

E-training tool assignment

Supra-category: IOTC ROS Scientific Field Observer Training (IOTC ROS SFO)

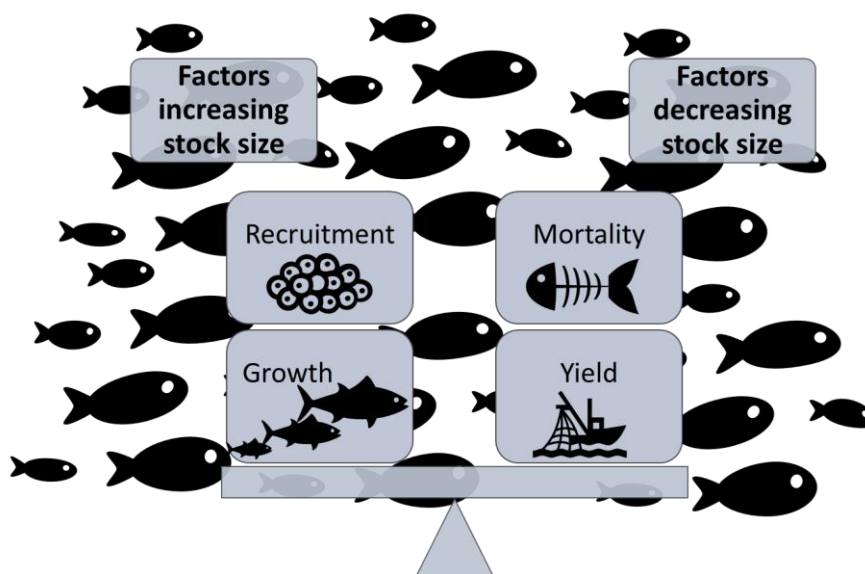
Category: Fisheries management (IOTC ROS SFO TR1.1)

Course: Basic concepts of fisheries management and IOTC specificities (TR1.1)

Collective assignment

Assignment objective:

This assignment aims to provide trainees with the required knowledge on the basic concepts of fisheries management. The focus is in particular on fish stock, recruitment, yield, mortality and overfishing, with the understanding that there is a need for fisheries management (i.e., to regulate when, where, how, and how much fishermen are allowed to catch) to ensure that there will be fish in the future.



Material:

- Marbles



- 3 plastic cups



- 2 large salad bowls



- 1 stopwatch



- 3 large spoons



- Pen and paper



Instructions:

1. Divide the marbles among the two large salad bowls. One bowl represents the fish population (*stock*) that exists in the sea, the second bowl represents *fish recruitment* (i.e., the young fish coming into the fish *stock*).
2. Select 1 person to represent the *fishermen*. Give this person a spoon and a cup that will be used to fish marbles (the *fish*) from the salad bowl representing the *fish stock* that exists in the sea. The spoon represents the *fishing gear* and the cup the *fishing vessel*. The fish caught by the vessel is the *yield*.
3. Select a 2nd person to represent *fish recruitment*. Give this person a spoon and the 2nd salad bowl with marbles. This person will add *fish* (marbles) to the population of *fish* in the sea (1st bowl of marbles) increasing in this way the size of the *fish stock*.

4. Select a 3rd person to represent *fish natural mortality*. Give this person a spoon and a cup. This person will remove *fish* (marbles) from the 1st bowl of marbles (population of fish in the sea) decreasing in this way the size of *fish stocks*.
5. Select a 4th person to represent the *Government*, give this person the stopwatch. This person will control the time the *fishermen* spend fishing and will ensure that the *fishermen* respect the fisheries regulations.
6. Select a 5th person to represent the *fisheries scientist*, give this person the pen and paper. This person will record, for each of the situations detailed below, the fisheries legislation, the time the *fishermen* spend fishing and the number of cups fished.

CASE	Fisheries legislation	Fishing time (in seconds)	Recruitment	Natural mortality	Quantity fished (in cups)	Sustainable? (Y/N)	Overfishing? (Y/N)
A	no rules and regulations	30 sec		1 spoon every 10 sec			
B	no rules and regulations	30 sec	2 spoons every 5 sec	1 spoon every 10 sec			
C	time closure	60 sec	2 spoons every 5 sec	1 spoons every 10 sec			
D			2 spoons every 5 sec	1 spoon every 10 sec			
E							

Cases to be illustrated:

- A. No fisheries management rules and regulations in place.
 - i. For 30 seconds, the *fishermen* can fish as much as they want, without any limitation.
 - ii. Natural mortality – Yes, at a rate of 1 spoon every 10 sec
 - iii. Recruitment - No
- B. No fisheries management rules and regulations.
 - i. For 30 seconds, the *fishermen* can fish as much as they want, without any limitation.
 - ii. Natural mortality – Yes
 - iii. Recruitment - Yes, at a rate of 2 spoons of fish, every 5 seconds.
- C. The Government imposes a time closure, allowing fishing for periods of 10 seconds followed by another 10 seconds without fishing.
 - i. The *fisherman* can fish as much as he wants for 10 seconds and he is obliged to stop fishing for the following 10 seconds and so forth until he reaches 60 seconds.
 - ii. Natural mortality – Yes
 - iii. Recruitment - Yes
- D. The Government imposes a time closure and a maximum catch value of 1 cup per vessel per 10 seconds fishing period.
 - i. The fisherman can fish as much as he wants for 10 seconds and he is obliged to stop fishing for the following 10 seconds and so forth until he reaches 60 seconds.
 - ii. For each of the 10 second fishing periods, the fishing is limited to 1 cup.
 - iii. Natural mortality – Yes
 - iv. Recruitment - Yes