

Overview of Fisheries Conservation and Management

- I. Fishery - intersection among people, ecosystem, and fish assemblage
- II. Definition of Fishery Science - actually this is a combination of several subdisciplines
  - A. Ichthyology - the evolutionary relationships and identification of fish
  - B. Aquaculture - the raising of fish for food and stocking
  - C. Fish Biology and Ecology - the “basic” approaches to fish physiology and behavior; and interactions with the environment
  - D. Fisheries Management - the core subject of this course; a complex field...both a science and an art. Merges all the fishery subdisciplines (A-C).
- III. Fisheries Conservation and Management - we must include both in the objectives for this course. Management often incorporates the concept of conservation.
  - A. Definition of Conservation - almost always involves a naturally occurring, native species
    - 1. Not necessarily “preservation” - preserve in pristine, untouched state
    - 2. Not necessarily “restoration” - restore to pristine, untouched state
    - 3. Rather, use of a resource (in this case fish) in a sustainable manner
    - 4. Avoidance of the extirpation or extinction of a fish species
  - B. Definition of Management - developing strategies for the use of a fish assemblage; does not necessarily involve a conservation ethic (e.g., direct manipulations, put and take fishery)
  - C. Why should managers strive for a conservation ethic?
    - 1. Moral obligation
    - 2. Maintenance of biological diversity
    - 3. Commercial and recreational importance - ECONOMIC is often the most intriguing argument both now and historically
  - D. Commercial use of fish (and other aquatic organisms)
    - 1. Marine systems
      - a. Harvest has reached about 70-90 million metric tons; most stocks are overexploited.
      - b. Marine fish are an important source of protein.
      - c. In the US, Great Lakes and oceans employ at least 300,000 at some level
    - 2. Inland, freshwater systems; Commercial not so important...historical reasons
  - E. Recreational use of fish (in inland and coastal systems in North America)
    - 1. A growing industry, with complex cultural characteristics. Recreational fishing has important implications for local economies...
    - 2. Number of anglers somewhat stable; spending continues to increase
    - 3. Male/Female ratio somewhat stable; 25% of men fish; only about 10-15% of women fish.
    - 4. Extremely important economically
  - F. Protection of fish - not restricted to economically important species; Endangered Species Act passed in 1973 (currently up for re-authorization from Congress).

- IV. Fisheries Management - this is the act of conserving or enhancing a natural resource. The assumption is that the resource is “wild”. But management can incorporate introduced species as well (Pacific salmon in Lake Michigan).
  - A. A combination of approaches
    - 1. Biology/ecology
    - 2. Habitat/environment
    - 3. People
  - B. Why is fisheries management challenging?
    - 1. Natural variation in ecological systems is often high.
    - 2. Time scales are long.
    - 3. Outcomes are uncertain.
    - 4. Conflicting uses of fisheries.
    - 5. Special interests abound.
  - C. System-specific management
    - 1. Oceans - few boundaries; populations are difficult to define. Political and ecological boundaries often do not mesh. High commercial interest.
    - 2. Freshwater - bounded systems. Often under jurisdiction of one government; Commercial interest is low.
- V. Course Overview
  - A. History
  - B. Science tools
  - C. Process of management
  - D. Folding in the human aspect of fish management (Policy)