

ENVS 17

MARINE POLICY

Fall/2017

Class location: Fairchild 101

Class Meeting time(s): MWF 11:30-12:35 am; X-hour, Tu 12:15-1:05

Instructor:	D.G. Webster
Office Location:	Fairchild 104
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Office Phone:	603-646-0213
Office Hours:	Monday and Wednesday, 1:30-2:30 pm or by appointment
X-hours:	Only if needed

Course Description

People use the oceans for transportation, recreation, food, mineral wealth, waste disposal, military defense, and many other important things. This course explores the most significant human-ocean interactions known today from two perspectives: science and policy. From the scientific literature, students will learn about issues ranging from the physical effects of sea level rise to the biological impacts of pollution to the bioeconomic repercussions of overfishing. For each of the problems that are revealed by science, we will also critically evaluate relevant policy solutions to understand how institutional design can (or can't) enhance human interactions with the oceans. This includes insights into the politics surrounding oceans issues in the US and around the world.

Course Goals

- Identify ecosystem services and other benefits that humans derive from the oceans
- Recognize the major impacts of human activities on the oceans
- Understand how multiple impacts interact to amplify problems in the world's oceans
- Evaluate domestic and international policies related to the oceans
- Analyze the political and economic links between human-oceans interactions and oceans policies

Teaching & Learning

This course is an introduction to oceans issues and policy and is designed to accommodate students with a wide range of academic backgrounds. Each class will focus on a general set of issues, usually tied to a specific ecosystem or biophysical process. Students will first study the processes that shape the coupled human and natural systems associated with a particular topic. This requires learning about many different aspects of each topic, including oceanographic, biological, social, economic, and political elements. Once they understand the topic, students will learn about potential solutions to topic-related problems. These can range from technological fixes to social institutions to government regulations. Readings and homework will give students some understanding of basic concepts or specific cases which will serve as a foundation for broader lectures/discussions in class.

Expectations

Exams: There will be two exams for this course. Each will consist of a short answer section (20 questions) and a long answer section (pick 2 of 3 questions). Exams are not cumulative except insofar as information learned in the first half of the term is important for understanding material covered in the second half.

Readings: There is one textbook covering oceanography and marine biology for the course. Assigned sections of this book compliment readings from the policy and social science literature. See the schedule for all reading assignments. Policy readings can be found under the Canvas Library Reserves. It is important that students read all assigned materials for the course. There is a lot of ground to cover and I will not rehash readings during class, though I am happy to answer student's questions about the readings.

Films: Policy can be heavily tied to public perceptions of marine problems, so many conservationists and other interest groups work to make the public more aware of the issues that they think are important. In order to both provide a more visceral understanding of the material covered and to see how different groups represent the issues, students are asked to watch one documentary per week. Assigned documentaries are listed under the x-hour slot in the schedule but can be streamed via the Canvas Library Reserves any time before class on Wednesday. X-hours will not actually be used unless a film cannot be streamed through the library.

Policy Essays: Students should write 8 short policy essays (choose 4 of 8 before the midterm; 4 of 7 after). Each essay should link the reading assignments for a particular day with a current or historical event. Events can be drawn from newspapers, magazines, or peer reviewed journal sources. The primary goal here is to synthesize the information learned in the readings through application to a specific issue. Essays should be posted under the appropriate thread on the Canvas Discussion Board by 9 am on the day of the linked reading assignment. For example, if linking to readings assigned for Monday, Wednesday 13th, then the essay should be posted on the discussion board by 9 am that same day. Each essay must cover a different example; it's first come, first serve, so the earlier you post your essay the more leeway you'll have in choosing an illustration. Essays are limited to no more than 400 words, must be well written, and should include appropriate citations/references (references are not included in the word count). Each student will get 2 freebie essays—that is, I will drop the lowest 2 essay grades for each student. Late assignments will not be accepted without a valid excuse.

Aquarium Trip Blog: Students should write a short (<300 word) post about what they learned during our field trip to the New England Aquarium. These essays are required and worth twice the points of a normal homework assignment. They will be posted on-line with pictures from the trip. If you cannot make the trip, please e-mail me for a make-up assignment.

Presentations: Two group presentations are required. Students will be asked to form their own groups and may change groups from the 1st presentation to the 2nd. The first set of presentations are scheduled in the week before the midterm and will relate all that we learn in the first half of the course to a specific reef or mangrove system, as selected by the group. The second set of presentations are scheduled for the final week of class and should apply lessons from the entire course to a specific region in the Arctic or the Southern ocean. The length of the presentation will depend on the number of groups but is usually 10-15 minutes, with some time for questions. Sign-ups and additional information will be

posted on Canvas. Group members will be asked to evaluate individual contributions to the project and grades will be calculated as the average of the grade for the group and for the individual. Please select your group members carefully—the work will go more smoothly if you have similar habits (e.g. working in advance of deadlines, etc.). If there are problems within your group, it's better to let me know sooner rather than later.

Text and Resources

American Museum of Natural History. 2014. *Ocean: The Definitive Visual Guide*. New York: DK, 512 pp.

Other readings are available through the Library Reserves page on Canvas.

Grading

Class participation	10%
Homework (essays +blog)	20%
Presentations	20%
Midterm	25%
Final	25%

Academic Honor

<http://www.dartmouth.edu/~reg/regulations/undergrad/acad-honor.html>

Student Needs

Students with disabilities enrolled in this course and who may need disability-related classroom accommodations are encouraged to make an appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Accessibility Services office may be consulted to discuss appropriate implementation of any accommodation requested.

Student Accessibility Services: <http://www.dartmouth.edu/~accessibility/facstaff/>

Academic Skills Center: <http://www.dartmouth.edu/~acskills/>

The Academic Skills Center is open to the entire Dartmouth Community. Here are some common reasons why you might visit the ASC:

- You're getting B's but you want to get A's
- You don't feel comfortable talking in class
- You're attending class regularly but you feel like you're missing important points
- You feel like you're a slow reader
- You're spending hours studying for foreign language but still not "getting it"
- You feel like you don't have enough time to get everything done
- You're not sure how to take notes
- You want to sign up for a tutor or study group
- You're not sure if you should get tested for a learning disability

The Research Center for Writing, and Information Technology (RWiT): <http://www.dartmouth.edu/~rwit/>

The Student Center for Research, Writing, and Information Technology (RWiT) is a place where you can meet with an undergraduate tutor to discuss a paper, research project, or multi-media assignment. The RWiT tutors are trained to help you at any phase of your process. Whether you are brainstorming or planning, drafting or structuring, tweaking or polishing, the RWiT tutors can provide feedback that will help you to create final products of which you can be proud.

Schedule (HIB = Human Impacts Box)

			Issues	Ocean readings (textbook)	Policy readings (Canvas)
11-Sep	M	Intro	background		
12-Sep	T	x1	Chasing Coral (2017; 1h33m) Netflix; Optional screening during x-hour		
13-Sep	W	Global	climate change	oceans & climate 66-73; reefs 152-163; life 205-221	https://www.newyorker.com/news/benjamin-wallace-wells/the-change-hurricane-irma-brings
15-Sep	F	Coastal	development	waves and tides 75-83; coasts 87-129; HIBox 159	Spalding et al. 2014
18-Sep	M	Coastal	near-shore pollution	water 29-37; HIBox 141, 164; bacteria, chromists, plants 230-253	Ashanti et al 2015
19-Sep	T	x2	Strange Days: Dangerous Catch (2008; 55m)		
20-Sep	W	Coastal	inshore fisheries	seabeds 142-145; life cycles 212-213; arthropods 290-304; bony fishes 336-339; HIBox 340	Acheson 1975
22-Sep	F	Coastal	Netlogo Fishery Basic		
25-Sep	M	Coastal	aquaculture	mangroves 130-137; seagrass n kelp 146-151; mollusks 278-289; HIBox 296, 336; salmon 346	Granada et al 2015
26-Sep	T	x3	Oceans: the Atlantic (episode 4; 2008; 58m)		
27-Sep	W	Coastal	invasive species	cnidarians 260-270; worms 271-275; echinoderms 306-312; lionfish 357	Bax et al 2003
29-Sep	F	Coastal	marine mining	geology 40-51; shelf geology 141	Baker et al 2016
2-Oct	M	Coastal	space based management	winds 54-55; racing 56-57; surfing 77, 110; kayaking 82; ATVs 113; whale watching 123; HIBox 149, 260, 335; diving 157, 474-475; birds 378-399	White et al 2012
3-Oct	T	x4	Mangroves, Guardians of the Coast (2012, 29m; https://www.youtube.com/watch?v=4SY7X9zdZ-U),		
4-Oct	W	Coastal	coral reefs (multi)	eels 342-343; sea horses/dragons 356-357; reef fish(var) 358-367	
6-Oct	F	Coastal	mangroves (multi)	reptiles 368-377	

9-Oct	M	Review/Video Discussion			
10-Oct	T	x5	Blue planet: Coral Seas (2001, 45m)		
11-Oct	W	Midterm			
13-Oct	F	FIELD TRIP: New England Aquarium. ALL DAY! Bog due 10/15 at 5 pm.			
16-Oct	M	Marine	Ocean Conveyor Activity	underwater circulation 60-63	
17-Oct	T	x6	A Plastic Ocean (2016; 1h40m)		
18-Oct	W	Marine	global pollution	currents 58-59; water cycle 64-65; polar oceans 191-201	Chen et al 2012
20-Oct	F	Marine	offshore fisheries	cotinental shelves 140-141; slope 176-177	Webster 2015, 73-102 (chpt 3)
23-Oct	M	Marine	ITQs, MPAs, etc.	orange roughy 353; fishing 345-355; mackerel 365; plaice-sole 366; HIBox 322, 379	Steelman & Wallace 2001
24-Oct	T	x7	Mission Blue (2015; 1h34m)		
25-Oct	W	Marine	Netlogo Fishery Advanced		
27-Oct	F	Marine	Ecosystems activity		
30-Oct	M	Marine	ecosystem based management	history 226-229; rev. oceans & climate 66-73; anchovetta, etc. 344-345; cod 346	Crowder et al 2008
31-Oct	T	x8	Blue Planet: The Deep (2001, 45m)		
1-Nov	W	Marine	the abyss	geology 40-51; shelf geology 141; abyss 171-173; ocean floor 180-189; living deep 222-225; deep sea fish 347, 350-353	Nautilus 2008; Greenpeace 2013
3-Nov	F	Marine	international fisheries	pelagic zone 164-165; open ocean 167-170; semounts 174-175; cold water reefs 178-179; from space 186-187; tuna/sailfish 365; HIBox 215, 386, 408	Webster 2015 pp. 154-193
6-Nov	M	Marine	trade and security	sharks, etc. 322-335; mammals 400-419	Joyner & Tyler 2000
7-Nov	T	x9	Eyewitness: Arctic and Antarctic (2015, 29m) https://www.youtube.com/watch?v=r26V1v4DI64		
8-Nov	W	Marine	southern ocean (multi)	maps 482-487	
10-Nov	F	Marine	arctic ocean (multi)	maps 428-431	
13-Nov	M	Review/Video Discussion			
14-Nov	T	x10			
17-Nov	F	Final	Scheduled at 8 am, location TBA		