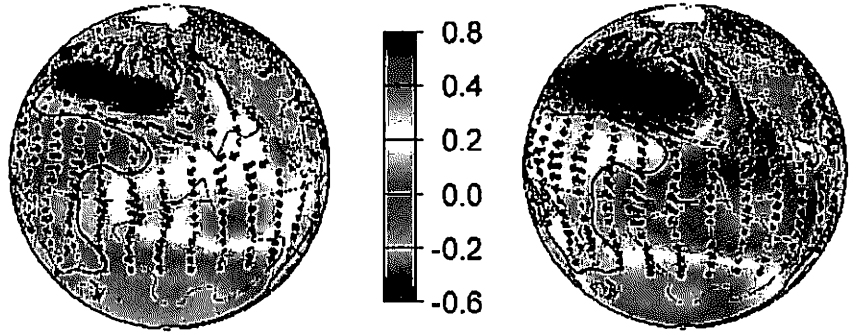


# **FISH F694: Climate Change and Fisheries**



(<http://jisao.washington.edu>)

**3 credits**

**Meeting:** Tuesdays & Thursdays 3:40-5:10p  
F633 F01 – Fairbanks – O'Neill 214  
F633 FJ1 – Juneau – Lena 101

**Instructor:** Dr. Megan McPhee  
309 Lena (Juneau)  
(907) 796-5464  
[mvmcphee@alaska.edu](mailto:mvmcphee@alaska.edu)

**Office Hours:** Tuesday 2:00-3:00 p  
Thursday 2:00-3:00 p  
Or by appointment

**Prerequisites:** Permission of instructor. Recommended: courses in introductory ecology and evolutionary biology.

**Readings:** Journal articles (pdf format) - available on BlackBoard

**Course Description:** In this course we will discuss the ecological and evolutionary responses of fish populations to climate change, including both marine and freshwater case studies. Topics will include phenology, metabolic ecology, trophic interactions, range shifts and phenotypic shifts. We will read and discuss critically both foundational and contemporary literature.

### Course Evaluation:

#### 1) Discussion

Lead	(15 %)
Participation	(35 %)

#### 3) Final Project

Review Paper	(30 %)
Oral Presentation	(20 %)

### Discussion:

Each student will be responsible for choosing a relevant peer-reviewed paper(s) and leading discussion once during the semester. All students will be expected to participate in discussion of course materials and readings throughout the semester.

### Final Project:

The final project will consist of developing and writing a review paper on a topic relevant to climate change and fisheries. Papers will be written as if they were to be submitted as a review article to a peer-reviewed journal and will be evaluated accordingly, based on depth of subject coverage, use of citations, and clarity of writing. You will also prepare a 15-minute oral presentation on your paper, to be delivered in class, which will be evaluated on clarity of presentation and information content of visual aids.

### Course Goals:

The goal of this course is to instill the student with broad understanding of anticipated and observed effects, both ecological and evolutionary, on fisheries populations.

### Learning Outcomes:

You should emerge from this course with -

- ability to critically read and discuss primary literature in fisheries and the biological aspects of climate change research
- ability to synthesize complex concepts and data and to convey this synthesis effectively using both written and oral communication

### Instructional Methods:

The course will be a combination of lecture and discussion. Lecture materials (such as Power Point slides and video) will be shared with students using the internet and the E-live feature of Blackboard. We will use V-Con to connect students across campuses for discussion. Reading materials (pdf format) will be posted on Blackboard.

### Course Policies:

Missed classes cannot be made up, as a large part of the instructional material will be discussion among instructor and students. Distance delivery makes it possible for students to participate wherever they have an internet connection; therefore if you will be out of town, I encourage you to join us via E-live. Plagiarism in the written final project will not be tolerated (i.e., if unoriginal work is submitted, no credit will be given for the paper).

### Support Services:

I encourage you to contact me with any questions you may have about the course materials and the final project. The staff of the Rasmussen Library can assist you with location of necessary reference materials for final project.

### Disability Services:

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities; *please let me know* if you need such accommodations.

### Course Schedule:

Date	Subject
9/1 (Th)	Course Introduction: syllabus, schedule, and organization
9/6 (T)	Climate change: the evidence
9/8 (Th)	Climate change: the mechanisms
9/13 (T)	Climate change: the predictions
9/15 (Th)	Range limits in freshwater species
9/20 (T)	Range limits in marine species
9/22 (Th)	Climate change and range shifts <b>Project Topic Due</b>
9/27 (T)	Metabolic ecology and ectotherms
9/29 (Th)	Temperature and life history: Beverton-Holt invariants
10/4 (T)	Phenology and life history I
10/6 (Th)	Phenology and life history II
10/11 (T)	Changes in fresh water: physical habitat
Date	Subject

10/13 (Th)	Changes in fresh water: biotic interactions, food webs
10/18 (T)	Changes in the ocean: physical habitat
10/20 (Th)	Changes in the ocean: primary productivity, biotic interactions, food webs
10/25 (T)	Changes in the ocean: ocean acidification
10/27 (Th)	Ecological responses to climate change: case studies
11/1 (T)	Ecological responses to climate change: case studies
11/3 (Th)	Alaska Chapter AFS meeting; NO CLASS
11/8 (T)	Evolutionary mechanisms: the theory
11/10 (Th)	Evolutionary mechanisms: the theory II
11/15 (T)	Evolutionary responses to climate change: case studies
11/17 (Th)	Evolutionary responses to climate change: case studies
11/22 (T)	Climate change and commercial fisheries
11/24 (Th)	Thanksgiving Holiday NO CLASS
11/29 (T)	Climate change and subsistence fisheries
12/1 (Th)	Climate change and fishery policy
12/6 (T)	Student Presentations
12/9 (Th)	Student Presentations
12/13 (T)	Final paper due by 5:10 pm