WILDTRUST™

SMALL SCALE FISHERS

MODULE 03

SESSION PACK

SESSION PLAN: STOCK LIMITS

SESSION OBJECTIVES:

Learners are exposed to what stock control is and how and why bag limits are determined as well as an appreciation for the fact that some elements cannot be controlled in the process.

NOTES FOR THE FACILITATOR:

Catch or bag limits are set to ensure that each person collects a limited number of fish or shellfish to prevent over-fishing/harvesting. This is known as ‘sustainable fishing’. The authorities provide permits (license) and can track the number of people fishing/harvesting and the available supply of species. This prevents people taking too many fish and ensures there will be enough to feed people in the future.

INTRODUCTION ACTIVITY:

Show the learners a picture of a cake and get them to shout out how many slices they would like. Have learners think of catch or harvest limits like the rules you might have when you're sharing a cake with friends. If everyone takes too many slices, there won't be enough for everyone, and eventually, there won't be any cake left to enjoy. But if everyone sticks to a reasonable amount, everyone gets a fair share, and there will be cake for future hangouts.

MAIN ACTIVITY: The Bean Game

Resources required:

1 x bag of beans (or any upcycled item like bottle caps that you can collect, you will need roughly 200 units) Each bean (or unit) represents a fish (or shellfish), and the bag of beans is the entire fish stock for the game.

2 x dice

1 x blank data sheet provided below and a pen

How to play:

Divide the class into 7 groups and assign each group a role: Harvester, Poacher, Natural death, Recruitment, Manager, Scientist & Monitor

Each year is round of play

1. For round one (year one) start with the harvester who decides on the number of fish to be harvested that year. They then remove this number of beans (fish) from the bag of beans and the monitor records the number removed on the data sheet.
2. Second to play each year is the poacher, who rolls the dice. Whatever number is rolled that number of beans (fish) is removed from the bag and recorded on the data sheet by the monitor
3. Third to play is, natural death, who also roll the dice and again whatever number is rolled is removed from the bag and the recorded by the monitor.
4. Fourth to go is recruitment (babies), who roll the dice, whatever number appears, they then add this number of beans (fish) back into the bag of beans as recruits into the fish stock, (i.e. there is new fish available to catch). The monitor records this number on the datasheet.
5. Repeat steps 1-4
6. At the end of year 2 (round 2) the manager determines the stock size left by counting the remaining beans in the bag and checking the data sheet. Together with the scientists they work out the bag limits (quantity of beans (fish) that can be harvested in the following years to help the stocks replenish or remain sustainable. This step is done every two years.
7. After 8 rounds (years) plot the data onto a graph showing changes in stock size over the years
8. Repeat the exercise as many times as required or time allows.

CLOSING ACTIVITY:

Have a discussion with the learners to check they have understood the concepts around stock limits. Here are some guiding questions:

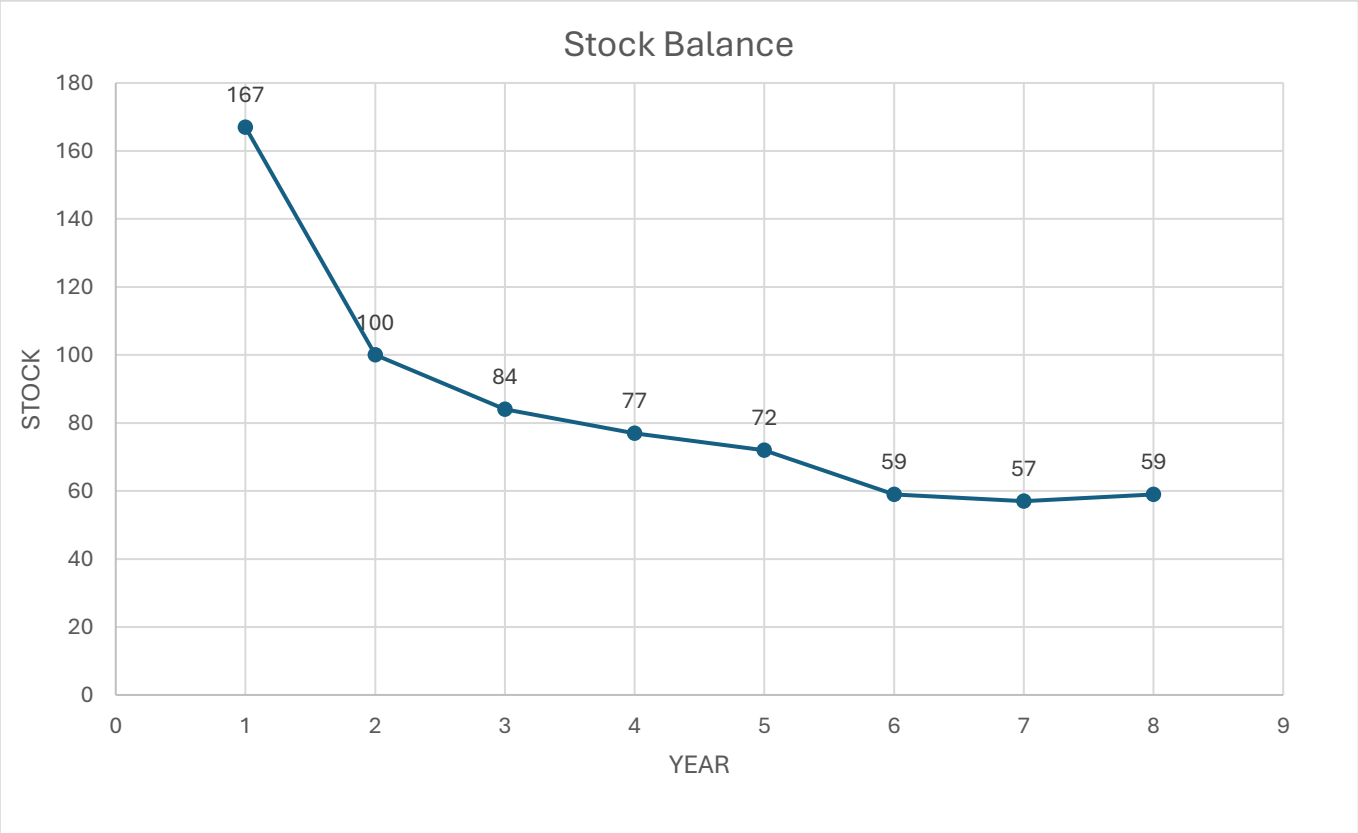
- Which elements are out of our control?
- How much stock can be harvested sustainably?
- Can effective bag limits be determined without data?
- Do you think if areas were closed from harvesting for a few years, they would recover?
- How do you feel about stock control and bag limits?

Blank data sheet for monitor

Year	**Harvested**	**Poached**	**Natural death**	**Recruitment (babies)**	**Stock balance**
1	(decided by harvesters)				
2	(decided by harvesters)				
3	(decided by management/scientist)				
4	(decided by management/scientist)				
5	(decided by management/scientist)				
6	(decided by management/scientist)				
7	(decided by management/scientist)				
8	(decided by management/scientist)				

An example of a record sheet and associated graph after 8 rounds / years of play

Year	Harvested	Poached	Natural death	Recruitment (babies)	Stock balance
1	25 (decided by harvesters)	12 (dice)	4 (dice)	8 (dice)	200-25-12-4+8=167
2	60 (decided by harvesters)	10 (dice)	8 (dice)	11 (dice)	167-60-10-8+11=100
3	10 (decided by management/scientist)	4 (dice)	4 (dice)	2 (dice)	100-10-4-4+2=84
4	10 (decided by management/scientist)	3 (dice)	6 (dice)	12 (dice)	84-10-3-6+12=77
5	5 (decided by management/scientist)	5 (dice)	2 (dice)	7 (dice)	77-5-5-2+7=72
6	5 (decided by management/scientist)	10 (dice)	3 (dice)	5 (dice)	72-5-10-3+5=59
7	0 (decided by management/scientist)	12 (dice)	2 (dice)	12 (dice)	59-0-12-2+12=57
8	0 (decided by management/scientist)	4 (dice)	4 (dice)	10 (dice)	57-0-4-4+10=59



Curriculum and Assessment Policy Statement Alignment

SSF Modules				Module - CAPS Alignments							
Module	**Topic**	**Objective**	**Activity**	**Section**	**Grade**	**Subject**	**Strand**	**Topic**	**Content & Concepts**	**Tasks**	**Term**
1	Rocky shores ecosystem interactions	The aim of this session is to demonstrate the relationship between living and non-living organisms in the rocky shore ecosystem as well as a basic food web and the relationship between harvesters and the ecosystem.	Rock pool activity	Senior Phase	Grade 7	Social Sciences	Geography	Natural resources and conservation in South Africa	Natural resources: on earth – including water, air, forests, soil, animal and marine life- Use and abuse of selected examples	Matching, Making connections bettwen causes and effects	4
2	Sustainable utilization (harvesting)	The aim of this session is to illustrate the concept of sustainable utilization (harvesting) by using the worm model.	Worm model	Senior Phase	Grade 7	Social Sciences	Geography	Natural resources and conservation in South Africa	Natural resources: Use and abuse of selected examples	Writing, short answers Making connections bettwen causes and effects	4
3	Stock limits	Learners are exposed to what stock control is and how and why bag limits are determined as well as an appreciation for the fact that some elements cannot be controlled in the process.	Bean game	Senior Phase	Grade 7	Social Sciences	Geography	Natural resources and conservation in South Africa	Management of resources: Concept of conservation – including reasons for conservation as well as Conservation areas (including marine reserves)	Answering questions, Working with data (graphs and tables)	4
4	Mussel biology	The aim of this session is for the learners to understand the mussels biology and life cycle and to appreciate that they are slow growing and require time and resources to reproduce in order to replenish stocks.	Mussel story and game	Senior Phase	Grade 7	Natural Science	Live & Living	Biodiversity	Basic differences in processes such as movement, nutrition and reproduction, distinguishes plants from animals		1
				Senior Phase	Grade 7	Natural Science	Live & Living	Variation	individuals of the same species can reproduce to make more individuals of the same species		1
				Senior Phase	Grade 7	Natural Science	Live & Living	The biosphere	*Living things need energy, gases, water, soil (rocks) and favourable tempratures. *Living things are suited to the environment in which they live		1
5	Cooperative resources use and stewardship	The aim of this session is for the learners to understand the need for cooperative use and stewardship over finite resources	Commons dilemma lake fishing game	Senior Phase	Grade 7	Social Sciences	Geography	Natural resources and conservation in South Africa	Management of resources: Concept of conservation – including reasons for conservation as well as Conservation areas (including marine reserves)	Itentifying and discussing issues, evaluating ideas and actions writing paragraphs	4