

Fishery Management (A ECL 440/540)

Fall 2005

Lecture: MW 12-1 (119 Science II)
Labs: W 3-6 (141 Science II)

Instructor

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Textbook

Kohler, C. C., and W. A. Hubert, editors. 1999. Inland Fisheries Management in North America, 2nd edition, American Fisheries Society, Bethesda, MD.

Course Fee

The course fee is \$35. It is used for costs of transportation, materials and supplies, and copying costs. Students are billed by ISU.

Attendance

Attendance and participation is required for all labs. There are no make-ups for missed labs. Students are responsible for understanding the material covered in class.

Assigned Readings

The required readings are from the text or handouts.

Grading

A \geq 92% A- \geq 90% B+ \geq 88% B \geq 82% B- \geq 80% C+ \geq 78%
C \geq 72% C- \geq 70% D+ \geq 68% D \geq 62% D- \geq 60% F < 60%

Exams	100 pts
Lab Reports	100 pts
<u>Term Paper</u>	<u>50 pts</u>
Total	250 pts

Course Description from ISU catalog

Biological basis of fishery management, fishery problems, and management practices for freshwater, anadromous, and marine fisheries.

Objectives and Outcomes

1. Subject Matter—increase understanding of
 - a. scientific methodology of fishery science,
 - b. essential characteristics and qualities of aquatic habitats
 - c. major aquatic resource problems (e.g., habitat degradation, problem animals, acid rain, over-exploitation), and
 - d. strategies and techniques for management of freshwater, anadromous, and marine fisheries.

2. Skills—Students will be involved in activities that will either be an introduction to or an opportunity to enhance skills in
 - a. writing a manuscript in rigid journal format
 - b. meeting scheduled deadlines (i.e., learning to get jobs done on time)
 - c. statistical analysis of fishery data
 - d. hands-on experience with fisheries equipment (seines, nets, traps, and electro-fishing apparatus)
 - e. assessing fish stocks and fish communities

Forestry and Animal Ecology Student Learning Outcomes

This course provides some of the knowledge and skills you will need to accomplish the following departmental learning outcomes:

- Develop, explain and evaluate their own beliefs, values and behavior in relation to professional and societal standards of ethics.

- Anticipate, analyze and evaluate natural resource issues and explain the ecological, economic, and social consequences of natural resource actions at various scales and over time.

- Assess, analyze, synthesize, and evaluate information fairly and objectively.

- Work effectively, both individually and with others, on complex, value-laden natural resource problems that require holistic problem solving approaches.

- Formulate and evaluate alternative solutions to complex problems and recommend and defend best alternatives.

- Communicate clearly and effectively with different types of audiences using appropriate oral and written techniques.

- Recognize and interpret resource problems across spatial scales from local to intermediate.

- Appreciate cultural diversity.
- Exercise life-long learning skills developed before graduation.

Lecture exams (100 points)

There will be two 1-hour lecture exams (30 points each) as well as a comprehensive final exam (40 points). Exam questions will come from lecture, readings, and handouts. The exams will consist of multiple-choice, fill in the blank and short answer; they will also involve problem solving. A hand calculator that has log functions is required for lab, doing problems in class and for exams.

Makeup Exam: A student who misses an exam must request a makeup exam in writing. If the reason for missing the exam is acceptable, a makeup exam may be given during the finals week (date and time to be arranged). The makeup exam will not be same exam as given to the rest of the class. Anyone who misses an exam and fails to arrange for a makeup exam will receive 0 points for the exam.

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me soon. Please request that a Disability Resources staff send a SAAR form verifying your disability and specifying the accommodations you will need.

Laboratory reports (100 points)

The lab grade will be based on your lab reports. Reports include data collection from field trips and analysis done in class at later date. **Attendance and participation in lab is required.** The TA will take attendance and judge participation.

Assignments

During the course of the lecture, assignments will be given to students that will exemplify the principles noted in the lecture materials. While these assignments will **not** be graded, it is in the best interest of the student to complete them in preparation for upcoming exams.

Term Paper (50 points)

<u>Task</u>	<u>Due Date</u>	<u>Points</u>
1. Title	Sept. 8	5
2. Literature review	Oct.6	5
3. Outline	Nov.7	10
4. Presentation	Dec. 7	<u>5</u>
5. Final copy	Dec. 9	25
		50

1. Title

Chose a relatively specific topic, but one that you can find related information about. Prior approval of the topic is required. Paper must include a position statement related to a topic in fishery management. An example of a position statement is the following: bluegills are an appropriate prey species for a pond fishery. A paper on the life and times of the bluegill is **not** an appropriate topic. Any departures from the agreed upon topic **must** have prior approval from the instructor, otherwise, this exercise will have 0 points.

2. List of references

A list of ≥ 5 peer-reviewed references for your term paper is required. They must be typed in the format specified by the American Fisheries Society (AFS). See any AFS journal - they all follow the same format. Unless otherwise informed a web site is not an acceptable peer-reviewed publication.

Journals of the American Fisheries Society

- Transactions of the American Fisheries Society
-basic fisheries science
- North American Journal of Fisheries Management
-fisheries management research
- North American Journal of Aquaculture
- breeding and culture of aquatic animals
- Journal of Aquatic Animal Health
-health maintenance and disease treatment

3. Outline

The more detail presented, greater the point value as well as ease in completing the final draft.

4. Final copy

Detailed instructions for term papers are provided in a handout. **Warning:** a term paper that has been used in another class (e.g., Fish Biology, Aquatic Ecology, Aquaculture) is not acceptable. All papers are to be sent to my email address; they will be graded and returned to you for your information.

5. Presentation

Students will present their presentations during the scheduled class time on December 7. The presentations will be limited to 5 minutes with 1-2 minutes for discussion.

Tentative Class Schedule

Week	Date	Topic	Chapters	Term Paper Deadlines
1	Aug. 22	Introduction/History	1	
	24	<i>Lab 1: Introduction</i>		
	24	Fisheries Management: The Process		
2	29	Ponds I	21	
	31	<i>Lab 2: Pond Habitat Assessment/Introduction to Field Gear</i>		
	31	Ponds II		
3	Sept. 5	Holiday: Labor Day	22	Paper Title
	7	Lakes I		
	7	<i>Lab 3: Pond Sampling</i>		
	12	Lakes II		
4	14	Reservoirs I	22	
	14	<i>Lab 4: Pond Sampling</i>		
	19	Reservoirs II		
5	21	Warm water streams	19	
	21	<i>Lab 5: Lake sampling</i>		
	26	Cold water streams		
6	28	Exam I		
	28	<i>Lab 6: Lake Sampling</i>		
	Oct. 3	Large Rivers		
7	5	Watershed Management	9	Lit. Review
	5	<i>Lab 7: Stream Sampling</i>		
	10	Anadromous Fisheries		
8	12	Urban Fisheries (Schultz – IDNR)	12	
	12	<i>Lab 8: Return to Lake/Pond</i>		
	17	Ecosystem Management		
9	19	Marine Fisheries		
	19	<i>Lab 9: Descriptive Statistics</i>		
	24	Socioeconomic Benefits of Fisheries		
10	26	Role of Exotics	13	
	26	<i>Lab 10: L-W Regression, K, Wr</i>		
	31	Exam II		
11	Nov. 2	Biological Statistics	7	
	2	<i>Lab 11: IBI, Fish ID and Computations</i>		
	7	Stock Assessment I		
12	9	Stock Assessment II	6	Outline
	9	<i>Lab 12: Age and Growth I</i>		
	14	Regulations: The Basics and Promise		
13	16	Regulations: Can you please everyone?	17	
		<i>Lab 13: Age and Growth II</i>		
14	21	Thanksgiving Break		
	23	“		
	23	“		
	28	Role of Hatcheries		
	30	Lake Reclamation		
15	30	Open Lab		
	Dec. 5	Management of Undesirables		
	7	Controversies in Fisheries		
16	7	Lab 14: Presentations		Final Draft
	9			
12-16		Finals Week		
Scheduled for Dec. 13, 12:00-2:00				

Management plans (Graduate Students - valued at 50 points for a total of 300 total points).

During the semester you will prepare a written management plan for a study site of your choosing. Your management plan will be evaluated for soundness of data interpretation, technical merit (how reasonable and effective is the management plan), and communication effectiveness; each of these elements will count equally to the management plan grade. I will grade the management plan and assign separate grades for data interpretation, technical merit, and communication effectiveness. The grade on the management plan will be the arithmetic average of all grades assigned to the management plan. Your management plan should follow American Fisheries Society format.