

**Course Number:** MAR 530  
**Course Title:** Ecosystem-Based Fisheries Management  
**Instructor:** Gavin Fay, Assistant Professor  
**Contacts:** School for Marine Science and Technology, SMAST II 325  
(508) 910-6363  
gfay@umassd.edu  
**Class Location:** SMAST II Fairhaven, Room 157  
**Class Time:** Fridays 10:30-13:00,  
1 hr lecture, short break, 1.25 hr literature discussion  
**Office Hours:** by appointment  
**Website:** UMD myCourses

**Course Description:** Discussion and lectures highlighting the theory, challenges, and approaches for implementing Ecosystem-based Fisheries Management (EBFM). The course will examine the history and background of fisheries management, leading to why more holistic approaches are being considered. A series of operational methods being used to implement EBFM, emphasizing technical efforts and models, will be reviewed. The role of institutional structures and societal considerations in decision-making will be explored to identify situations where EBFM can be successful. The course will emphasize current literature and case studies as main learning elements.

**Course Objectives:**

1. Understanding of major issues facing global fisheries, fisheries science, and fisheries management
2. Familiarity with the theory, history, background, and socio-economic issues driving EBFM
3. Develop knowledge of major modeling and technical approaches for implementing EBFM.
4. Develop skills for critically evaluating current literature and contextualizing it and associated theory with real world case studies.

**Prerequisites:** Introduction to Fisheries Science (e.g. MAR 540) **OR** General Ecology (e.g. BIO 314) and permission of instructor.

**Evaluation procedures:**

1. Weekly assignments (25%) – eight brief (one page maximum) writing assignments that provide summary/synthesis of a piece of current literature relevant to the week's discussion topic, and one blog post that follows on the previous week's class discussion. Assignments are due prior to class.
2. Class project (25%) – a written report (20%) on either a case study where EBFM is being implemented, or an analysis/review of an emerging EBFM topic. Descriptions of project topics are due in week 4, and a 2-3 page project outline (5% of course grade), with key references, is due by the end of week 7. Projects may be carried out individually or in small groups (2-3 students). The scope of group projects should reflect the number of participants. Gavin Fay has a list of possible project topics.
3. Final Exam (10%) – A verbal presentation of the class project.

4. Participation, attendance, ethics (40%) – In addition to attending lecture and participating in discussions, students are required to lead at least two of the weekly class discussions of the literature.
5. Note 10 points (out of a 100) will be deducted for each day that an assignment is late.
6. If you have read this far, please use google images to find a picture of a thylacine, and send it to me attached to an email with the subject line “Here is a thylacine”
7. No academic dishonesty, including plagiarism, will be tolerated and the University Academic Integrity policy applies:  
<http://www.umassd.edu/studentaffairs/studenthandbook/academicregulationsandprocedures/>

**Principal text:**

Link, J. 2010. Ecosystem-based fisheries management: confronting tradeoffs. Cambridge Univ. Press, Cambridge.

To be supplemented by articles from the peer-reviewed literature.

**Recommended reading list:**

Ecosystem Principles Advisory Panel (EPAP). 1999. A report to Congress by the Ecosystem Principles Advisory Panel. NMFS Silver Spring, MD.

FAO. 2003. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2. Rome, FAO. 112p.

Garcia, S.M, Zerbi, A., Aliaume, C., Do Chi, T. & Lasserre, G. 2003. The ecosystem approach to fisheries. Issues, terminology, principles, institutional foundations, implementation, and outlook. FAO Fisheries Technical Paper, No. 443, Rome, FAO. 71p.

McLeod, K., & Leslie, H. (Eds.). 2009. Ecosystem-based management for the oceans. Washington, DC, USA: Island Press.

National Marine Fisheries Service 2009. Report to Congress: The State of Science to Support an Ecosystem Approach to Regional Fishery Management. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-F/SPO-96, 24 p.

### Course outline and schedule of lectures and assignment (subject to change)

<i>Date</i>	<i>Session</i>	<i>Topic</i>	<i>Reading</i>
27-Jan	1	Introductory material; What is EBFM?	Chap 1
	2	Instructor led discussion of literature	Larkin 1996, Botsford et al. 1997, Pikitch et al. 2004
3-Feb	1	Challenges facing fisheries, origins & history of EBFM	Chap 1, 2
	2	Student led discussion of literature	Guerry 2005, Browman & Stergiou 2004, Yaffee 1999
10-Feb	1	When to consider doing EBFM, EBFM in the USA	Chap 5
	2	Student led discussion of literature	Christensen et al. 1996, Arkema et al. 2006, Tallis et al. 2010
17-Feb	1	Types of advice, decision theories, goal setting	Chap 4
	2	Student led discussion of literature <b><i>Project topics due</i></b>	Francis et al. 2007, Tear et al. 2005, Garcia & Cochrane 2005
24-Feb	1	Bycatch, habitat, and spatial management	Hilborn 2011
	2	Student led discussion of literature	Edgar et al. 2014, Hilborn et al. 2004, Lester et al. 2009, McCay & Jones 2011
3-Mar	1	Ecosystem Indicators	Chap 6, Link 2005
	2	Student led discussion of literature	Jennings 2005, Halpern et al. 2012, Samhuri et al. 2010, (Shepard et al. 2015)
10-Mar	1	Single- and multispecies assessment models <b><i>Project outlines due</i></b>	Chap 7
	2	Student led discussion of literature	Hollowed et al 2000, Schnute & Richards 2001, Plagányi et al. 2014
17-Mar		No Class – Spring Break	
24-Mar	1	Aggregate and whole-of-system models	Chap 8
	2	Student led discussion of literature	Hyder et al. 2015, Steele et al. 2013, Collie et al. 2014
31-Mar	1	Ecological risk assessment	Chap 9
	2	Student led discussion of literature	Holsman et al. 2017, Hare et al. 2016
7-Apr	1	Societal and economic considerations	Chap 10
	2	Student led discussion of literature	Yaffee 1996, Endter-Wada et al. 1998, Browman & Stergiou 2005, Fulton et al. 2011
14-Apr	1	Governance and management institutions	Chap 11
	2	Student led discussion of literature	Costanza et al. 1998, Sainsbury et al. 2000, Sissenwine & Mace 2003, Garcia & Cochrane 2005
21-Apr	1	Evaluating tradeoffs	Chap 12
	2	Student led discussion of literature	Sainsbury & Sumaila 2003, de la Mare 2005, Worm et al. 2009, Fulton et al. 2014
28-Apr	1	Moving toward EBM, Regional Ocean Planning	
	2	Student led discussion of literature	Leslie & McLeod 2007, Murawski et al. 2007, Berkes 2011, Bunnefeld et al. 2011
5-May	1	Final exam: <i>Student verbal presentations of class projects</i> <b><i>Project reports due</i></b>	

**Title IX statement:** The purpose of a university is to disseminate information, as well as to explore a universe of ideas, to encourage diverse perspectives and robust expression, and to foster the development of critical and analytical thinking skills. In many classes, including this one, students and faculty examine and analyze challenging and controversial topics.

If a topic covered in this class triggers post-traumatic stress or other emotional distress, please discuss the matter with the professor or seek out confidential resources available from the Counseling Center, <http://www.umassd.edu/counselling/>, 508-999-8648 or -8650, or the Victim Advocate in the Center for Women, Gender and Sexuality, <http://www.umassd.edu/sexualviolence/>, 508-910-4584. In an emergency contact the Department of Public Safety at 508-999-9191 24 hrs./day.

UMass Dartmouth, following national guidance from the Office of Civil Rights, requires that faculty follow UMass Dartmouth policy as a “mandated reporter” of any disclosure of sexual harassment, abuse, and/or violence shared with the faculty member in person and/or via email. These disclosures include but are not limited to reports of sexual assault, relational abuse, relational/domestic violence, and stalking. While faculty are often able to help students locate appropriate channels of assistance on campus, disclosure by the student to the faculty member requires that the faculty member inform the University’s Title IX Coordinator in the Office of Diversity, Equity and Inclusion at 508-999-8008 to help ensure that the student’s safety and welfare is being addressed, even if the student requests that the disclosure not be shared.

For confidential counseling support and assistance, please go to <http://www.umassd.edu/sexualviolence/>