

FISH 103 THE HARVEST OF THE SEA SPRING 2015

Instructors

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Office Hours

Tu, Th: 9:30 a.m. – 11:30 a.m., or by appt

Meeting Times

3:00 – 5:00 p.m., W, 214 O'Neill Building

Course Description

This course will explore the scientific and popular literature related to the exploitation of global marine fisheries resources. Specific topics of the course will be based on three core themes: (1) early exploitation of marine resources, leading to the need for fisheries management; (2) overexploitation of fish and marine mammal stocks driven largely by technological advancements culminating from the Industrial Revolution; and (3) the current status and future sustainability of marine fisheries resources. This course is largely discussion based; as a result, weekly attendance and preparation is a critical component of the course. Prerequisites: FISH 101, FISH 102, and placement in ENGL 111. 2 credits (2 + 0).

Course Objectives

1. To sharpen critical thinking, written and oral communication, and professional skills, using harvest of marine fisheries resources as the theme of the course.
2. To develop knowledge of the basic principles associated with the management of global marine fisheries resources, the development of the field of fisheries science, and whether fish stocks can be managed in a sustainable fashion.

Learning Outcomes

By the end of the semester, students that have enrolled in this class will have the following:

1. Familiarity with historical and contemporary conservation and management issues in marine fisheries at a global perspective.
2. Understand the anthropogenic impacts on marine fish and mammal stocks within the context of current and future sustainability of these stocks.
3. Knowledge of the biological, ecological, political, cultural, and socioeconomic dimensions and stakeholder perspectives that shape fisheries management decisions within the context of exploitation of marine fish and mammal stocks.
4. Appreciation for the popular and technical literature as related to the exploitation of global marine resources.
5. Fluency to communicate the results of problem-solving efforts in language that is understandable to a range of technical and lay audiences.

Support and Disability Services

At UAF, the Office of Disability Services (203 WHIT; 474-5655; TTY 474-1827; fydso@uaf.edu) ensures that students with physical or learning disabilities have equal access to campus and course materials. If you have specialized needs, please contact this office or the instructors to make arrangements as soon as possible.

Reading Assignments

The required course text is *The Unnatural History of the Sea* by Callum Roberts (2009; Reed Elsevier Inc.; ISBN-10: 1597265772). Additional readings and handouts will be provided for this course and will be required readings for class discussions. With the exception of the course text, all additional materials will be provided in class or on Blackboard.

Attendance

Class attendance is mandatory for this course. A total of 70 points (5 points per day, weeks 2-15) are available for attendance during the class meeting periods, which will be assigned on an all or none basis. To receive the full allotment of 5 attendance points for each meeting period, students are expected to be present at the start of the class. Failure to attend the class without an excused absence will result in a zero for attendance for that particular meeting period.

Assignments and Class Participation

This course is dependent on weekly class discussions that will require critical thinking and active engagement during each meeting period. Because active class participation by all students is essential for these activities, each student enrolled for this course will need to prepare for each meeting period by completing all necessary readings and corresponding assignments before each scheduled period. Assignments will be given out at the end of each class period and will be due at the start of the following class period. Failure to attend the class without an excused absence will result in a zero for assignment for that meeting period. These assignments may include answering thought questions related to the readings, conducting literature or Internet searches related to the discussion topic, analyses of topic-related data, or some combination. In all cases, the assignments will form the basis for each class discussion and will provide the mechanism by which students' preparation for the class discussion is evaluated. As a result, each of the 14 assignments will be valued at 10 points (140 points total). It is essential that students complete the assigned readings and associated assignments prior to the class discussion period in order to have meaningful class discussions.

Class participation is an essential component of this course; as a result, 20 points will be available for each of the 14 class periods for participation (280 points total). To receive participation points for each meeting period, students are expected to actively participate in the discussion/activity for that class period. Failure to attend the class without an excused absence will result in a zero for participation points that meeting period. Participation points will be assigned to students for each class period in 5-point increments. For example, 0 participation points will be assigned to students that attend class but do not participate in the class discussion or activity. In contrast, students that are actively engaged and participate for at least 75% of the class period will receive all 20 points for that day. Students will receive 5, 10, or 15 of the available 20 participation points each meeting period, respectively, if they are involved up to 25%, 50%, or 75% of the class discussion. To track student participation, the instructor will use a spreadsheet to actively tally student participation events and to note the level of engagement of each student throughout each class period. The instructor has used this approach in other classes with class discussion periods to objectively assign participation points. **Students not willing to be prepared for and participate in class discussions should not enroll for this course.**

Professionalism

An additional 70 points (5 points per day, weeks 2-15) are also available for professionalism during the class meeting periods. These points will be assigned on an all or none basis; to receive all 5 points for a given meeting period, students are expected to be respectful of their instructors and fellow students. Failure to be respectful of the class learning environment may include the following examples: cell phone ringing, texting or IMing in class, making personal attacks during class discussions, sleeping, and working on unrelated courses assignments. Engagement of students in any of these activities will result in a 0 out of 5 points for that meeting period.

Written Assignments

Four short writing exercises (essays) will be assigned to help you develop and sharpen your critical thinking and writing skills. For each written assignment, you can receive up to 60 points (240 total points). These assignments may take one of several forms: answer a question, take a position on an issue, or support/refute a thesis statement. As stated above, these written assignments will be short: each essay will be limited to between 750 and 1,000 words, requiring you to address the statement, question, or position in a clear and concise manner using language that a reader unfamiliar with the subject topic could understand. Each written assignment will be evaluated following the stipulated criteria and returned to students within one week of submission with appropriate content- and writing-based feedback.

Grading

Students will be evaluated primarily on attendance, preparation/participation, and attitude; however, there will also be four short written assignments for this class that will be completed for a grade as well. Grades will be based on a 90-80-70-60 scale. If the class average falls below 75%, this scale will be adjusted accordingly. Missed class discussion periods will be assigned a zero score. If you cannot attend a class discussion period for a legitimate reason, it is your responsibility to contact the instructor prior to the date in question in order not to receive a penalty. With the exception of emergencies, missed class discussion requests will only be honored if a legitimate reason is provided in writing at least one week prior to that date. Point and percentage values for each evaluation component are as follows:

Component	Points Available	Percentage of Total
Attendance	70	10%
Assignments	140	25%
Class Participation	280	25%
Professionalism	70	10%
Written Assignments	240	30%
TOTAL	800	100%

Honor System

All assignments submitted are to be entirely your own work, unless you receive specific instructions to the contrary. All aspects of your course work are covered by the Honor system. Any suspected violations (e.g. cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken. Additionally, you will receive a zero for that assignment or exam; two such violations and you will automatically fail this course. Honesty in your academic work will develop into professional integrity. The faculty and students of the University of Alaska Fairbanks will not tolerate any form of academic dishonesty.

WEEKLY DISCUSSION/READING OUTLINE

<u>Discussion Topic</u>	<u>Week</u>	<u>Readings</u>
Course Overview	1	No Readings
The Need for Fisheries Management	2	Ch 1&2; Hardin 1968
Belief in Inexhaustibility	3	Ch 3&4; Larkin 1977
Overexploitation of Fish Stocks	4	Ch 5&6; Hilborn et al. 2006
Overharvest of Marine Mammals	5	Ch 7&8; Worm et al. 2007
Impacts of the Industrial Revolution	6	Ch 9-11; Pauly 1990
The Sea is Exhaustible	7	Ch 12-13; Hutchings and Reynolds 2004
Collapse of Major Fisheries – Europe/Atlantic Ocean	8	Ch 14&15; Hutchings and Myers 1994; Hutchings 1996
Collapse of Major Fisheries – North America	9	Ch 16&17; Hilborn and Stokes 2010
Shifting Baselines and Empty Seas	10	Ch 18; Pauly 1995; Pinnegar and Engelhard 2007
Decimation of Marine Resources	11	Ch 19-21; Smith and Link 2005
The Demand for Marine Resources	12	Ch 22&23; Hall and Mainprize 2004
Rehabilitation of Marine Fish Stocks	13	Ch 24&25; Worm et al. 2009
The Future of Marine Resources	14	Ch 26; Worm and Branch 2012; Pauly et al. 2003
Marine Fisheries Sustainability	15	Hilborn 2007; Polacheck 2006 Myers and Worm 2003

Peer-Reviewed Literature Reading List

- Hall, S. J., and B. Mainprize. 2004. Towards ecosystem-based fisheries management. *Fish and Fisheries* 5:1-20.
- Hardin, G. 1968. The tragedy of the commons. *Science* 162:1243-1248.
- Hilborn, R. 2007. Moving to sustainability by learning from successful fisheries. *Ambio* 36:296-303.
- Hilborn, R., J. Annala, and D. S. Holland. 2006. The cost of overfishing and management strategies for new fisheries on slow-growing fish: orange roughy (*Hoplostethus atlanticus*) in New Zealand. *Canadian Journal of Fisheries and Aquatic Sciences* 63:2149-2153.
- Hilborn, R., and K. Stokes. 2010. Defining overfished stocks: have we lost the plot? *Fisheries* 35:113-120.
- Hutchings, J. A. 1996. Spatial and temporal variation in the density of northern cod and a review of hypotheses for the stock's collapse. *Canadian Journal of Fisheries and Aquatic Sciences* 53:943-962.
- Hutchings, J. A., and R. A. Myers. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, *Gadus morhua*, of Newfoundland and Labrador. *Canadian Journal of Fisheries and Aquatic Sciences* 51:2126-2146.
- Hutchings, J. A., and J. D. Reynolds. 2004. Marine fish population collapses: consequences for recovery and extinction risk. *BioScience* 54:297-309.
- Larkin, P.A. 1977. An epitaph for the concept of maximum sustained yield. *Transactions of the American Fisheries Society* 106:1-11.
- Myers, R. A., and B. Worm. 2003. Rapid worldwide depletion of predatory fish communities. *Nature* 423:280-283.
- Pauly, D. On Malthusian overfishing. 1990. *Naga, the ICLARM Quarterly* 13:3-4.
- Pauly, D. 1995. Anecdotes and shifting baseline syndrome of fisheries. *Trends in Ecology and Evolution* 10:430.
- Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers, and R. Watson. The future for fisheries. *Science* 302:1359-1361.
- Pinnegar, J. K., and G. H. Engelhard. 2008. The 'shifting baseline' phenomenon: a global perspective. *Reviews in Fisheries Biology and Fisheries* 18:1-16.
- Polacheck, T. Tuna longline catch rates in the Indian Ocean: did industrial fishing result in a 90% decline in the abundance of large predatory species? *Marine Policy* 30:470-482.
- Smith, T. D., and J. S. Link. 2005. Autopsy your dead...and living: a proposal for fisheries science, fisheries management and fisheries. *Fish and Fisheries* 6:73-87.
- Worm, B., and T. A. Branch. 2012. The future of fish. *Trends in Ecology and Evolution* 27:594-599.
- Worm, B., H. K. Lotze, and R. A. Myers. 2007. Ecosystem effects of fishing and whaling in the North Pacific and Atlantic Oceans. Pages 333-341 in: Estes, J. A., et al., editors. *Whales, whaling, and ocean ecosystems*.

University of California Press, Berkely.

Worm, B., R. Hilborn, J. K. Baum, T. A. Branch, J. S. Collie, C. Costello, M. J. Fogarty, E. A. Fulton, J. A. Hutchings, S. Jennings, O. P. Jensen, H. K. Lotze, P. M. Mace, T. R. McClanahan, C. Minto, S. R. Palumbi, A. M. Parma, D. Ricard, A. A. Rosenberg, R. Watson, and D. Zeller. 2009. Rebuilding global fisheries. *Science* 325:578-585.