

History of Fish Conservation and Management

- I. When did fisheries management as we know it come on the scene? And when did the conservation ethic become important? The approach not formally derived until mid 20th century. We are still working on it and.
- II. People have relied on fish as food for most (all?) of human existence. Probably have manipulated their environment or enhanced availability most of this time.
 - A. 14,000-2,500 years ago - fishing was an important source of protein to supplement calories coming from developing agriculture.
 - B. 3,400 years ago - Egyptian rulers were fishing the Nile River solely for recreation.
 - C. 2,500 years ago - Chinese had already adopted aquaculture; primarily carp and other freshwater fishes as a protein source.
 - D. 800-1400 AD - Europeans caught on to aquaculture and began producing fish for food.
 - E. 1500s - 1900s AD - the colonization and domination of North America by Europeans. Much of this was fueled by abundant Atlantic cod in the North Atlantic. Commercial market for cod in Europe (e.g., leading to the rise of the powerful merchant class in New England) and cod became important, cheap source of food for the southern US and Caribbean (e.g., to fuel slave labor on sugar plantations).
- III. Rise of fisheries management in North America
 - A. Before the American Revolution
 1. Early conservation ethic fueled by the view that fish resources on private lands were public property. Individual ownership did not begin until a fish was caught and in hand. Very different than in many places in Europe where the fish were believed to be owned by the land baron or feudal king.
 2. This belief in public ownership was a direct way for government to exert control over natural resources and also the weapons used to harvest them.
 3. Many colonial governments allowed direct access to private waters and passed ordinances to allow trespass on private property to gain access to ponds under town ownership.
 - B. After the American Revolution
 1. The public ownership ethic remained. The states assumed most control over the fish in local waters.
 2. In Canada, both the federal and provincial governments control the fish. Interesting legal problems.
 3. In Mexico, the federal government has sole control.
- IV. Timeline - Why the government must implement control over fisheries
 - A. Early colonial interest was mostly commercial not moral (conservation-minded)
 - B. 1639 - Massachusetts Bay Colony was already concerned about overfishing of striped bass and Atlantic cod
 - C. 1800-1930 - rise in human population size and demand for fish as food was a growing problem, particularly in inland freshwater systems.
 1. Fishing was done primarily for commercial rather than recreational

- purposes in freshwater.
 - 2. The solution to overfishing was
 - a. Fish culture and stocking - the widespread distribution of common carp
 - b. Closed fishing during spawning
 - c. Hatcheries were the first widespread fish management tool
 - 3. As a function of the stocking ethic, the American Fish Culture Society was formed in 1870. Later became the American Fisheries Society (AFS).
- D. North American inland fisheries in the 1800s
 - 1. Few lentic (standing water) systems in the US. Rivers were the predominant source of fish.
 - 2. Commercial fishing the rule ... in Iowa, 1.8 million kg of fish harvested in 1886
 - 3. Technology of fishing was growing. Gill nets, trap nets, otter trawls.
- E. 1856 - Massachusetts creates a prototype fish commission
- F. 1871 - 10 states (mostly coastal ones) have fishery commissions; the game warden becomes the executive branch.
- G. 1870s - the US Office of Fisheries rises; Spencer Baird is the first commissioner.
- H. By 1930, fish populations are on the decline both in marine and inland systems. The belief that stocking and protecting spawning are appropriate management tools loses support. RISE OF RESEARCH IN MANAGEMENT.
- I. Science on the rise in late 19th and early 20th centuries
 - 1. Ecology was on the rise... Stephen Forbes - Illinois Natural History Survey - was arguing that we must view lakes holistically to really understand how they work.
 - 2. Limnology was on the rise...Chauncy Juday and Edward Birge at University of Wisconsin at Madison were developing field techniques
- J. By the 1930s, Fish Management was incorporating these scientific ideas
 - 1. Homer Swingle - Auburn University - basic community interactions in farm ponds
 - 2. Ralph Eschmeyer and Carl Hubbs - looking at the affect of habitat on fish success; they did not subscribe to closed spawning seasons, because they did not seem to work.
- K. 1926 - Black Bass Act effectively killed commercial fishing in inland waters.
- L. 1940s-1960s - Recreational fishing in inland waters on the rise. Leisure time....
- M. By the 1950s, mathematical approaches were on the rise
 - 1. Beverton and Holt
 - 2. Ricker
- N. 1950 - Dingell-Johnson legislation... formally called the Federal Aid in Sport Fish Restoration Act.
 - 1. 10% excise tax on all fishing equipment
 - 2. Federal government collects and redistributes to the states based on fishing license sales.
 - 3. For every \$75 the federal government gives the states, \$25 must be matched.
 - 4. By 1985, a total of \$485 M had been distributed to the states.
- O. 1960s-1970s - Fisheries research on the rise. Universities become more

populated and research becomes a focus. D-J funds are used in part for fisheries research.

1. Computers become more available
 2. Professionals in the states increase (reason for lots of recent retirements in agencies)
 3. Concepts such as MSY rise; maximize fish biomass by cropping off the large, unproductive individuals in a population (more on this in later lectures)
- P. 1970s to present
1. MSY does not work; replaced by OSY concepts; quality (size structure is important as well); also recognition that population dynamics are not the only important variable. (Again, more to come during the course)
 2. Ecosystem approaches become more prevalent
- Q. 1985 - Wallop-Breaux amendment to the D-J Act greatly expands fisheries dollars. Tax on marine fuel. Includes other user groups than anglers.
- R. 1992 - \$332 M was distributed to states in one year.
- S. Ecology, conservation, and management intersect.
- T. Other legislation...the future of fisheries support in North America and the world