



Toward a Sustainable Ocean: Conservation & Management

CAS NS 3XX (3 credits)

Course Catalog Description:

Comparative and issue-driven introduction to managing human uses and conserving coastal and ocean places and resources. Explore concepts of technology, governance, sector and ecosystem management, and marine protected areas through expert content lectures, topical seminars, and field trips.

Instructor(s): Sea Education Association Maritime Studies and Ocean Policy Faculty

Location: SEA campus in Woods Hole, MA and at sea on board one of SEA's sailing school vessels.

Prerequisites: Admission to the SEA Semester. Sophomore standing or consent of instructor.

Course Philosophy and Approach:

How do we “manage” the ocean? In plain truth, we don't. We can, however, manage human *uses* and *influences* on the ocean. This course addresses contemporary human uses and influences on coasts and oceans and their living and non-living resources.

In this class we address large-scale questions:

How do we establish the value and measure the “health” of the coasts and oceans?

What are the principle threats or roadblocks for achieving a sustainable relationship with the coasts and oceans?

Who directly and indirectly benefits from coastal and ocean uses?

How do we accommodate “necessary” human uses of the ocean while reversing the current trends of degradation?

What tools and approaches offer the best chance of improving ocean health?

What opportunities exist that combine ocean and community sustainability?

Students will look at place-based issues of coastal protection, clean water, fisheries, and climate change adaptation and their relationships with overall ocean health. Format includes lectures by SEA faculty, policymakers, practitioners, and scientists, place-based policy research and data collections projects, and field trips in New England and during cruise port stops.

This course consists of six 3-hour and six 2-hour lecture/discussion sessions, a mid-term exam (2 hrs) and 12 hrs of directed place-based investigation.



Learning Outcomes:

1. Understand the major anthropogenic threats to ocean and coastal health.
2. Capacity to identify significant relationships between economic (market) forces, technology, and ecological sustainability.
3. Understanding of direct and indirect ocean uses at local, national, and global scales.
4. Ability to compare and contrast major concepts/or approaches to coastal ocean management .
5. Ability to critically evaluate the successes or failures of individual Marine Protected Areas (MPAS).
6. Ability to observe, categorize, and record offshore human uses of the marine environment.
7. Capacity to critically evaluate coastal and marine policy documents and to community their work orally, visually, and in writing.
8. Communicate and comport effectively in professional management or conservation settings.

Evaluation:

Policy Exam	20%
Annotated Critical Policy Bibliography	30%
Policy Project Presentation and Outline	10%
Final Policy Paper	30%
Group Offshore Census Project	10%

Assignments:

Exam: An exam, covering material from lectures, readings and discussions, will be given during the semester. Emphasis will be on application of concepts, not rote memorization of facts.

Policy Research Project: In consultation with the professor, students will identify an area of coastal and ocean policy that they can research at the place-based level during field components of the semester. The student will identify and choose among key place-based sources that inform their research projects while making connections with broader concepts.

Annotated Critical Bibliography: The annotations for weeks 2 through 6 require students to identify place-based sources that connect their interests with each week's topic areas. For example, in week 2, a student interested in MPA management might identify and develop an annotation for an article about ecosystem-based management in coastal New Zealand. A student interested in sustainable tourism might look at New Zealand integrated coastal management literature. The annotated bibliography project



helps student identify and capture essential issues and information that they will include in their final paper. A rubric will be used to evaluate source quality, annotation content, clarity of composition, and effectiveness of the annotation as a resource.

Policy Project Presentation and Outline: A formal presentation of policy research plan will be required at the mid-point of the semester.

Final Paper: Building on annotated bibliography research, course materials, and place-based investigations students will produce an 8 to 10 page analytical paper analyzing a contemporary coastal and ocean conservation/management issue. Students will integrate place-based observations and interactions with relevant professional and “gray” literature. They will link their research, where appropriate, with the metrics and/or topics of the Global Ocean Health Index. All papers will address in some form the delicate balances between human use and environmental sustainability.

Offshore Census Project: The offshore environment remains outside of most people’s direct experience. At different times or places when gazing from shore or the deck of the ship, the human footprint may be difficult to observe. At other times, it is overwhelming. Using methodologies from recreational studies and rural sociology, students will undertake observational studies of direct human uses of the offshore environments. In addition, by using data collected during the science operations, students will also assess less visible human influences on the local and regional marine environment. Working in teams of three, the students will develop comparative snapshots of human uses in three different areas of the cruise track. The group will summarize their data in a written summary report that details their observations and makes direct links with major conservation and management issues identified during the class. Each student is responsible for keeping an individual record of observations and to prepare a summary of their particular observations.

Expectations and Requirements:

- Punctual attendance is required at every class meeting.
- Active participation in class discussion is expected.
- Late assignment submissions are not accepted.
- The policy on academic accuracy, quoted below, will be strictly followed in this class.

The papers that you submit in this course are expected to be ***your original work***. You must take care to distinguish your own ideas and knowledge from wording or substantive information that you derive from one of your sources. The term “sources” includes not only published primary and secondary material, but also information and opinions gained directly from other people and text that you cut and paste from any site on the Internet.

The responsibility for learning the proper forms of citation lies with you. Quotations must be placed properly within quotation marks and must be cited fully. In addition, all paraphrased material must be acknowledged completely. Whenever ideas or facts are derived from your reading and research, the sources must be indicated. (Harvard *Handbook for Students*, 305)



- Considerations for use of internet sources:

As you browse websites, assess their usefulness very critically. Who posted the information and why? Can you trust them to be correct? Authoritative? Unbiased? (It's okay to use a biased source as long as you incorporate it knowingly and transparently into your own work.) Keep track of good sources that might be useful for subsequent assignments, and annotate in your bibliography any sites you cite. Your annotation should include the name of the author or organization originating any material that you reference. If you can't identify the source, don't use it!

Readings: (NOTE: example readings for a program visiting New Zealand)

Aquaculture New Zealand. King Salmon. <http://aquaculture.org.nz/industry/king-salmon/>

Arnold, David F. *The Fisherman's Frontier: People and Salmon in Southeast Alaska*. University of Washington Press, 2008.

Augerot and Foley. *The Atlas of Pacific Salmon*. University of California Press, 2005.

Collins, Damian and Robin Kearns, "It's a gestalt experience": landscape values and development pressure in Hawke's Bay, New Zealand" *Geoforum* 2010 (41): 435-446.

CREST 2nd Executive Symposium for Innovators in Coastal Tourism Overview (2013) and Symposium Proceedings. http://www.crestconference.org/charter_club/Results-Innovators%20-%202013.html

Cummings, V., et al. Review of Integrated Coastal Management & Principles of Best Practices. Coastal and Marine Resources Center, University of Cork, Ireland.

Curry, Janel. 2007. The Nature-Culture Boundary and Ocean Policy: Great Barrier Island, New Zealand. *Geographical Review*: 97.

Grotius, Hugo. *Mare Liberum*. 1608.

ICES Special Issue. 2007. Fishing Technology in the 21st Century: Integrating Fishing with Ecosystem Conservation. *ICES Journal of Marine Sciences*: 64 (8).

Mather, Rod and John Jensen. 2010. The History of Cod in the New World. *41 Degrees North*: 5.

McLeod, Karen and Heather Leslie. *Ecosystem-Based Management for the Oceans*. Island Press, 2009.

McLeod, KL, J Lubchenco, SR Palumbi, and AA Rosenberg. *Scientific Consensus Statement on Marine Ecosystem-based Management*, 2005.

Morrison, Jason et al. *Water Scarcity and Climate Change: Growing Risks for Businesses and Investors Ceres* (2009) www.pacinst.org/wp-content/uploads/2013/02/full_report30.pdf

National Research Council, *Increasing Capacity for Stewardship of Oceans and Coasts*, 2006.

New Zealand Ministry of Fisheries, *Annual Reports 2005-11*.

Safina, Carl. Fisheries Management and Maximum Sustainable Yield Parts 1 – 3. *Okeanus Tutorials* www.carlsafina.org.



Suszko, Abby. 2005. [*Māori Perspectives on the Foreshore and Seabed Debate: A Dunedin Case Study.*](#) thesis, University of Otago.

Wainger and Boyd. Valuing Ecosystem Services. In *EBMFO*, 2009.

Williams, Jim. 2006. Resource Management and Māori Attitudes to Water in Southern New Zealand. *New Zealand Geographer*: 62.

Williams, Jim. 2004. *ʻE pakihī hakinga a kai: An examination of pre-contact resource management practice in Southern Te Wai Pounamu.* PhD thesis, University of Otago.

Course Calendar:

Topic	Readings/Assignments Due
<i>Week 1 (3 hours)</i>	
Introduction to “Sustainable” Oceans: <ul style="list-style-type: none"> • Historical and Contemporary Ocean Uses • Components of the Ocean Health Index 	
Foundations in Conservation and Management <ul style="list-style-type: none"> • Place-Based Management • Legal Definitions of Ocean and Coastal Spaces (Guest Lecture: Susan Farady, Roger Williams University School of Law) 	Hugo Grotius: “Mare Liberum” Model Policy Annotation Due
<i>Week 2 (3 hours)</i>	
Foundations in Conservation and Management <ul style="list-style-type: none"> • Sector Management • Ecosystem-Based Management • Integrated Coastal Management • Coastal and Marine Spatial Planning 	Wainger and Boyd, EBMFTO, Chpt. 6 McLeod and Leslie, 2005. Critical Policy Annotation Due
<i>Week 3 (3 hours)</i>	
Fisheries, Technological Change and Global Markets: “Managing” Fish Comparative Case Studies in Salmon	Mather and Jensen, 2010 Selections from ICES special issue on Fishing Technology in the 21 st Century Safina, Okeanus Tutorials Curry, 2007 Augerot and Foley, 2005 Selections from <i>Aquaculture New Zealand</i> ; Critical Policy Annotation Due
<i>Week 4 (3 hours)</i>	
Governance <ul style="list-style-type: none"> • Pillars of Governance (Guest Lecture: Stephen Olsen, Director Emeritus, University of Rhode Island Coastal Resources Center) • Integrated Coastal Management 	NRC, 2006, Chapt. 4-6. Cummings, Review of ICM. Critical Policy Annotation Due
<i>Week 5 (3 hours)</i>	
Marine Protected Areas	NOAA MPA Center “How is my MPA doing?”

Topic	Readings/Assignments Due
	Critical Policy Annotations Due
<i>Week 6 (5 hours)</i>	
Policy Research Presentations	Critical Policy Annotation Due Research Presentation Outline Due
Exam	
<i>Week 7 (6 hours)</i>	
The Auckland Urban Watershed and Coastal Health Field Trip/Local Expert Lecture	
<i>Week 8 (2 hours)</i>	
New Zealand Marine Protected Areas Census of Offshore Human Ocean Uses Project	
<i>Week 9 (6 hours)</i>	
Tourism and Coastal Development in Otago Field Trip/Local Expert Lecture	
<i>Week 10 (2 hours)</i>	
Census of Offshore Human Ocean Uses Project	
<i>Week 11 (2 hours)</i>	
Census of Offshore Human Ocean Uses Project	Census of Offshore Human Ocean Uses Report Due
<i>Week 12 (6 hours)</i>	
National and Regional Perspectives on Conservation and Management Wellington Area Field Trip and Expert Lecture	Final Policy Paper Due