OCEA 101 -- The Marine Environment

Instructor: Raphael Kudela

Class Format

- Lectures MWF 9:30-10:40
- Discussion Sections, 1 h 10 min.
- 3 Exams (final emphasizes last 1/3 of class, but builds on the entire quarter)
- Grade based on:
  - Exams: 15/15/20
  - Homework: 10
  - Term Paper / Presentation: 20/10
  - Participation/Attendance: 10
Discussion Sections

Wednesday:
- 11:00-12:20
- 12:30-1:50
- 2:00-3:20
- 5:30-6:50
- Sign up for one of the sections
- TAs: Sherry Palacios, Matt Brown

Discussion Sections will provide additional material (paper discussion, videos, etc) and will also be used for presentations

Assignments

Homework:
- Assigned approximately weekly
- Both online and handouts
- Due in your Discussion Section

Term Paper:
- ~10 pages, summarizing 3-5 scientific journal papers on an oceanography topic
- 5 minute oral presentation
- Peer-Based selection of the finalists
- Top 3 presentations will be presented to the class on the last day
Class Resources

Textbook:
- *An Introduction to the World’s Oceans, 9th Ed.* (Sverdrup and Armbrust)

Websites:
- [http://ic.ucsc.edu/~kudela/OS101/](http://ic.ucsc.edu/~kudela/OS101/)
- [http://www.mhhe.com/sverdrup9e](http://www.mhhe.com/sverdrup9e)

Oceanography

Marine Biology is the study of marine organisms with respect to their biology.

Oceanography is the study of the marine environment, or ecosystems.
- [Geological Oceanography](#)
- [Physical Oceanography](#)
- [Chemical Oceanography](#)
- [Biological Oceanography](#)
- [Fisheries Oceanography](#)
Discussion Sections

For WEDS JANUARY 10:

- Make sure you attend one section (even if you need to change the time)
- **READ the two articles on the class website**
- Password for the articles is ‘*marine*’
  (all lowercase letters)

Who are we?

TAs:
- Matt Brown (Bruland Lab)
  - Trace metals, chemical oceanography
- Sherry Palacios (Kudela Lab)
  - optics, macroalgae
Southern Ocean
Iron Fertilization
Experiment: SOFeX

River Influences on Shelf Ecosystems
From Wind to Whales: Understanding the Linkages Between Physics, Biology, and Food Webs

http://cimt.ucsc.edu

**West Coast HABs**

*Alexandrium catenella*
- Dinoflagellate
- causes Paralytic Shellfish Poisoning

*Pseudo-nitzschia spp.*
- Cosmopolitan
- Does well in coastal upwelling systems
**Heterosigma akashiwo**
- Raphidophyte
- Found in embayments and in aquaculture

**Dinophysis**
- recently identified in California
- causes diarrhetic shellfish poisoning

**Lingulodinium polyedrum**
- Red Tide forming dinoflagellate
- Previously thought to be “harmless”
Estimating Productivity from TOPP Tags

Marine Mammals can be used as oceanographic platforms
The majority of sea lions sampled had measurable background concentrations of Domoic Acid in their blood stream....