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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Oyster Biology and Ecology Training



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THE
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Cover photo: Participants in a group picture receiving instructions (Credit: Development Action Association)

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ACRONYMS

DAA	Development Action Association
MOFAD	Ministry of Fisheries and Aquaculture Development
OBET	Oyster Biology and Ecology Training
SFMP	Sustainable Fisheries Management Project
USAID	United States Agency for International Development

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SUMMARY

In November 2016, DAA as part of its post-Senegal-Gambia visit embarked on a sensitization exercise for oyster pickers in Bortianor communities, after initial visits to other stakeholders to prepare their minds on the need to manage the Densu-Delta oyster resource in order to enhance their livelihoods and preserve the oyster resources for posterity. The oyster pickers were interested for change so they decided to form an association. The association was the DAA Oyster Group.

The members' enthusiasm was shortly followed with a Participatory Rural Appraisal (PRA) which was led by consultants from Gambia Try Oyster Women to help understand how these oyster pickers go about the oyster farming and to help tease out the possible measures to be used for the resource management. In order to help the oyster pickers acquire in-depth knowledge and be committed to issues of managing the oyster resources, training on Oyster Biology and Ecology was given members of the group. The training was conducted in groups, with a total number of 150 trainees as the target. The training started from 4th April to 3rd May with 5 different groups; each group consisting of 30 members trained for 2 days. The training was successful as a result of feedback from the participants of the various groups.

1.0 BACKGROUND

It is very imperative to let people have some level of knowledge on things around them; especially in the management of natural resources. Therefore there was the need to carefully study how this natural resource came to be, how they were formed; and the immediate conducive environment for their development as well as what affects the resource. The Oyster Biology and Ecology Training was to help the pickers know better about oysters, to help them know how they can contribute to managing the oyster resources.

1.1 Training Objectives

The objectives of the training were to:

- Understand what is meant by oyster biology and ecology.
- Demonstrate how oysters reproduce, feed, excrete and grow.
- Know where oysters live and grow.
- Understand estuarine dynamics and how they have an impact on the growth of oysters.
- Share ideas on how the oyster resources can be managed by the pickers.
- To suggest possible laws that can be used in managing the oyster resource.

1.2 Expected Outcomes

Expected outcomes of the workshop included:

- Lessons learned from Biology and Ecology Training.
- Further plans to having an oyster management plan.

2.0 TRAINING SESSION

The training which had 150 participants as the target had a total of 140 participants at the end of training for the five (5) groups. The total number of male participants is 24 while female participants were 116. The training started from 4th April to 3rd May 2017 at the DAA interim Fisheries Training Center. The training was facilitated by Shiela Fynn-Korsah of the Department of Fisheries and Aquatic Science, University of Cape Coast.

Each group was taken through lessons on oyster biology and ecology. Each participant reported for training for two days. The training sessions were in local languages (Akan, Ewe

and Ga). The facilitator used the Akan language with translations into Ga and Ewe languages. However the most preferred language for the participants was Ewe.

The participants were made to know that any fish like oysters which is enclosed in shells is referred to as a shell fish. Participants were also taught that oysters are bivalve shell fishes since their shells are of two halves.

The lessons touched on the importance of oysters, including their high protein content, the copper and iodine content of the meat recommended for people with anemia. Oyster contains iodine for thyroid activities, and has aphrodisiac properties. The oyster shells serve as calcium for poultry feed; used also for terrazzo, painting, building concrete and treatment of burns. Each group motivated themselves uniquely and the overall participation was overwhelming.

2.1 Oyster Ecology

The habitat of oysters is lagoon or the estuary, oysters live on sandy bottoms, on the roots of mangroves and rocks. Oysters cannot survive in purely sandy or muddy bottoms. The ecology of oysters was extensively discussed to broaden the knowledge of the participants on the habitat of oysters so as to make them aware of the relevance of the pickers being mindful of their activities that may affect oyster habitat.

2.2 Oyster Biology

The oyster biology consisted of reproduction, feeding, respiration and excretion.

Some participants believed that the mud and sand mixes up to form oysters, while others opined that oysters come to being when salt and fresh water mixes; but the training helped participants to understand that oysters just as with all living things have males and females where the male oysters produce spermatozoa while the females produce eggs into the water. The moving water brings both the released spermatozoa and egg to meet due to the sessile nature of oysters. The coming together of both spermatozoa and egg undergoes changes to produce a spat which feeds and grows into oysters.

A male oyster is determined by its sticky liquid content released when punctured while the female oyster is determined by a yellowish liquid content which flows easily when punctured.

The trainees understood that oysters feed on phytoplankton; and there was a visual demonstration on oysters feeding and their mode of respiration and excretion.

2.3 Estuarine Dynamics

Participants were taken through the estuarine environmental factors that the growth of oysters is dependent on. In estuarine systems, salt water mixes with fresh water. The facilitator explained this system, the influence from the marine water and fresh water with its variable characteristics are presented in the system.

Just as in the case of all living organisms, oysters also depend equally on environmental factors in estuarine systems for survival. Participants were taken through the various estuarine factors and how these factors are measured, namely turbidity, salinity, dissolved oxygen, temperature, tide and pH.

The estuarine dynamics was treated to enable participants know how human activities can directly affect the functions of these factors.

The participants were taught the meaning of the factors as:

- Turbidity is checking how dirty or clean the water body is.

- Salinity is the measurement of salt content in the water.
- Dissolved oxygen is the measurement of oxygen in the water.
- Temperature is the degree of hotness or coldness of the water.
- The measurement of whether the water is acidic or basic indicates the pH level.
- Alternate rising and falling of the sea is Tide.

Participants were made to understand that all these factors can affect the growth of oysters, where turbidity, pH and dissolved oxygen can be affected by the act of disposing of waste into the water bodies.

3.0 FIELD ACTIVITY

On day two of each training, participants undertook field trips for monitoring of physico-chemical parameters. This is to practically demonstrate how the estuarine environmental factors are measured. Participants in every group were put into subgroups for this exercise.

4.0 OYSTER MANAGEMENT

The participants were taken through what management means and were made to suggest possible means they deem fit to manage the oyster resources.

Management means the act controlling all activities related to a resource, in order to ensure the well-being of the resource for the benefit of all.

The individual groups admitted that to successfully manage the oyster resources, they as pickers ought to attempt protecting the oyster resource in order to win the commitment of other stakeholders.

The participants on the other hand believed that before the oyster resource can be managed well, there must be rules and regulations to be used to monitor all activities related to it. The participants also agreed that provided rules and regulations must be obeyed, they must be the immediate people to abide by the set rules.

The groups suggested the following for consideration as rules towards managing the oyster resource:

- Mangroves plantation.
- Closed seasons.
- Avoid disposal of refuse into the water body.
- Closed areas.

There was group work to demonstrate the relevance of team work and how the participants need each other to be able to manage the oyster resource.



Figure 1. A section of participants receiving instructions from the facilitator



Figure 2. A section of participants



Figure 3. A section of participants involved in group exercise



Figure 4. Participants learning to use physico-chemical parameters monitoring kits



Figure 5. A section of participants in a group pose with facilitator

5.0 CONCLUSIONS

The training was very interactive; the facilitator gave room for participants to contribute their knowledge on every topic. Participants were very impressed with the training and gave meaningful feedback. It was noted that it is very prudent to use the commitment of the DAA Oyster Group to facilitate actions in having an oyster management plan.

ANNEX

Program

OYSTER BIOLOGY AND ECOLOGY TRAINING

DATE: 11TH JULY, 2017

VENUE: DFTC

TIME: 10:00 am

DAY ONE

TIME	PROGRAM
8:00am	Arrival and registration
9:30am	Opening prayer
9:35am	Introduction
9:40 -11:30am	Oyster Ecology
11:30am	Snack break
12:00pm	Oyster Biology
1:00pm	Group work and presentations
1:45pm	Oyster Management
2: 30pm	Group discussion
3:00pm	Lunch
3:30pm	Prayer and closing