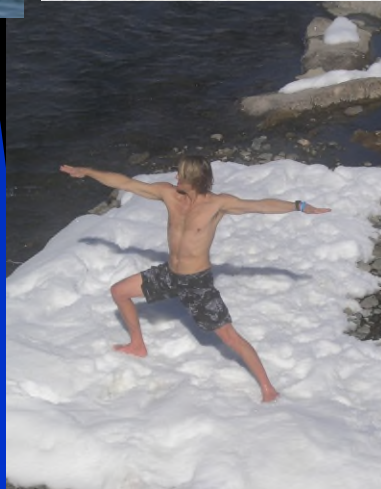
Professor's Interests



Travel to Cool Places, Adventure, Hanging Out, and Partying with Fun and Interesting Friends



Outdoor Sports





Wishing Everyone a Great Fall Semester

We Live On An Ocean Planet

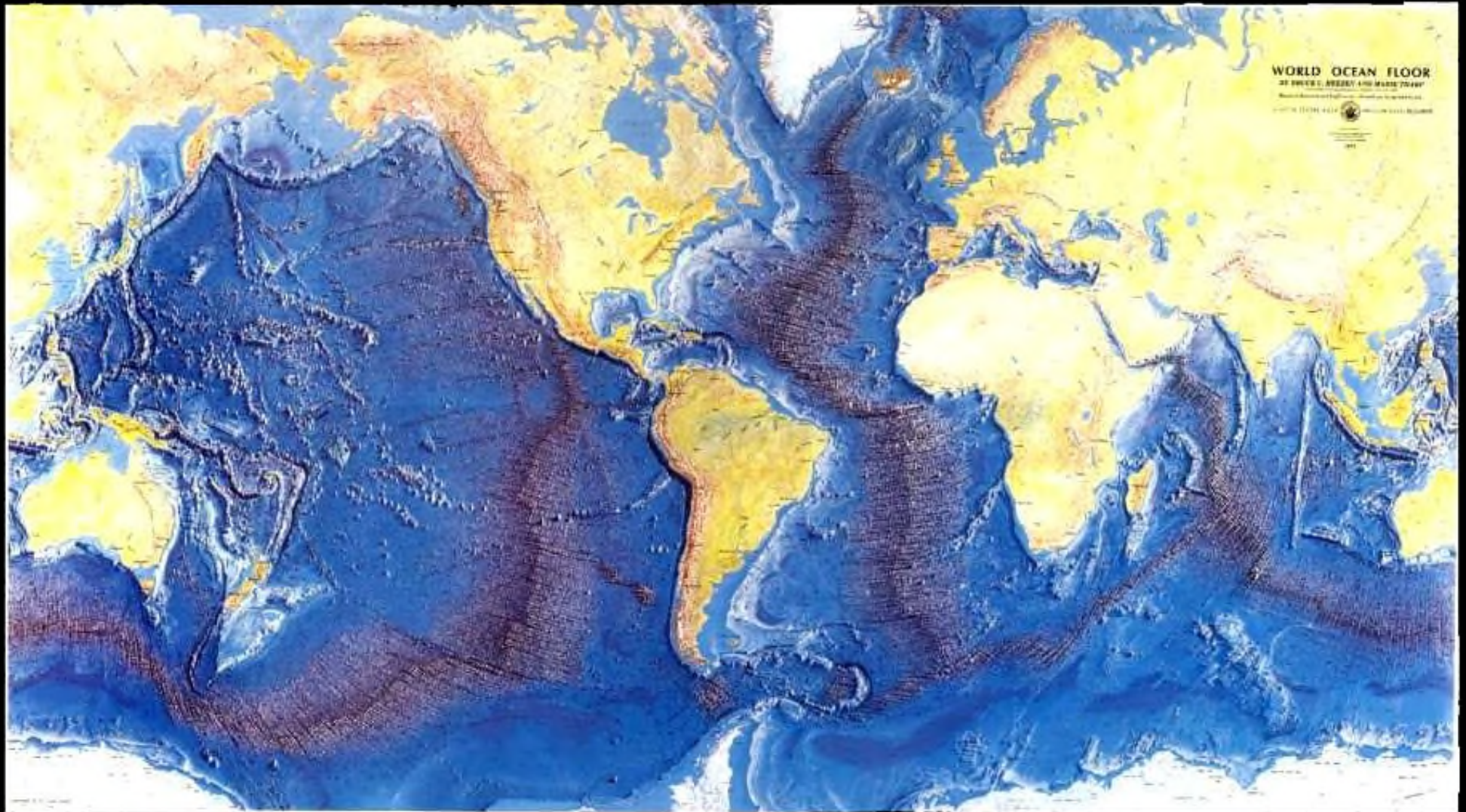


Our Planet Is a Watery World: Should be called *Planet Ocean*?



- ❖ The Ocean covers about 71% of Earth's surface
- ❖ About 98% of Earth's surface water is ocean

Our World's Vast Unexplored Ocean Seafloor



- ❖ About 71% of Earth's crust is covered by ocean
- ❖ Much less is known of our seafloor than surfaces of Moon and Mars

Our Awesome Dynamic Water Planet

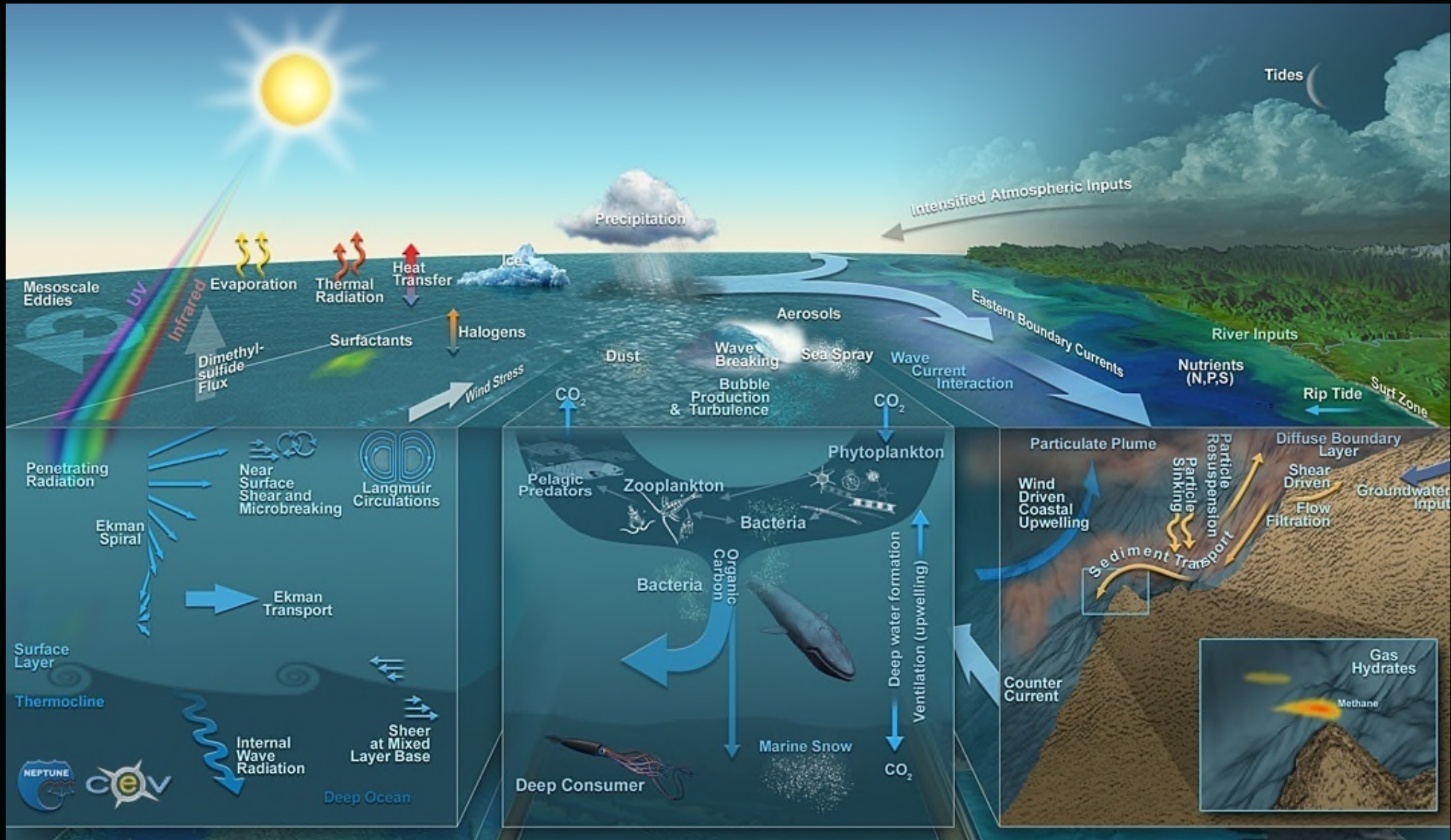


Everything is dynamically *connected* to everything else

Everything *affects* everything else in complex ways

How is the Ocean Connected with Everything Else?

The Ocean Makes Life Possible!



There is an intimate relationship between the living and nonliving world on earth – essential to life in the ocean

Ocean is the Key Part of Earth's Dynamics



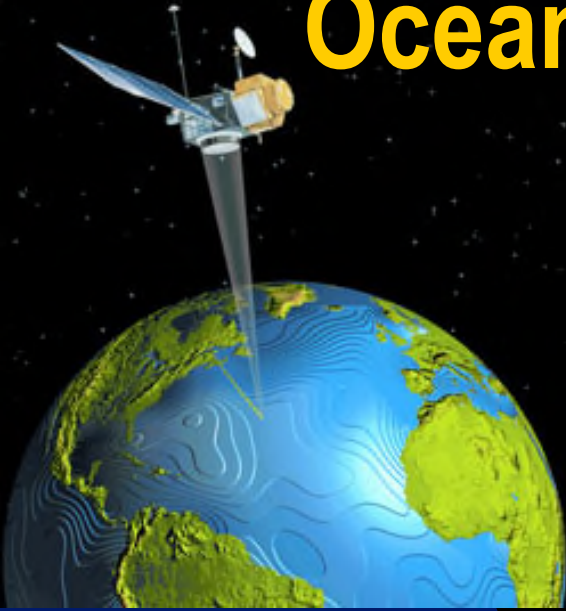
How Does The Whole Thing Work?

What Part Do Humans Play?

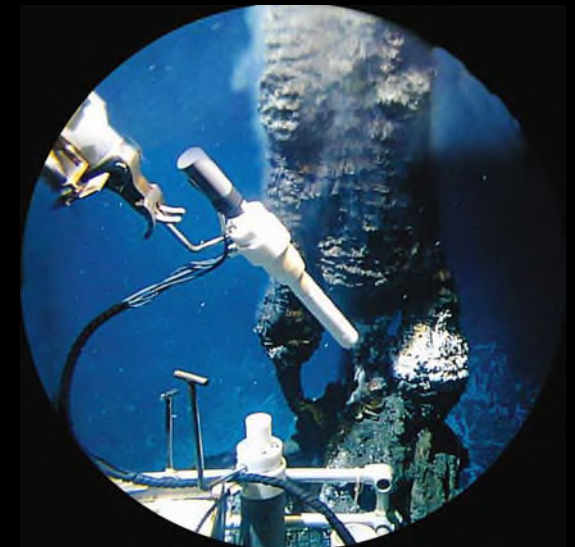


How Do We Affect the Earth?

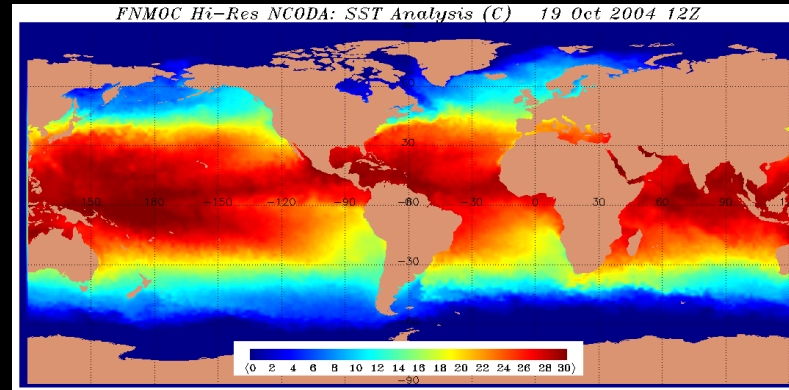
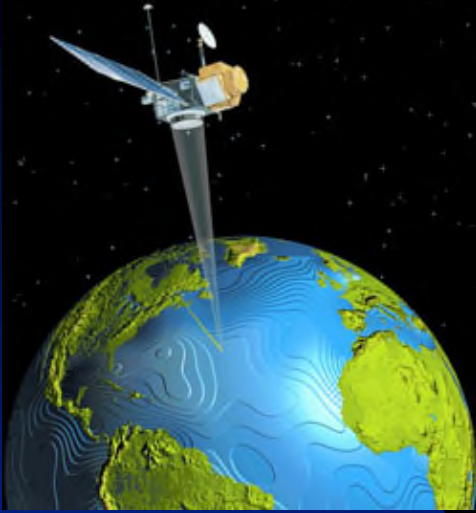
Oceanography – A Multi-Field Science



- ✓ The scientific study of the ocean, seafloor, coasts, sea life, and climate:
- ✓ Waves and Currents
- ✓ Seawater properties
- ✓ Seafloor and Shorelines
- ✓ Marine life and Habitats
- ✓ An interdisciplinary science



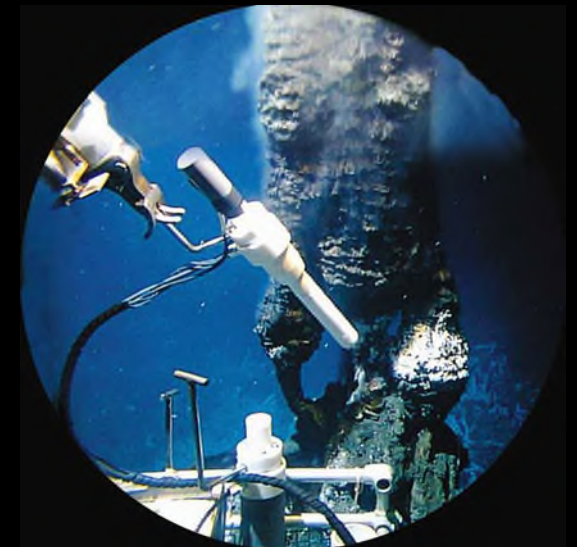
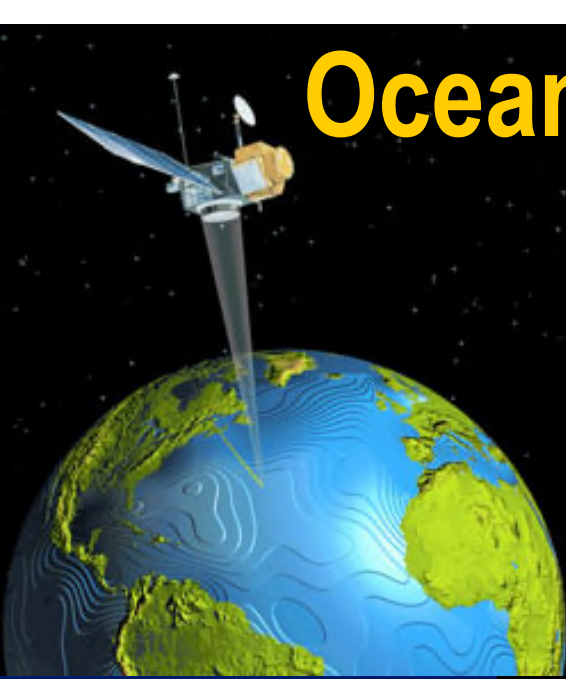
Science of the Ocean: Oceanography



Oceanography – A Multi-Field Science

✓ The scientific study of the ocean, seafloor, coasts, sea life, and climate:

- ✓ Waves and Currents
- ✓ Seawater properties
- ✓ Seafloor and shore features
- ✓ Marine life
- ✓ An interdisciplinary science



FIELDS OF OCEANOGRAPHY

An Interdisciplinary Science

Oceanography integrates many different types of science.

- **Marine geology** - the study of Earth's crust and composition
- **Chemical oceanography** - the study of the gases and solids dissolved in the ocean
- **Physical oceanography** - study of ocean's water column and water-air interactions: temperature, pressure, waves, currents, weather, climate
- **Marine biology** – the study of the nature and distribution of marine organisms and their associated marine habitats
- **Marine engineering** - the design and construction of structures used in or on the ocean: ships, machines, instruments, edifices, etc.
- **Environmental oceanography** - the study of human's impact on marine ecosystems

Are there any others?

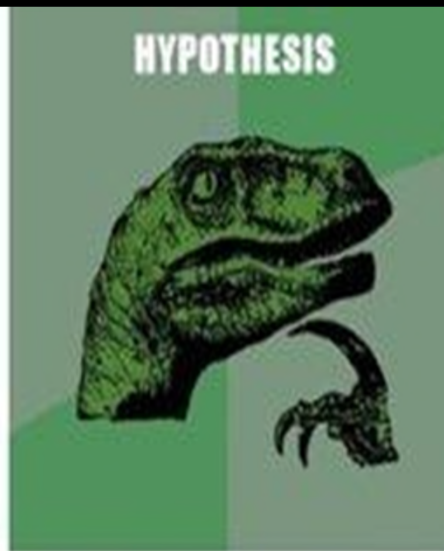
What Do Oceanographers Do?

Answer.....they do *ocean science*.

Ocean Science defined: The investigation and acquisition of useful, reliable knowledge and understanding of our ocean that is based on empirical observations and measurements (physical evidence).

- ✓ Ocean scientists use a powerful way of thinking, that is rational, logical, and organized, called *scientific thinking*.
- ✓ Intelligence, imagination, creativity, inspiration, and luck are other important attributes of scientific study.
- ✓ Like all other sciences, oceanographers use a powerful approach to ocean inquiries called the *scientific method*.
- ✓ Central to science is community and peer review.

Oceanographers Study the Ocean by Application of the Scientific Method



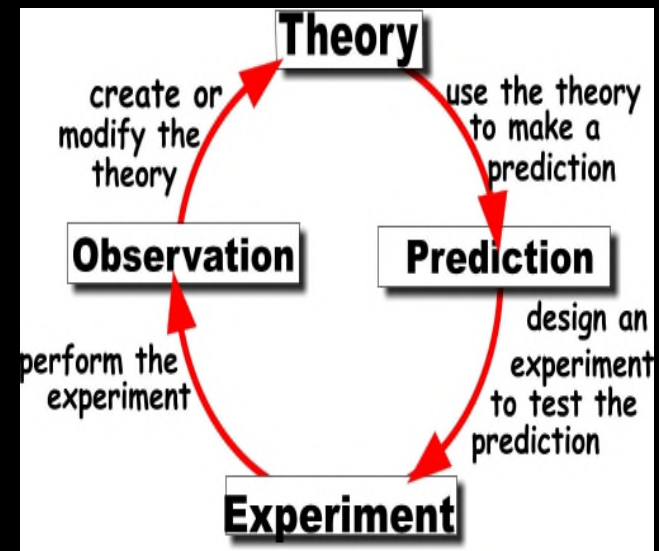
Rationalism
(Logic & Reasoning)



Empiricism
(Experience & Observation)



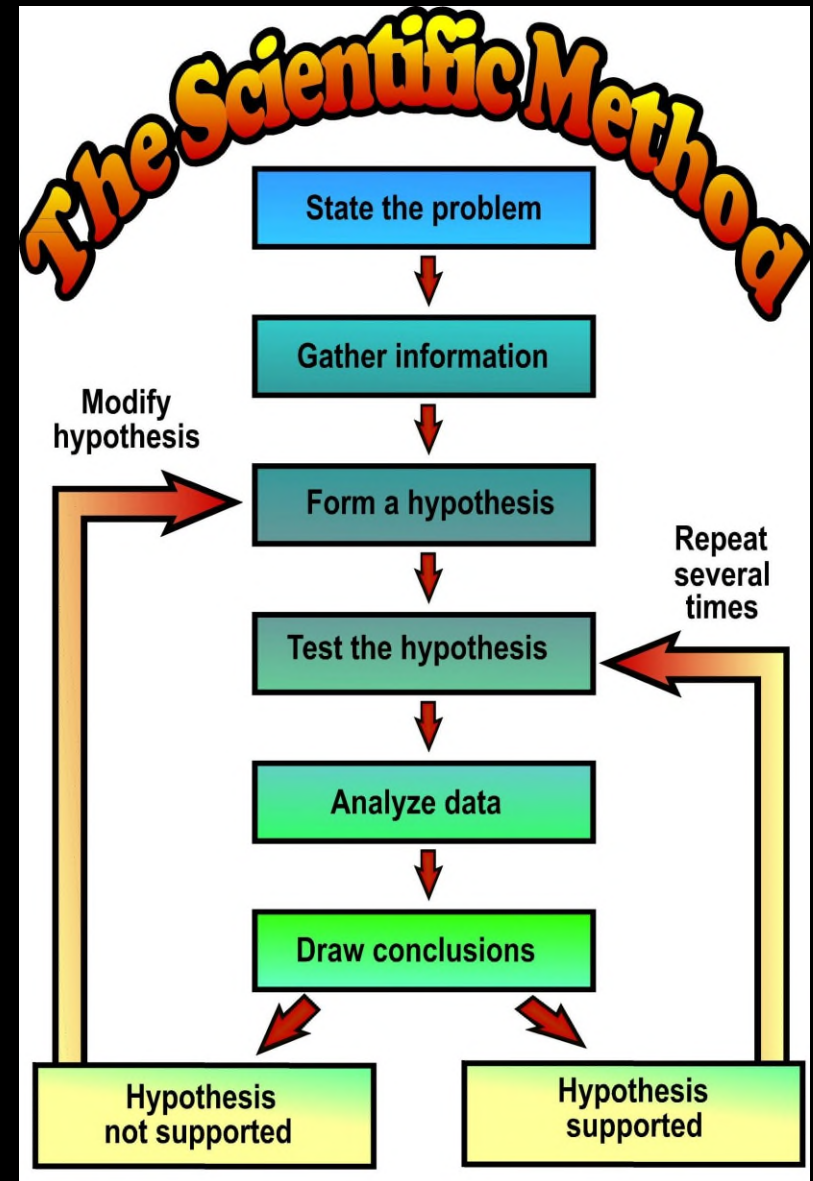
Science



THE SCIENTIFIC METHOD

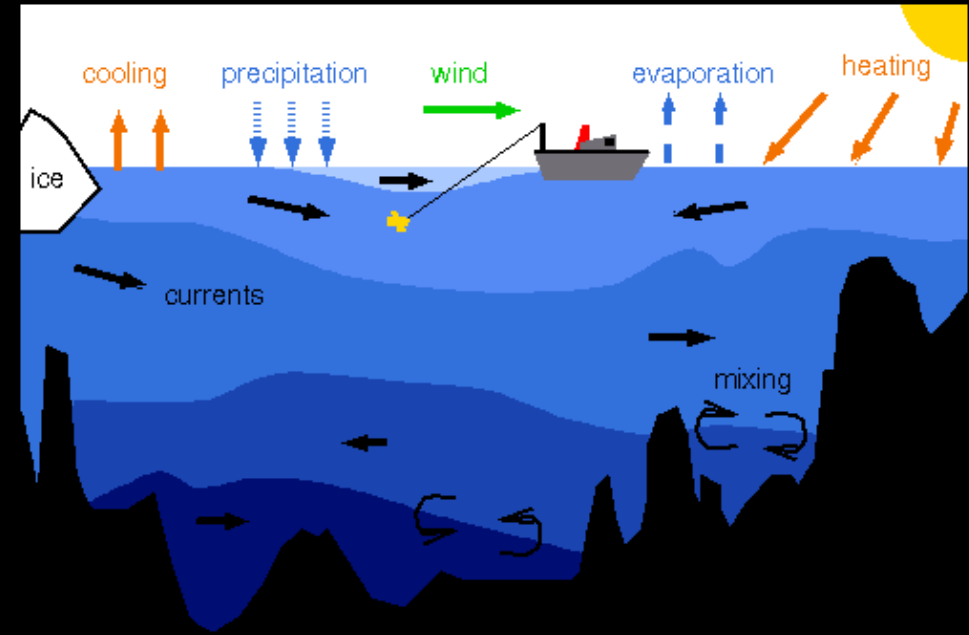
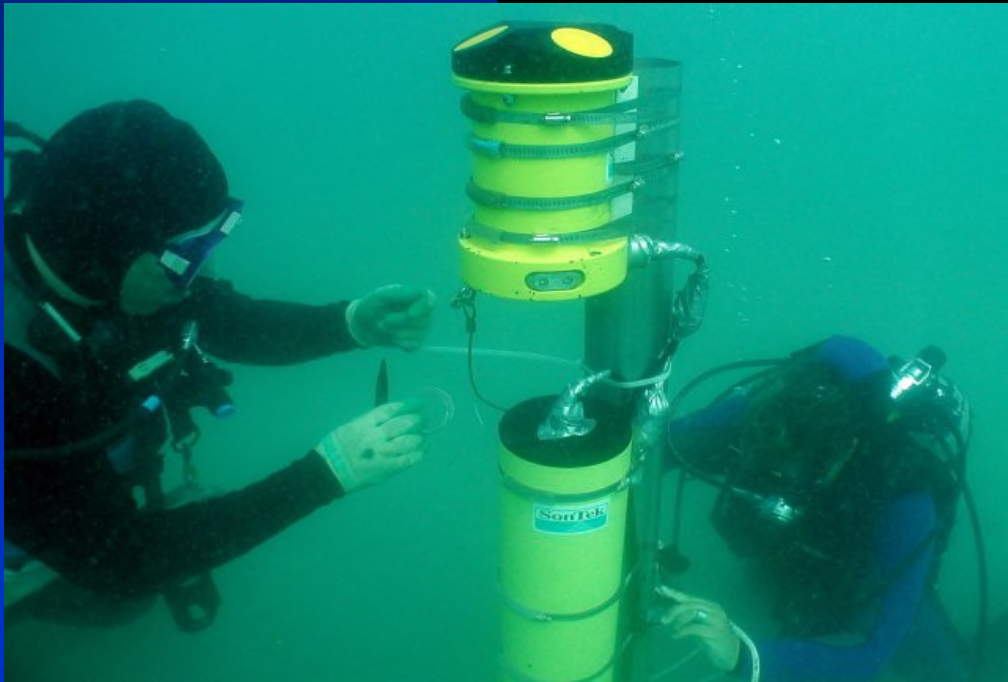
The Basic Components

- ✓ *Empirical Observations*
- ✓ *Questions / Problems*
- ✓ *Hypotheses / Models*
- ✓ *Predictions*
- ✓ *Tests / Experiments*
- ✓ *Analysis of Results*
- ✓ *Draw Conclusions*
- ✓ *Reevaluate Hypothesis*



Note: The scientific method is NOT a *recipe* – it's a *process* 44

Importance of Studying the Ocean?



Most Humans Live Close to the Ocean



For MANY reasons! NO surprise there!



\$\$ Our Ocean is a Giant Goldmine \$\$



Fishing



Oil and Gas



Pleasure



There's big \$\$\$
out there!



Cargo



Treasure

Our Ocean is an Adventureland!



Is there anything more fun than getting in the ocean?



The Ocean Can Be Hazardous!



The Ocean has teeth...all sorts of teeth!



Sometimes Extremely Hazardous!

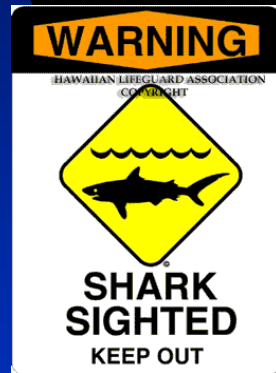
Worst Types of Natural Hazards Ever!



Humans Need to Understand Ocean Hazards



Waves, Currents, Storms, Shorelines and Sea Life

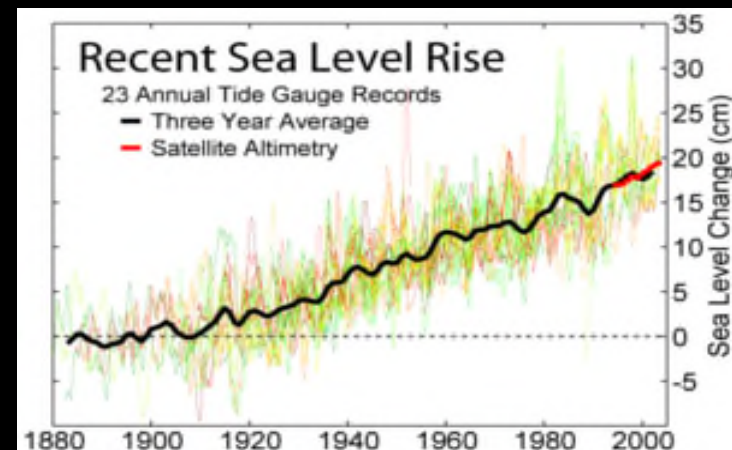
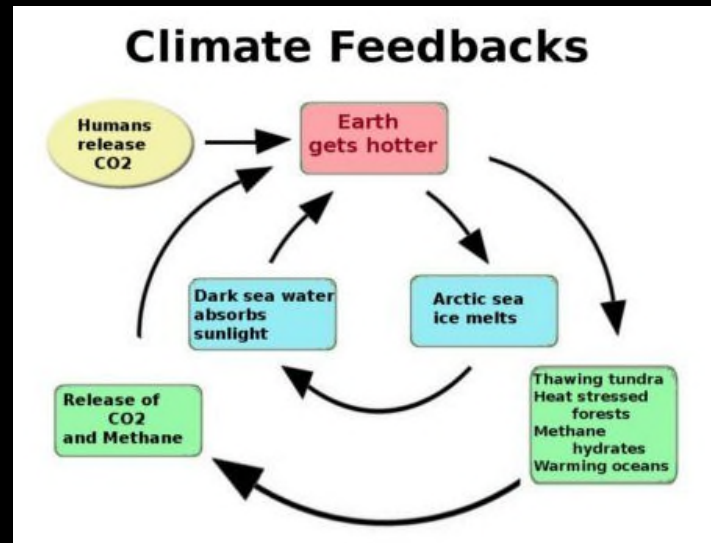
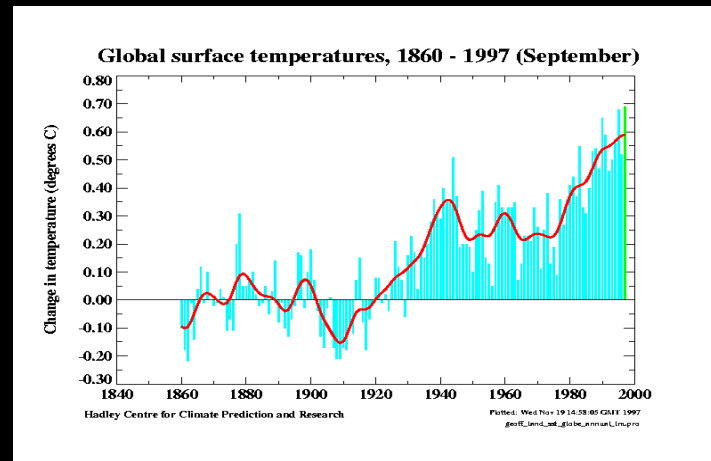
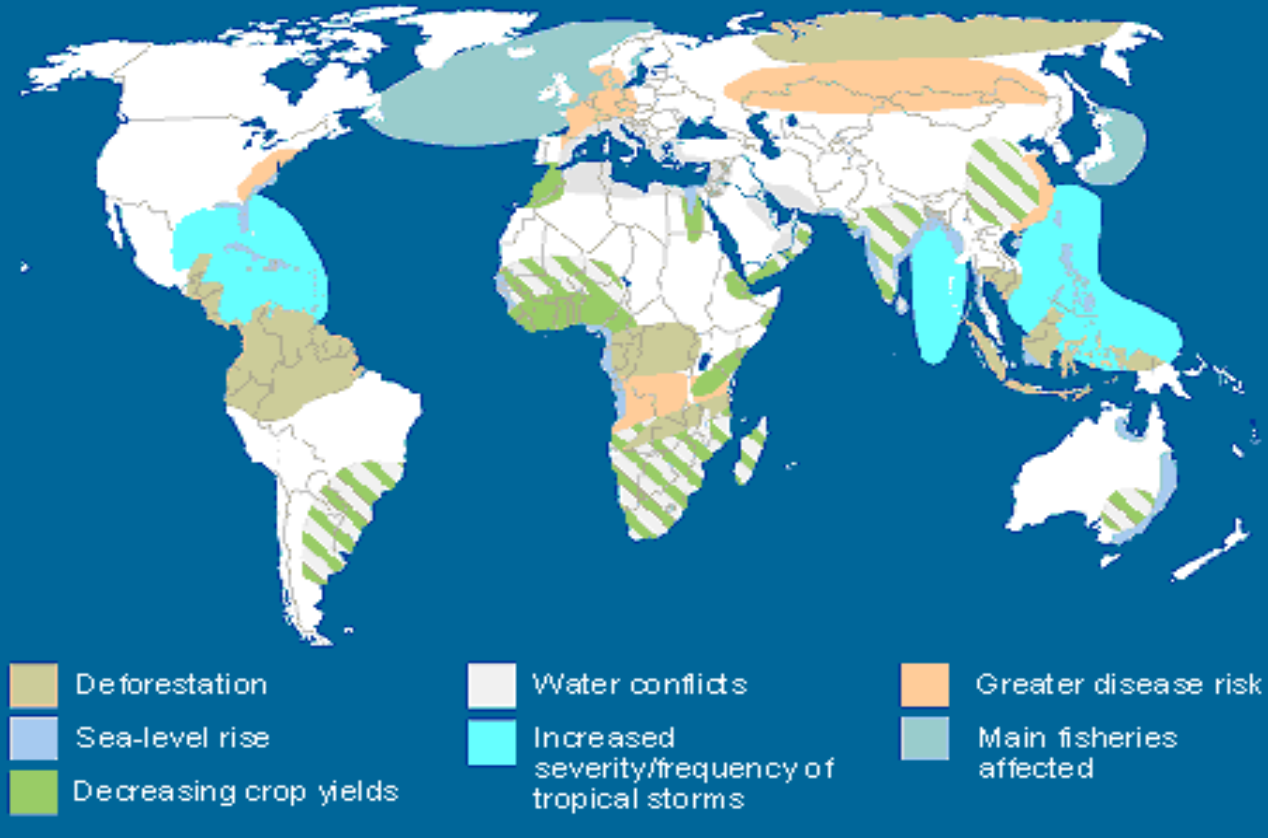


Humans Need to Understand Human-Caused Hazards



Climate Change: The Ocean-Human Equation

The world in the 2050s Assuming 'business as usual'



Global Warming – Fact or Fiction?

SLOW OR ABRUPT CHANGE?

The Many Reasons Why the Ocean is So Important?

Make a List – 8 Most Important Things about our Ocean:

1)

2)

3)

4)

5)

6)

7)

8)



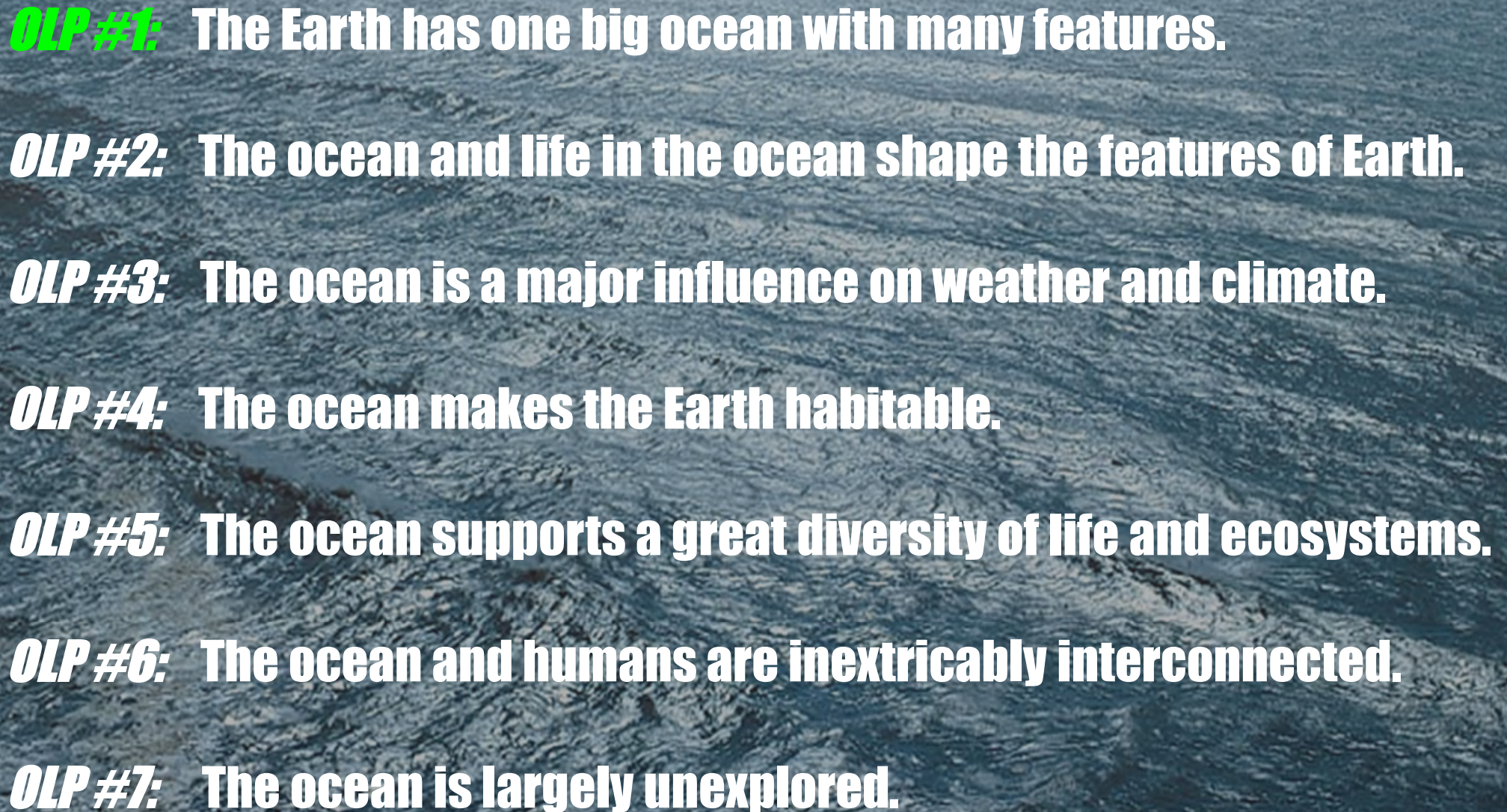
Why Do We Need to Study the OCEAN?

IMPORTANCE of MOTHER OCEAN

- 1) Moderates Earth's Surface Conditions
- 2) Controls Climate and Weather Patterns
- 3) Original Birthplace for Life on Earth
- 4) Provides Vast Habitats for Marine Life
- 5) Huge Source of Food, Oxygen and Resources
- 6) Medium for Transportation and Recreation
- 7) Natural socio- and political barrier/isolator
- 8) Out of sight place to Get Rid of Unwanted Stuff

OCEAN LITERACY

What All of Us Need to *Know* About the *OCEAN*

- 
- OLP #1:** The Earth has one big ocean with many features.
- OLP #2:** The ocean and life in the ocean shape the features of Earth.
- OLP #3:** The ocean is a major influence on weather and climate.
- OLP #4:** The ocean makes the Earth habitable.
- OLP #5:** The ocean supports a great diversity of life and ecosystems.
- OLP #6:** The ocean and humans are inextricably interconnected.
- OLP #7:** The ocean is largely unexplored.

OCEAN LITERACY

An ocean-literate person:

- 1) Understands the essential principles and fundamental concepts about the functioning of the ocean;
- 2) Can communicate about the ocean in a meaningful way;
- 3) Is able to make informed and responsible decisions regarding the ocean and its resources; and
- 4) Knows how very cool, awesome, and spiritually-soothing it is to be by, on, or in the ocean – to beachcomb, surf, paddle, swim, snorkel, dive, boat, float and/or fish in the ocean – to be at one with the ocean and all its sea life.

Increase Our *Awareness & Understanding* of the Ocean



Be *Ocean-Wise*... Think Globally – Act Locally

Care and Respect For Our Ocean



She Takes Care for Us - We Need to Care for Her

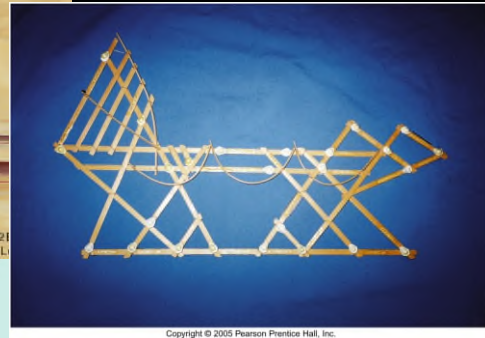
Humans Have Been Exploring the Ocean For Many Centuries



- Polynesians
- Egyptians
- Phoenicians
- Greeks
- Chinese
- Vikings
- Europeans
- Modern Day

Polynesian Exploits

- Exploration - 25000 BC to 500 AD
- Used large outrigger canoes equipped with sails
- Navigational aides included stars, waves, currents, clouds and use of stick charts
- Settled the entire South Pacific and Hawaii
- Purpose: colonization, mapping and resources



Ancient Mediterranean Seafarers



Roman War Ship

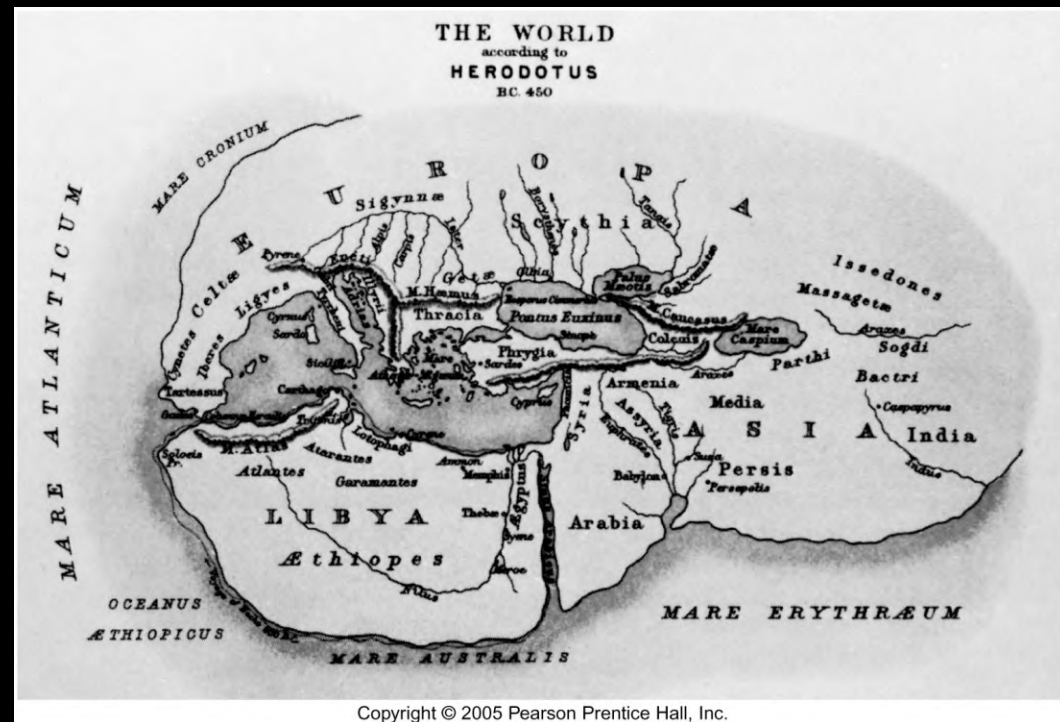


Roman Trade Ship



Egyptian Trade Ship

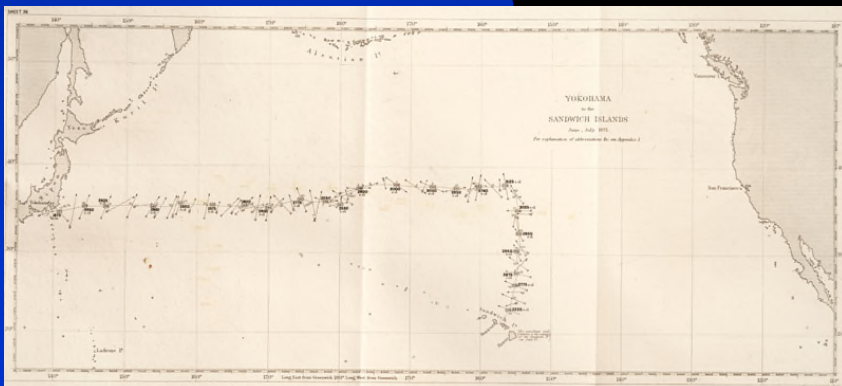
- Exploration - 3200 BC to 200 AD
- Egyptian-design equipped with sails
- Few Navigational aides
- Explored Mediterranean region
- Purpose: Trade and Seapower



The Challenger Expedition



- 3 ½ year Circum-global voyages from 1872 to 1876
- Led by Charles W Thomson
- Used British naval corvette equipped with laboratories, winches, and scientific gear
- Crew of 243 + 6 scientists
- Studied all 3 oceans
- Sailed 68,890 miles
- Number of sampling stations = 362
- Number of Soundings = 492
- Number of dredges = 133
- Number of new species = 4,700
- Purpose: Purely scientific



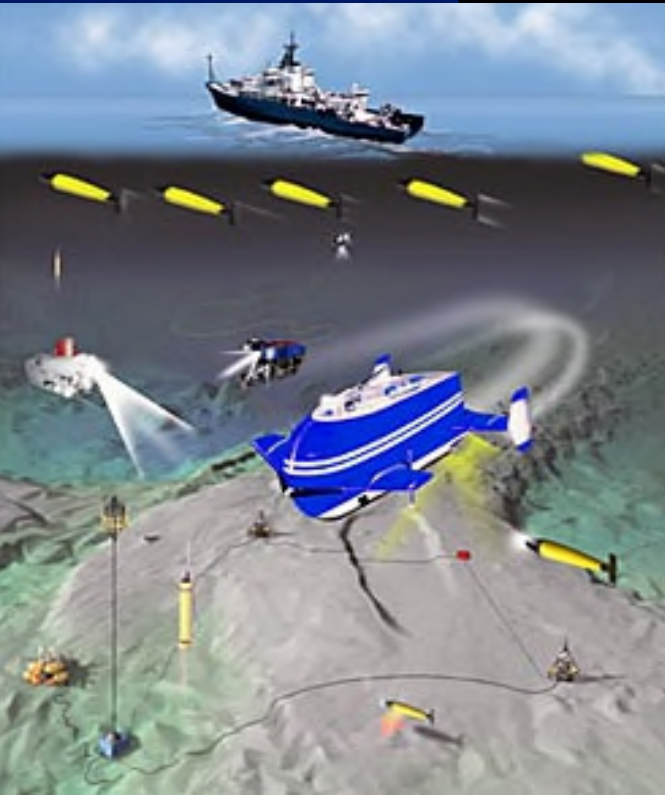
Soundings from Hawaii to Japan

Modern Day Oceanographic Ventures



Notes:

- 1) Large academic institutions
- 2) Most started 100 years ago
- 3) Quickly grew during and after WWII
- 4) Mostly government funded
- 5) Large array of ships and high-tech equipment
- 6) Scripps Institute of Oceanography
- 7) Woods Hole Institute of Oceanography



Modern-day Arsenal of Oceanographic Equipment

Next Lecture

- 1) The Scientific Method
- 2) Origin of Solar System, Earth, Ocean, & Life
- 3) Overview of Earth Composition & Structure
- 4) Geologic Time and The Age of Earth

Homework for this week –

- 1) Read and Study Chapter 1
- 2) View Endless Voyage Videos 1 & 2
- 3) Study Prof's Power Points and Lecture Outlines

Study the Instructor's Website @ www.seascisurf.com