

Biology 541 – Ecology of Fishes and Fisheries Biology
Lecture 17 – Introduction to Fisheries Concepts

Fisheries = exploited species, including fishes

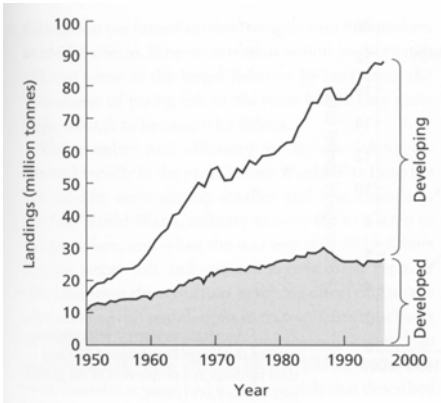
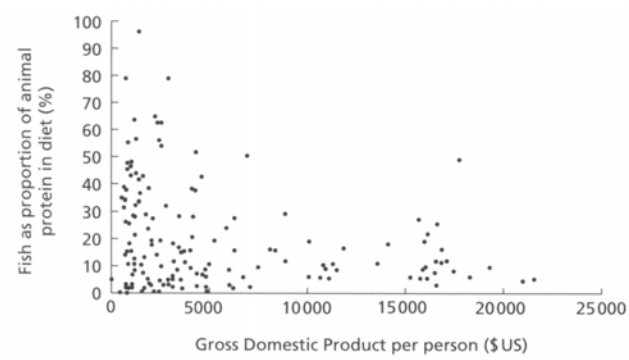
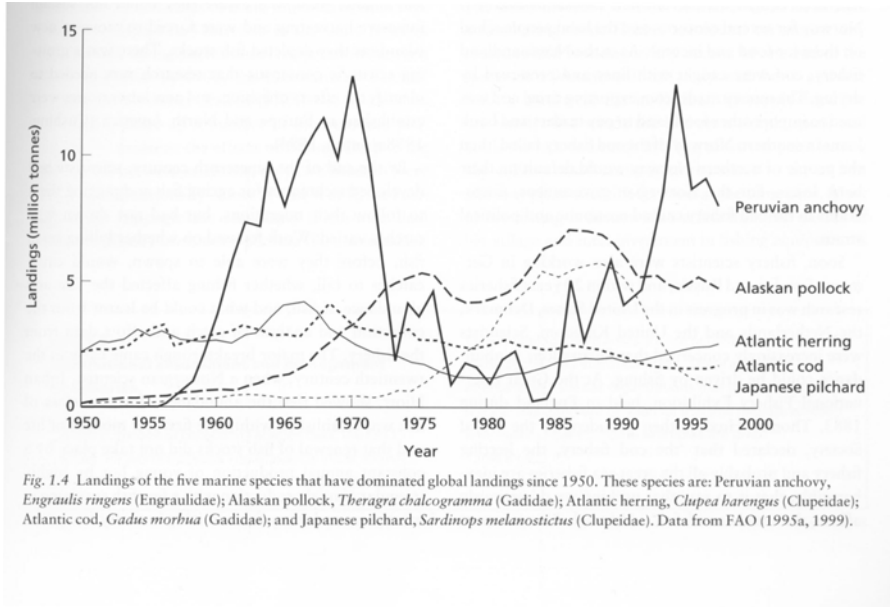


Fig. 1.3 Landings of marine fishes and invertebrates by economically developed countries (shaded) and developing countries (unshaded). Data from OECD (1997) and FAO (1999).

Fisheries biology =

Basic research =

Applied research =

Scope of fisheries biology research

Basic research

(1) Descriptive biology

(2) Ecology

Applied research

(1) Stock assessment

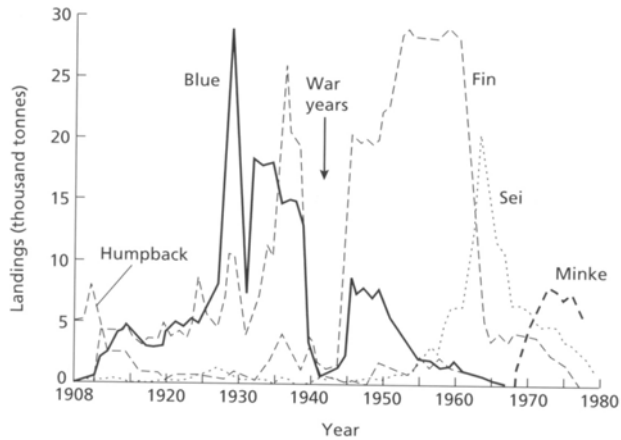
(2) Control of fishing

(3) Aquaculture

(4) Environmental protection

(5) Fishing strategies

(6) Fish preservation and marketing



Stock concept: stock = an exploited fish population, which is synonymous with population in an ecological sense – a group of individuals with unimpeded gene flow.

Unit stock

Stock assessment

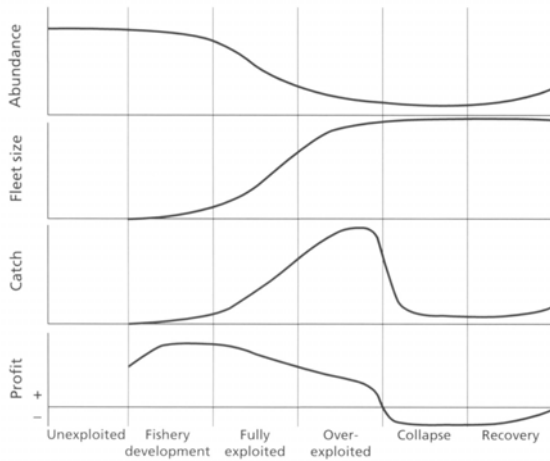
Models

Effects of Fishing On a Population

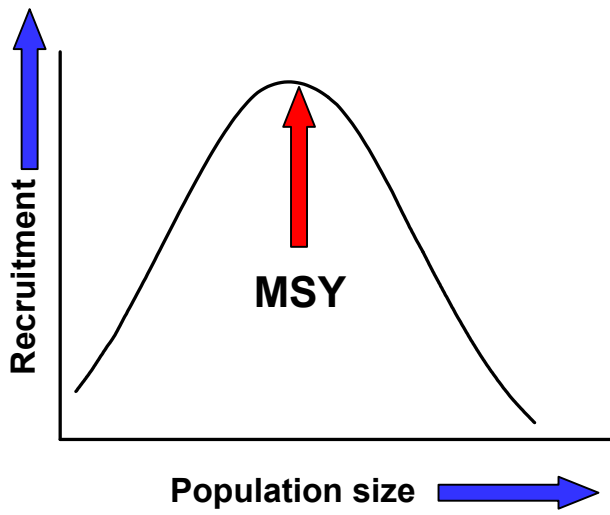
Effects of fishing on a stock of fish over time and the resulting catches from that stock, all else being equal, are very simple:

Rise (and fall) of a fishery

- (1) **Fishery development**
- (2) **Fully exploited phase**
- (3) **Overexploitation**
- (4) **Collapse**
- (5) **Recovery**



Maximum Sustainable Yield (MSY)



Growth overfishing –

Recruitment overfishing –

MSY serves three functions:

- (1) a description of the facts of life regarding fish stocks relative to exploitation
- (2) a clearly definable objective of management
- (3) a measure of the success with which a stock is being managed

Problems with using MSY:

