ESM 254 COASTAL MARINE ECOSYSTEM PROCESSES - *Spring 2025*

Lectures: Tuesday & Thursday: 12:30 – 1:45 PM, 1424 Bren Hall

Instructor
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Office Hours
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Coastal marine ecosystems provide a plethora of ecosystem services that 100s of millions of people rely upon. The major objective of the course is to explore local coastal marine ecosystems to learn about ecosystem services and how they are managed. One essential service is of course seafood, the production and management of which is of keen interest to many Bren students and researchers, as well many institutions that hire Bren students. Accordingly, this course will focus on social-ecological processes related to the production and management of seafood resources. Greater than 90% of world fish production come from small-scale artisanal fisheries that are un- or under-managed due to the lack of resources and data, as well as inadequate governmental structure and support. To meet the challenge of providing sustainable seafood and ensuring world food security, many Bren graduates have moved on to a wide range of institutions that are trying to develop sustainable fishery management practices in the developing world. To better prepare those students for this important work, this course will focus on learning the basic science and techniques of "data-poor" fishery management, taught mainly through the lens of Spawning Potential Surveys and the *Barefoot Ecologist's Toolbox*. Students will also learn The Nature Conservancy's approach, through the lens of *Fish-Kit*.

Students have three options for earning a course grade. The first is to write three newspaper article-style essays on marine coastal ecosystem topics of your choice. These need not focus on fisheries. The second option is to learn *Fish Kit* (https://fisheriestoolkit.org/). The third option, is to develop a unique project related to the course objectives. Due to an advantageous Bren course schedule we have the ability to leave early for field trips (To Be Discussed).

Lecture / Reading Assignment Schedule

Week	***Date***	***Lecture Topic/Field Trip destination***	***Reading***
1	April 1	Introduction: The global challenge of overfishing	Video: Dr. Ray Hilborn*
1	April 3	Theories of change: community science for reform	Literature set 1
2	April 8	Basic fisheries biology I	
2	April 10	*Field trip: Greg Olsen's fishing boat (SB Harbor)*	
3	April 15	Basic fisheries biology II	Literature set 2
3	April 17	*Santa Barbara Coastal LTER program (Dr. Bob Miller)*	
4	April 22	Spawning Potential Surveys- the science	Literature set 3
4	April 24	*Field trip: Goleta Beach, seafood resource assessment*	
5	April 29	Spawning Potential Workshop	Literature set 4
5	May 1	*Estuarine restoration science and practice (Dr. Mark Page)*	
6	May 6	*Field trip: Sandy Beach Ecology: IV Beach (Dr. K. Emery)*	
6	May 8	Length Based Assessment using LBSPR	
7	May 13	Data preparation for LBSPR assessments	
7	May 15	*Field trip: Carpinteria Slough Nature Reserve (Dr. Andy Brooks)*	Literature set 5
8	May 20	Making Length Based Potential Ratio Assessments	
8	May 22	*Field trip: Deveraux Slough Restoration Project (Dr. Lisa Stratton)*	
9	May 27	Mock Spawning Potential Survey	
9	May 29	*Field trip: Coil Oil Point Nature Reserve (Dr. Cristina Sandoval)*	
10	June 3	Reforming fishery management with LBSPR	
10	June 5	*Field trip: Whale research cruise (9:30 am-4:00 pm)*	