Ocean Science & Public Policy

CAS NS 320 (3 credits)

Course Catalog Description (max. 40 words):
Culture, history, political systems and science can shape ocean policy. Practice current strategies to build, analyze, and communicate about diverse policy issues. Examine the power, use and limitations of science and the scientist's voice in determining ocean policy.

Instructor(s): Sea Education Association Policy Faculty

Location: SEA campus in Woods Hole, MA and ashore during port stops.

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

Course Philosophy and Approach:
This course is part of the suite of required courses in the *SEA Semester: Marine Biodiversity and Conservation* (*MBC*) program. Collectively, the *MBC* courses provide the context, tools, and opportunity for students to make authentic contributions to the international effort to protect the Sargasso Sea ecosystem. *Ocean Science and Public Policy* is an intensive and systematic effort at *capacity-building* in ocean stewardship.

A comprehensive report by the National Academy of Sciences Committee on International Capacity-Building for the Protection and Sustainable Use of the Coasts and Oceans (2008) states: "the ultimate goal of developing capacity for stewardship is to establish the institutions and cadre of professionals that will enable society to use and conserve ocean and coastal resources knowledgably, taking into consideration the broad interests of society for current and future generations." To this end, *Ocean Science and Public Policy* introduces a suite of foundational social science and coastal and marine management concepts, debates, and practices that provide undergraduate environmental science majors with the professional tools and knowledge required to contribute as stewards and effective voices in marine conservation.

This course consists of 13 lecture/discussion sessions (18 hours combined), a final exam (3 hours), 4 student-led Interdisciplinary Seminar discussions (6 hours combined, shared with *Advanced Topics in Biological Oceanography: Biodiversity* course), 4 Marine Protection Case Study sessions (14 hours combined, shared with *Advanced Topics in Biological Oceanography: Biodiversity* course), 3 field trips (14 hours combined), and scheduled self-directed cultural landscape project research time (8 hours total).

Learning Outcomes:
Students will be able to. . .

1. identify and describe principle anthropogenic drivers of ocean change.
2. identify principle mechanisms for open ocean environmental governance.
3. differentiate between sector and ecosystem-based approaches to management.
4. document human dimensions of marine places using a Cultural Landscape Approach.
5. critically evaluate the components and effectiveness of marine protected areas.
6. understand the role of cultural and professional values in Marine Conservation Policy.

Evaluation:

Conservation Values Paper	15%
Interdisciplinary Seminar Session (moderator and participant)	15%
Cultural Landscape Paper	20%
Press Release (describing biodiversity research)	10%
Quizzes	10%
Policy Exam	30%

Assignments:
Conservation Values Paper: Using the future of the open ocean as a framework, students compare, contrast, and respond to four scholarly perspectives on conservation and nature in a 1250 – 1500 word essay.

Policy and Law Quizzes: On-line assessments of foundation concepts and key facts presented through lecture/presentation modules.

Interdisciplinary Seminars: Four Interdisciplinary Seminars will offer opportunities to explore issues central to marine biodiversity and ocean conservation. These discussions should in some ways expand our understanding of important issues—but also model the different perspectives we will need to embrace in developing science, conservation, and communication strategies and policies. Student teams will be assigned as facilitators for each session. Facilitators will coordinate to deliver opening remarks that succinctly summarize key points from the reading and set an agenda, as well as share responsibility for guiding discussion.

Policy Exam: Comprehensive multi-part essay examination of student knowledge and ability to identify and apply relevant course concepts and tools to model scenarios.

Cultural Landscape Paper: Employing CLA concepts presented in class, students will conduct field research in Bermuda and produce an analytical essay that uses photographs and text to document a key theme in the islands cultural landscape.

Press Release: Applying communication strategies specifically developed for presenting science to a public/non-non-specialist audience students develop a 1-page press release describing the significance and results of their marine biodiversity science project.

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!

Required Readings:

Aron W. 2000. The International Whaling Commission: A Case of Malignant Neglect. IIFT 2000 Proceedings.

Aissi M et al. 2013. Modelling predicted sperm whale habitat in the central Mediterranean Sea. Aquatic Conservation: Marine and Freshwater Ecosystems 24: 50-58.

Barron N. 2010. *Escape from the Ivory Tower: A Guide for Making Your Science Matter.* Island Press. 272 pp.

Chan K. 2008. Value and advocacy in Conservation *Biology Conservation Biology* 22: 1-3.

Freestone D et al. 2014. Can existing institutions protect biodiversity in areas beyond national jurisdiction? Experiences from two on-going processes. Marine Policy 49: 48-58.

Grotius H. 2006 [1633]. Mare Liberum. Crossroads 5: 102-111.

Hamilton Declaration 2014. Sargasso Sea Alliance.

Jensen J and R Mather 2010. The History of Cod in the New World. 41 Degrees North 5: 3-5.

Jensen et al. 2011. Viewing the future through the lens of cultural landscapes. Sanctuary Watch Fall issue: 2-3.

Kalland A. 1993. Whale Politics and Green Legitimacy: A Critique of the Anti-Whaling Campaign. Anthropology Today 9: 3-7.

McCleod K et al. 2005. *Consensus Statement on Ecosystem Based Management. www.compassonline.org/sites/all/.../EBM_**Consensus_Statement**_v12.pdf.*

NOAA Office of National Marine Sanctuaries. 2010. Executive Summary Stellwagen Bank National Marine Sanctuary Management Plan.

Notarbartolo-Di-Sciara G et al. 2008. The Pelagos Sanctuary for Mediterranean marine mammals. Aquatic Conservation: Marine and Freshwater Ecosystems 18: 367-391.

Olsen E et al. 2007. The Norwegian ecosystem-based management plan for the Barents Sea. ICES Journal of Marine Science 64: 599-602.

Schackeroff J et al. 2009. The Ocean as a Peopled Seascape. In McCleod H and H Leslie. *Ecosystem Based Management for the Oceans*. Island Press. 392 pp.

Shillinger G et al. 2008. Persistent Leatherback turtle migrations: present opportunities for conservation. PLOS ONE Biology 6: 1408-1416.

Course Calendar:

Topic	Readings/Assignments Due
Week 1 (5.25 hrs)	
MBC Program Goals and Expectations Introduction to the Marine Conservation Roots of Ocean Law - Discussion Hugo Grotius Introduction to Ecosystem Based Management Interdisciplinary Seminar: Species Concept	**Select Interdisciplinary Seminar Topic** The Hamilton Declaration Grotius – Mare Liberum Shackeroff et al 2009, Consensus Statement on Ecosystem Based Management Selected Readings
Week 2 (8.25 hrs)	
Whales and Fish Maritime Zones and High Seas Conservation Marine Protection Case Study: Mediterranean Highly Migratory Species Interdisciplinary Seminar: Baselines	Aron, W 2000; Kalland 1993; Jensen and Mather 2010 Watch Guilfoyle, Law of the Sea Introduction and Overview, Introduction to Maritime Zones Parts 1 – 3; Freestone et al. 2014 **Complete Online Maritime Zones Quiz** Shillinger et al. 2008 Notarbartolo-Di-Sciara G et al 2008 Aissi et al. 2013 Selected Readings
Week 3 (6.75 hrs)	
Marine Protection Case Study: Stellwagan Bank Marine Protection Case Study: Thunder Bay Marine Protection Case Study: Barents Sea, Norway Interdisciplinary Seminar: Defining Boundaries	Stellwagan Bank NMS Management Plan (2010) Executive Summary Olsen et al. 2007 Selected Readings **Conservation Values Paper Due**
Week 4 (6.75 hrs)	
Interdisciplinary Seminar: Genetic Resources The Law of Oceanography Bermuda and the Atlantic **Policy Exam**	Selected Readings

Topic	Readings/Assignments Due
Week 7 (19 hrs, Bermuda port stop)	
Discussion: Documenting Maritime Cultural Landscapes in Bermuda Field Trip – Bermuda National Museum • Bermuda Cultural Landscapes Self-Directed Cultural Landscapes Project Work Field Trip - Bermuda Aquarium, Museum and Zoo • Behind the Scenes Tour, Natural History Museum • Snorkel Trip – Bermuda Wrecks	Jensen et al 2011
Week 8 (1 hr, at sea)	
Discussion – The Scientist and Public Policy	Chan 2006; Barron Chapters 1,2
Week 9 (7 hrs, at sea and NY port stop)	
Discussion – New York Seascape Press Release Writing Workshop Field Trip - New York Aquarium & Wildlife Conservation Society • Facility Tour	TBA **Press Release Due** **Cultural Landscapes Essay Due**