

Ocean Science and Public Policy

SEA 3201 (3 credits)

Course Contact Hours: 45.

Instructor: Professor Jeff Wescott. jwescott@sea.edu

Course Footprint:

Component	Duration	Location
Shore 1	Mar 3 – Apr 5	Woods Hole, MA
Sea	Apr 5 – May 15	SSV <i>Corwith Cramer</i> with port stops in US Virgin Islands and Bermuda
Shore 2	May 15 – May 28	Woods Hole, MA

Course Philosophy and Approach:

In this course, students will explore how culture, history, political systems, economics, and science all shape marine policy and decision-making. We will investigate current issues at the intersection of ocean science and international, national, and local environmental decision-making, and consider the opportunities and challenges of protecting marine ecosystems and species in island communities and in the open ocean.

Learning Objectives:

1. Develop new strategies for designing and implementing ocean policy.
2. Recognize and resolve policy decisions that lead to ineffective, inequitable, and poorly designed ocean resource management.
3. Find innovative ways to integrate ocean genomic data into ocean policy, in particular as they relate to the goals of the UN High Seas Treaty.

Evaluation:

Presentation: Protecting BBNJ	40%
DOR Policy Brief	40%
Participation	20%

Assignments:

Presentation: Protecting BBNJ

The goals of this assignment are (1) to describe current and anticipated human interactions with the global open ocean, focusing on key activities that impact BBNJ (biodiversity beyond national jurisdiction) as presented in O’Leary et al 2020; and (2) to identify these interactions as problems requiring policy and management decisions. The instructor will assign one

“activity/influence” to each team and provide a rubric that includes a set of questions for teams to address. Teams will present their findings on one of the following activities: commercial fishing, maritime shipping, climate change, land-based pollution, deep-sea mineral exploration, and oil and gas energy exploration.

Presentations will be assessed based on the following:

- (1) Each team will present their results to the class in ways that are informative and interactive.
- (2) They will provide pathways to solutions based on available scientific and social-scientific data and where possible, effective governance strategies.
- (3) Presentations will be 20 to 25 minutes in length, with equal participation among teammates. Teams will use PowerPoint, but are encouraged to interact with the audience in other ways as well.

Each team will submit your team’s PowerPoint, in pdf form, on Tuesday, March 31. The Protecting BBNJ presentation is worth 40% of your class grade.

DOR Policy Brief

During Week 2 of your Directed Oceanographic Research course, you will begin to assemble your research teams, focusing on target systems and organisms during your cruise. To fulfillment one assignment for the OSPP course, each team will produce a report that links their research topic to ocean policy and management via the High Seas Treaty (HST).

Policy briefs will be assessed based on the following:

The final product will be a co-authored policy brief, white paper, or other text-based format that identifies an issue addressed by the HST. Teams will explain how their research may inform decision-making with respect to actions taken to protect BBNJ (e.g., how your team’s research guides MPA planning, and/or how your research identifies possibilities and limitations in current or proposed collection, analysis, use, and sharing of marine genetic resource data).

This assignment requires learning as you go – collecting and analyzing scientific data and then discussing policy and management implications with research teammates and SEA science faculty. For this reason, teams need only submit a final draft, which will be due during the second shore component in Woods Hole. I will gladly read drafts at any stage of development, from a basic outline to a full first draft.

The final report will be 10 to 12 pages of text, double-spaced, plus any images, figures, etc. Please send all drafts to me at jwescott@sea.edu by Wednesday, May 27.

Participation

This course features several in-class exercises, each of which requires completing the assigned readings and contributing as a team member in the planning and completion of the exercises. The participation grade, which counts for 20% of your total course grade, is based on (1) your

attendance, (2) your contributions to the exercises, and (3) the support and positive feedback you provide to your fellow students. Your instructor understands that there are many different ways to contribute, and will work with you and your teammates to identify the roles that best match your own particular skills and interests. If you anticipate that you will be unable to attend class or contribute to class work, please let the instructor know as soon as possible.

Academic Integrity:

SEA expects all students to actively participate in program discussions and activities. Punctual attendance is required at every class meeting and watch session. **Late assignment submissions are not accepted** – please speak with your instructor in advance if you anticipate a concern.

The policy on academic accuracy below will be strictly followed in this class. The assignments 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.

Inclusivity and Classroom Culture:

Our SEA community embraces diversity of age, background, beliefs, ethnicity, gender, gender identity, gender expression, national origin, religious affiliation, sexual orientation, and other visible and nonvisible categories. We expect each one of you (and you should expect the same from us) to contribute to a respectful, welcoming, and inclusive environment. If you feel that you are not being welcomed, included, or accepted here, please reach out to one of your teachers or one of the deans at SEA to share your concern.

Land and cultural heritage acknowledgement:

We in Falmouth are on the traditional homeland of the Wampanoag people who live and continue to thrive here for thousands of years. We acknowledge the painful history of colonization that has enacted forced assimilation, enslavement, genocide, and efforts by many to eliminate Indigenous cultures. We respect and honor the Indigenous people and the descendants of forced migrants still connected to these lands and are eager to learn from their ways of life. We also recognize these words are not enough and need to be followed with action steps.

Course Readings:

Almroth, B.C., and H. Eggert. 2019. Marine plastic pollution: Sources, impacts, and policy issues. *Review of Environmental Economics and Policy* 13(2), pp. 317–326.

Bermuda Turtle Project. 2023 Annual Report. <https://bermudaturtleproject.org/wp-content/uploads/2024/07/BTP-ANNUAL-REPORT-2023-compressed.pdf>

Blasiak, R., et al. 2020. The ocean genome and future prospects for conservation and equity. *Nature Sustainability* 3: 588-596.

Blasiak, R., et al 2018. Corporate control and global governance of marine genetic resources. *Science Advances* 4: eaar5237.

Copeland, Alison. 2022. Bermuda Biodiversity Action Plan Activity Report 2021. Government of Bermuda, Department of Environment and Natural Resources, Flatts, Bermuda. 29 pp.

Deasy, Kristin. 2023. What we know about the new High Seas Treaty. *npj Ocean Sustainability* 2(7): 1-3.

Dorsch, M.J., and C. Flachsland. 2017. A polycentric approach to global climate governance. *Global Environmental Politics* 17(2): 45-64.

Government of Bermuda Ministry of Public Works. 2014. Bermuda Marine Enhancement Structure Policy: Position statement and evaluation guidelines. 49 pp.

Gu, Jackie. 2023 (March 30). Changing Tides. Reuters. <https://www.reuters.com/graphics/GLOBAL-ENVIRONMENT/OCEANS/jnvwyjomdvw/>

Hallett, Jessie. 2011. The importance of the Sargasso Sea and the offshore waters of the Bermudian Exclusive Economic Zone to Bermuda and its people. Sargasso Sea Alliance Science Report Series, No 4, 18 pp.

Mitchell, Silvia, Kevel Lindsay, and Anthony Richards. 2023. Bioprospecting and biopiracy in the Caribbean: challenges and opportunities for the region. *Journal of Arts, Science and Technology* 15(2): 11-42.

Santos, B.S., S. G. Devereaux, K. Gjerde, K. Chand, J. Martinez, and L.B. Crowder. 2022. The diverse benefits of biodiversity conservation in global ocean areas beyond national jurisdiction. *Frontiers in Marine Science* 9:1001240.

UN Conference of the Parties 2023. The Bermuda Difference. 17 pp. <https://www.gov.bm/sites/default/files/2023-11/The%20Bermuda%20Difference%20-%20COP28.pdf>

van Oppen, M.J.H., and M.A. Coleman 2022. Advancing the protection of marine life through genomics. *PLoS Biology* 20(10): e3001801.

Course Calendar:

Topic	Readings/Assignments Due
Week 1 (On shore in Woods Hole)	
<p>Wed, Mar 4: Program introductions</p> <p>Thu, Mar 5: Introduction to the themes and expectations for the course; Introduction to BBNJ presentations</p>	<p>Read for Tuesday of Week 2: Almroth and Eggert 2019. Marine plastic pollution: Sources, impacts, and policy issues.</p>
Week 2	
<p>Tue, Mar 10: Marine plastic debris as a policy issue</p> <p>Thu, Mar 12: The High Seas Treaty</p>	<p>Read for Thu: Gu 2023. Changing Tides. Link</p> <p>Deasy 2023. What we know about the new High Seas Treaty.</p>
Week 3	
<p>Tue, Mar 17: Prioritizing biodiversity in USVI and Bermuda</p> <p>Thu, Mar 19: MPAs and the open ocean</p>	<p>Read for Tue: Copeland 2022. Bermuda Biodiversity Action Plan Activity Report.</p> <p>Bermuda Marine Enhancement Structure Policy 2014.</p> <p>Read for Thu: Santos et al 2022. The diverse benefits of biodiversity conservation in global ocean areas beyond national jurisdiction.</p>
Week 4	
<p>Tue, Mar 24: The ocean genome: science, policy, equity</p> <p>Wed, Mar 25: Career Day 1: linking science and policy</p> <p>Thu, Mar 26: World Café: Protecting the ocean genome</p>	<p>Read for Thu: Blasiak et al 2020. The ocean genome and future prospects for conservation and equity.</p> <p>Van Oppen and Coleman 2022. Advancing the protection of marine life through genomics.</p>

	<p>Blasiak et al 2018. Corporate control and global governance of marine genetic resources.</p> <p>Mitchell et al 2023. Bioprospecting and biopiracy in the Caribbean (pp. 19-38).</p>
Week 5	
<p>Tue, Mar 31: BBNJ presentations 1; pre-sea discussion 1</p> <p>Wed, Apr 2: BBNJ presentations 2; pre-sea discussion 2</p> <p>Thu, Apr 3: Career Day 2: NGOs and communities</p>	<p>Due Tue, Mar 31: BBNJ presentations</p>
Week 6 (At Sea)	
Port stop activities (TBD)	No assignments or readings
Week 7	
The Sargasso Sea and the Bermuda EEZ	Read: Hallett 2011. The importance of the Sargasso Sea.
Week 8	
Sea turtle conservation	Read: Bermuda Turtle Project 2023.
Week 9	
Port stop activities (TBD)	No assignments or readings
Week 10	
Marine biodiversity and policy in Bermuda	Read: UN Conference of the Parties 2023. The Bermuda Difference.
Week 11 (On Shore in Woods Hole)	
<p>Tue, May 19: Innovations in biodiversity and climate governance</p> <p>Wed, May 20: Career Day 3: expanding your network</p> <p>Thu, May 21: Bermuda biodiversity roundtable</p>	<p>Read: Dorsch and Flachsland 2017. A polycentric approach to global climate governance (pp. 50-59).</p>
Week 12	
<p>Tue, May 26: Guided team meetings</p> <p>Thu, May 28: PBS Symposium</p>	<p>Due Wed, May 27: DOR Policy Brief</p>