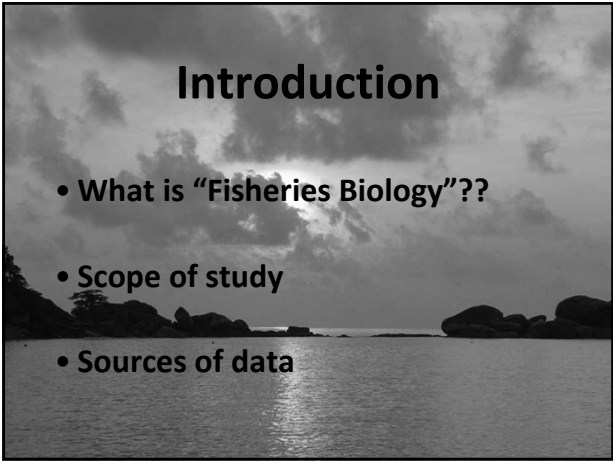# Introduction

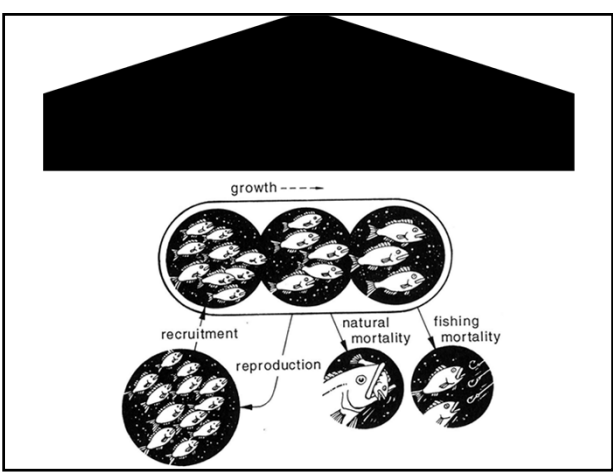- What is "Fisheries Biology"??

- Scope of study

- Sources of data

Why we have to study fisheries biology?

- Fisheries Resource = Food Security = Protein Source of the World

- Fishereis Resources: Limited but Renewable

- Stock depletion

copyright 2002

growth

recruitment

reproduction

natural mortality

fishing mortality

Scopes of Fisheries Biology

David Henry Cushing, 1920-2008

Scope of Fisheries Biology

- Cushing (1968)
  - Population biology
  - Population dynamics

SUMAFISH 2002

Population Biology

- Study on biology of population e.g. taxonomy, behaviors, reproduction, feeding, migration etc.
- Aim: Population Identification

SUMAFISH 2002

Population Dynamics

- Study on dynamics (=quantitative changing) of the population e.g. growth rate, mortality rate etc.
- Aim : Assessing the effect of fisheries to fishery resources (short term and long term)

Population Biology

Support

Population Dynamics

Importance of Fisheries Biology

- Optimum fishing level
- Decision making for Policy Makers
- Management Purpose
- Conservation Purpose
- Sustainable Utilization

Caution!!!!

Reliable Data = Right Management

We are 'Tropical'

- **Types of data need in Fisheries Biology**
  - Age-based Data
  - Length-based Data
- **In Tropical**
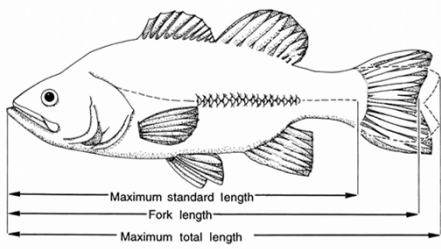 - Unable to aging according to lack of strong seasonality

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We are 'Tropical'

- **Temperate: Start from age to length**
  - *Age-based analysis*
- **Tropical: Convert from length to age**
  - *Length-based analysis*
- **Length-based Data**
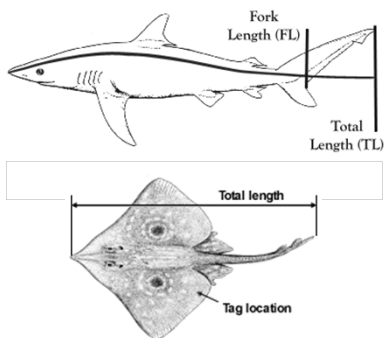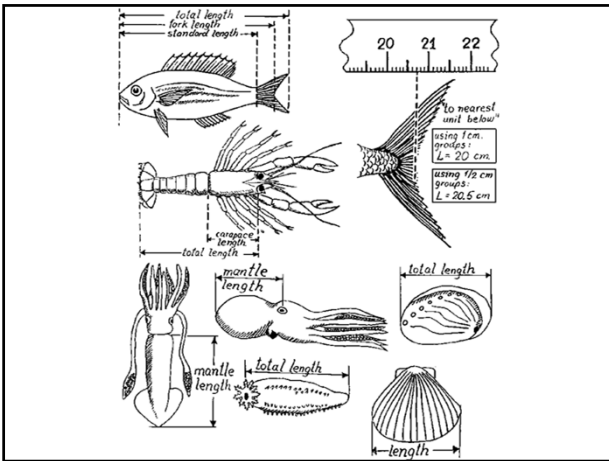 - Need reliable sampling
  - Unbiased data

Challenge!!

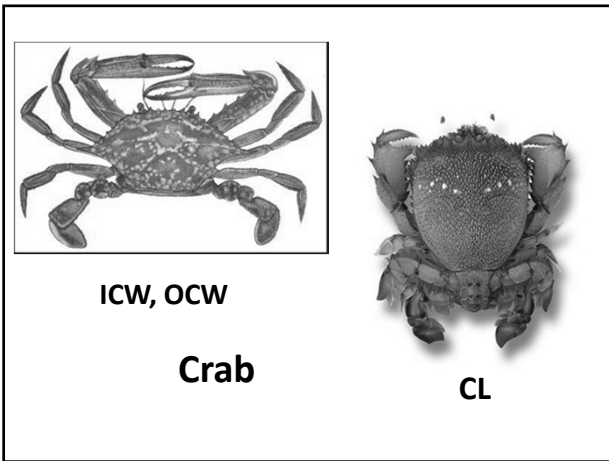**How to measure 'Length'**
Your length = My length?

Bony Fish

Maximum standard length
Fork length
Maximum total length

Catelagenous Fishes

Fork Length (FL)

Total Length (TL)

Total length

Tag location

ICW, OCW

Crab

CL

Sources of Data

- Field Survey

- Commercial Data

- Experimental Data

Commercial Data

- **Species composition (species, area)**
- **Fishing Gears**
- **Fishing Effort**
- **Length Frequency Data (LFD)**
- **Biological Data**
- **Fishing Log Data**
- **Catch Landings**

Surveyed Data

- **Oceanographic Data (physical, chemical, biological)**
  - **Plankton**
  - **Benthos**
  - **Fish Larvae**
- **Limnological Data**
- **Aging Data (hard part)**
- **LFD**
- **Standard fishing gears**

THE END