Fisheries Biology (BIO 458) Lectures MW 2:00 – 3:15pm in Friday 1014 • Text: Marine Fisheries Ecology by Jennings et al. Other readings: papers that I will assign and place on website Grades: Exams, assignments, research paper, presentation, attendance/paper discussion, participation · Attendance is essential Fisheries Biology · Reading: Chapter 1 · Review basic definitions · Introduce aspects of management issues - objectives - strategies - regulations Fisheries biology · Applied ecology - Effects of harvesting on natural communities on a large scale • Emphasis on Population Dynamics - Sustaining a maximum yield · Fisheries management - Fish biology vs. human behavior

Social, economic, and political factorsfishers and fisheries systems conflict often

Fisheries biology

- Why is this important/relevant?
- Increasing importance to 'everyday' life.
 - Evidenced by increased media coverage

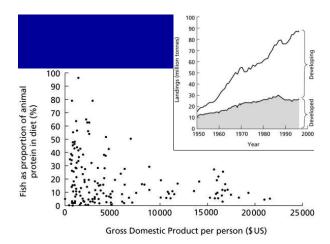






RESEARCH ARTI	CLES	-
Rebuilding Global Fisheries Into Yame "You Fileme" "John K. Sem" "You A. Breed, "Jowes C. Colle." Controlled Confer." (Into A. Sem") "You A. Breed, "Jowes C. Colle." Controlled Confer." (Into A. Sem), John A. Breed, A. Breed, John A. Breed, John A. Breed, "Berned, "And A. Breed, "Berned, "And A. Breed, "Berned, "Berned, Breed, "Berned, "Berned, Breed, "Berned, "Berned, Breed, "Berned, "Berned, Breed, Breed, Breed, Breed, "Berned, "Berned, Breed, Bree		contin no observant to structure the explain- tion test, says, that provides the construction contention has divery for a particle of Palming for MST mode to a mich hierars. Again, that is sharing hyporally all the bear shallowed failures depicted or observant and anothers failures depicted or observant and statistical failures depicted or observant pro- sentation of the property of the con- traction of the contraction of the con- traction of the contraction of the con- traction of the contraction of the con- traction of the policy of the con- traction of the policy of the con- traction of the policy of the con- traction of the contraction of con- mitted con-
Albor à long history of convergitation, herussis- litheries are voite via; Hen, me analyse control perspective, in 5 of 25 with stafferd convenients, in and a mom de in clean the same probleme de anima Vin 537 m et anamand fish mosts new bleekt cold; voit anima anima some site some site establishes of unions objectives com he subdemed the menging discuss and objectives com he subdemed the menging discuss and part resultations, and cheed armost expensation; and the lost of distriction to fielding concluded and the lost of distriction to fielding concluded.	I track tons a fabricia and composition or amongs exploitation sets has recordly disclosed on maximum satisfaction pilot be come against applies challeling, and man how capitalistic not spower. Complained fatricies and association assignment actions, fabricing agists restrictions, in local assets of begans of international finesh proposess that residently all international finesh.	estimated? Middisperse madels can be used to product for offices of anythinton on special composition of the composition of anythinton on special composition, the composition of the composition of the control of the composition of the control of the composition of the control of the composition of
Owner, and a least the measurement of the control o	And the second s	The second secon

2



Common Terms

- Fishery
- Stock
- Stock assessment
- · Fishery science
- Fishery management

What is a fishery?

The human and biological components of a fish harvest system

Who are the participants?

Fish Fishermen
Other fish Processors
Biologists Retailers
Resource managers Public

What is Fishery Science?

The mathematical and statistical approach to the study of fisheries

- ultimately research utilized for an assessment of the stock (management unit)

Fishery Management?

The regulation of fishery stocks to achieve some pre-determined objective

Types of Fisheries

- Artisanal
- Recreational
- Commercial
- Industrial
- Inshore
- Offshore
- · Distant water





Jennings, Kaiser, Reynold Marine Fisheries Ecolog

Common Terms

- Bycatch = unintended catch
- Biomass = total mass (kg) of a stock (determined by N x avg. weight)
- Spawning stock biomass (SSB) = biomass of mature fish
- Spawning stock biomass per recruit = the contribution to the spawning stock biomass expected for an individual fish

Common Terms

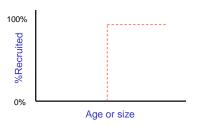
Recruitment

- addition of new members to a group
- can be very specific (recruitment to a given life stage or size)
- e.g., recruitment from egg to larval stage or recruitment to the fishery based on minimum size

Common Terms

• Knife-edge recruitment

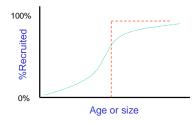
addition of new members over a very short period of time or ages



Common Terms

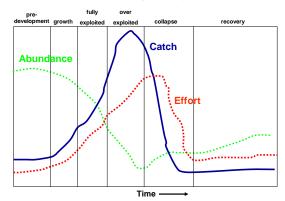
Recruitment ogive

 addition of new members to a group over an extended period of time or age groups.



Common remis	
 Selectivity = capture of fish of certain species or sizes 	
 Growth overfishing = increased harvesting causes reduced yields 	
 Recruitment overfishing = increased harvesting prevents population from replenishing itself 	
Common Terms	
 Maximum sustainable yield (MSY) – maximum average yield obtainable from a single 	
population on a continual basis without affecting the biology of the stock	
Common Terms	
Pelagic fish = in the water column	
 Demersal fish = associated with the bottom Benthic fish = on the bottom (e.g., flatfish) 	
• Benuire fish = on the bottom (e.g., nathsh)	

Phases of Fishery Development



Limitations of the current approach to fisheries management

- · Inability to deal with inherent variability
- Failure to define specific long term management goals
- · Lack of accountability in decision making
- Misuse of biological advice
- Lack of effective involvement by stake holders in decision making