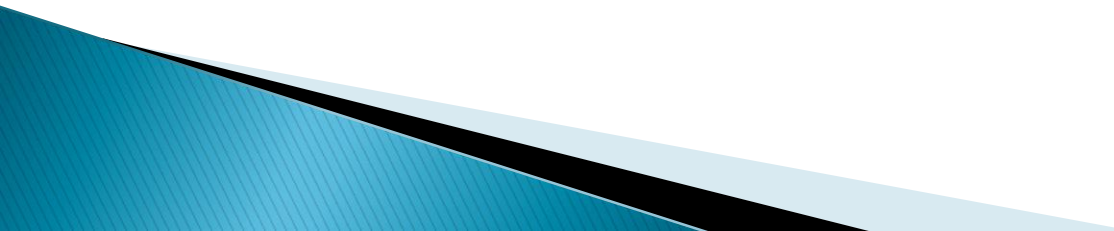


Fisheries management

Practical Exercise

This module was modified from materials developed by WWF's Responsible Fisheries Program in South Africa. We thank them for sharing their materials.

Objectives:

- ▶ State the primary goal of fisheries management
 - ▶ Explain what can happen when fisheries management is absent
 - ▶ List 3 types of effort controls
 - ▶ Describe how the biology of the fish can be impacted by fishing
- 

Exercise 1:

- ▶ Four people per group
 - One fisher (spoon is your fishing device)
 - One fisheries manager
 - Two observers (record keeper)
- ▶ Start game with 110 fish (remove 30 white beads & 11 odd shaped 'beads' & set aside for later)
- ▶ Unlimited fishing for 30 seconds
- ▶ Record catch and remaining fish

What have we learned?

- ◉ Uncontrolled fishing leads to a long-term reduction in catch / remaining stock
- ◉ Need sustainability (goal of fisheries management)

Is this what the real world looks like?

- ▶ No, because fish breed each year
- 

Exercise 2:

- ▶ Four people per group
 - One fisher
 - One manager
 - One fish recruiter
 - One observer (record keeper)
- ▶ Start game with 110 fish (white beads)
- ▶ Unlimited fishing for 30 sec
- ▶ Fish breed at a rate of 3 fish/5 sec
- ▶ Record catch and remaining fish

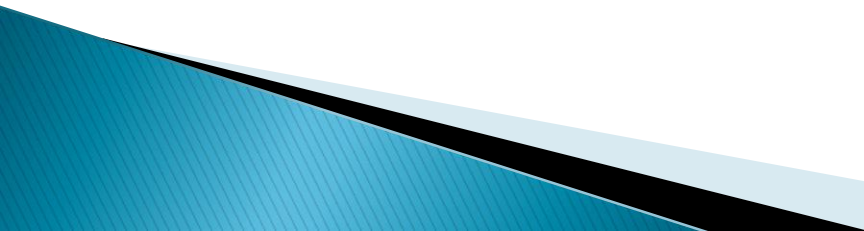
What have we learned?

- ▶ Adding in recruitment still didn't compensate completely for uncontrolled catches long term

What controls could we add to ensure continued fishing?

- ◉ Lets try keeping a breeding population to maintain stock from year to year

Exercise 3:

- ▶ This time leave a breeding stock of ~25 fish (fisheries manager)
 - ▶ Start: 110 fish
 - ▶ Unlimited fishing for 30 seconds
 - ▶ Fish recruit/breed at a rate of 3 fish/5 sec
 - ▶ Record catch and remaining fish
 - ▶ Repeat for three seasons
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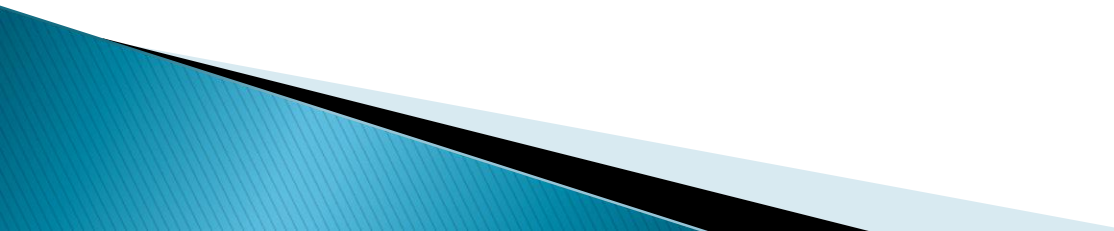
What have we learned?

- ▶ This allows continued fishing from yr to yr
- ▶ Total allowable catch or TAC

What controls could we add to ensure continued fishing?

- ◎ Fishing effort controls – days, gear, trips, amount/trip

Exercise 4:

- ▶ This time fishing is limited to 12 scoops (per year)
 - ▶ Start: 110 fish (white beads)
 - ▶ Fish recruit/breed at a rate of 3 fish/5 sec
 - ▶ Record catch and remaining fish
 - ▶ Repeat for three seasons
- 

What have we learnt?

- ▶ Total Allowable Effort or TAE

Is this the what the real world looks like?

- ⦿ No, because there is more than just type of animal in the ocean
- ⦿ Lets add another species that breeds at a slower rate

Exercise 5:

- ▶ Start game with
 - 110 fast breeding fish (white beads)
 - 6 slow breeding fish (odd shapes)
- ▶ Fast breeding fish breed at a rate of 3 fish/5 sec & slow breeding at 1/15 sec
- ▶ Effort limited: 12 scoops
- ▶ Fish for 3 years
- ▶ Record catch and remaining fish

What have we learnt?

- ▶ A rate that's sustainable for one species may drive another species to extinction

How can we manage a multi-species fishery?

- ⦿ Precautionary catch limits
 - ⦿ Gear restrictions
 - ⦿ Closed areas
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Summary:

- ▶ What's the primary goal of fisheries management?
 - ▶ Explain what can happen when fisheries management is absent
 - ▶ List 3 types of effort controls
 - ▶ Describe how the biology of the fish can be impacted by fishing
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