



USAID | GHANA
FROM THE AMERICAN PEOPLE

SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Profiling of Oyster Fisheries Report



FEBRUARY, 2017

THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
OF OCEANOGRAPHY



Development
Action Association

This publication is available electronically in the following locations:

The Coastal Resources Center

http://www.crc.uri.edu/projects_page/ghanasfmp/

Ghanalinks.org

<https://ghanalinks.org/elibrary> search term: SFMP

USAID Development Clearing House

<https://dec.usaid.gov/dec/content/search.aspx> search term: Ghana SFMP

For more information on the Ghana Sustainable Fisheries Management Project, contact:

USAID/Ghana Sustainable Fisheries Management Project

Coastal Resources Center

Graduate School of Oceanography

University of Rhode Island

220 South Ferry Rd.

Narragansett, RI 02882 USA

Tel: 401-874-6224 Fax: 401-874-6920 Email: info@crc.uri.edu

Citation: Asare A. (2017). Profiling of Oyster Fisheries Report. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island GH2014_ACT137_DAA. 17 pp.

Authority/Disclaimer:

Prepared for USAID/Ghana under Cooperative Agreement (AID-641-A-15-00001), awarded on October 22, 2014 to the University of Rhode Island, and entitled the USAID/Ghana Sustainable Fisheries Management Project (SFMP).

This document is made possible by the support of the American People through the United States Agency for International Development (USAID). The views expressed and opinions contained in this report are those of the SFMP team and are not intended as statements of policy of either USAID or the cooperating organizations. As such, the contents of this report are the sole responsibility of the SFMP team and do not necessarily reflect the views of USAID or the United States Government.

Cover photo: Oyster shells from the Densu Estuary (*Crassostrea gasar*) **Credit:** Development Action Association)

Detailed Partner Contact Information:

USAID/Ghana Sustainable Fisheries Management Project (SFMP)
10 Obodai St., Mempeasem, East Legon, Accra, Ghana

Telephone: +233 0302 542497 Fax: +233 0302 542498

Maurice Knight	Chief of Party maurice@crc.uri.edu
Kofi Agbogah	Senior Fisheries Advisor kagbogah@henmpoano.org
Nii Odenkey Abbey	Communications Officer nii.sfmp@crcuri.org
Bakari Nyari	Monitoring and Evaluation Specialist hardinyari.sfmp@crcuri.org
Brian Crawford	Project Manager, CRC brian@crc.uri.edu
Ellis Ekekpi	USAID AOR (acting) eekekpi@usaid.gov

Kofi.Agbogah
kagbogah@henmpoano.org
Stephen Kankam
skankam@henmpoano.org
Hen Mpoano
38 J. Cross Cole St. Windy Ridge
Takoradi, Ghana
233 312 020 701

Resonance Global
(formerly SSG Advisors)
182 Main Street
Burlington, VT 05401
+1 (802) 735-1162
Thomas Buck
tom@ssg-advisors.com

Andre de Jager
adejager@snvworld.org
SNV Netherlands Development Organisation
#161, 10 Maseru Road,
E. Legon, Accra, Ghana
233 30 701 2440

Victoria C. Koomson
cewefia@gmail.com
CEWEFIA
B342 Bronyibima Estate
Elmina, Ghana
233 024 427 8377

Donkris Mevuta
Kyei Yamoah
info@fonghana.org
Friends of the Nation
Parks and Gardens
Adiembra-Sekondi, Ghana
233 312 046 180

Lydia Sasu
daawomen@daawomen.org
DAA
Darkuman Junction, Kaneshie Odokor
Highway
Accra, Ghana
233 302 315894

For additional information on partner activities:

CRC/URI: <http://www.crc.uri.edu>
CEWEFIA: <http://cewefia.weebly.com/>
DAA: <http://womenthrive.org/development-action-association-daa>
Friends of the Nation: <http://www.fonghana.org>
Hen Mpoano: <http://www.henmpoano.org>
Resonance Global: <https://resonanceglobal.com/>
SNV: <http://www.snvworld.org/en/countries/ghana>

ACRONYMS

CCM	Centre for Coastal Management
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CRC	Coastal Resource Center
CSLP	Coastal Sustainable Landscape Project
DAA	Development Action Association
DQF	Daasgift Quality Foundation
FtF	Feed the Future
HM	Hen Mpoano
MOFAD	Ministry of Fisheries and Aquaculture Development
NGOs	Non-Governmental Organizations
SFMP	Sustainable Fisheries Management Project
SNV	Netherlands Development Organization
SSG	SSG Advisors
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development

TABLE OF CONTENTS

CONTENTS

ACRONYMS	iii
TABLE OF CONTENTS.....	iv
LIST OF FIGURES	v
LIST OF TABLES	v
1.0 INTRODUCTION	1
1.1 Organization of the Profiling	1
1.2 Profiling Methodology.....	1
1.3 Focus of Oyster Resource Profiling.....	1
2.0 RESULTS OF THE OYSTER FISHERIES PROFILING	2
2.1 Historical Trends of the Resource.....	2
2.2 Oyster Harvesting and Value Chain Addition	4
• Transporting to the landing site.....	6
• Washing oysters.	6
• Broiling oysters.	6
• Shucking.....	6
• Rinsing.	6
• Marketing/selling.	6
2.3 Fishery and Other Non-Fishery Economic Activities.....	6
2.4 Impact of Oyster Harvesting.....	7
2.4.1 Positive impact.....	7
2.4.2 Negative impact	7
3.0 CONCLUSION.....	8
RECOMMENDATIONS	8
APPENDIX 1	9
PRA Guide, DAA PRA for Oyster Fishery Management in Tsokomey Village, Greater Accra Region, Ghana	9
Introduction.....	9
Session I: Socio-Economic Activities	9
Session II. Assessment of Resources	11

LIST OF FIGURES

Figure 1: Number of people involved in harvesting oysters now, compared to 30 years ago...	2
Figure 2: Increase in effort by increase in harvesting boats	3
Figure 3: Distance covered in harvesting oysters now, compared to 30 years ago	3
Figure 4: Time spent in oyster collection now, compared to 30 years ago	3
Figure 5: Volume of oysters harvested now, compared to 30 years ago	4
Figure 6: Flexi-banner on Google site image with locations of oyster harvesting, mangrove areas and names	4
Figure 7: Average time spent in the various expeditions in a value chain cycle	6

LIST OF TABLES

Table 1: The various oyster harvesting sites and their peculiar characteristics	5
Table 2: Summary of various activities carried out by the community fisher folks in a year ...	7

1.0 INTRODUCTION

The Sustainable Oyster fishery activities at the Densu Delta builds on the best practices and lessons learned from the USAID-Ghana's 10-day Regional Study Tour on Women's Empowerment and Post-harvest Improvements in The Gambia and Senegal in 2016 involving 11 members of five women-led civil society organizations (CSOs) and the Fisheries Commission under the Sustainable Fisheries Management Project (SFMP).

The successes of TRY Oyster Group, a peer woman-based organization in the Gambia with similar missions that have developed successful community-based strategies for sustainable fisheries management and value chain improvements led to the realization of similar possible management practices for the oyster fishery in the Densu delta.

The Densu Delta was designated as a RAMSAR site in 1992, recognizing it as a protected wetland of international importance under the International Convention on Wetlands. A management plan for the Delta was developed in 1999, but did not make reference to oyster harvesting activities.

Shellfish, and particularly oysters, are valuable food for human health which contains about 80% water, 17.2% protein, vitamins such as A, D, E, B1, B2, B6, B12, C etc., as well as minerals that satisfy human nutritional needs.

1.1 Organization of the Profiling

More than 100 fisher folks (90 percent of who were women) and traditional leaders from three communities i.e. Tsokomey, Bortianor and Tetegu community participated in a two-day community participatory appraisal of the Oyster resource in the Densu Delta from January 30th to 31st, 2017.

Before conducting the profiling of the resource, a courtesy call was paid to the Tsokomey Chief Fisherman and the Bortianor River Priest. This was to officially inform them about the plan for the upcoming activities regarding the oyster management plan; and subsequent mobilization of the oyster harvesters as an organized group, for management of the oyster resource. The profiling team was facilitated by leaders from a civil society women's oyster harvesting association from a neighboring West African country led by Fatou and Mariama, with support from Development Action Association. This was a welcomed and reassuring development.

1.2 Profiling Methodology

The profiling methodology focused on both individual and group discussions involving question and answer session, after which a plenary was held to validate all the data or information gathered from different groups.

Also, individual interviews were conducted with leaders to get deeper understanding of the dynamics in relationships between the Ewes and Gas. A field visit to some harvesting sites was also conducted that included demonstration of some of the value chain activities.

1.3 Focus of Oyster Resource Profiling

The profiling assessed two key areas being

- The biological and ecological status of the oyster resource
- Socioeconomic status of the areas as well as the Oyster resource

They shared local knowledge of the history of oyster fishery in the Densu Estuary, identified significant sites, shared their experiences with using the river resource, and identified the opportunities and challenges in sustainable oyster harvesting and conservation management.

The data and information gathered during the profiling will serve as some of the basis for:

- Making some early decisions regarding the community co-management plan for the Densu Delta
- Inform selection of some specific management and other conservation measures for management of the oyster resource.
- Key decisions contributing to sustainable economic benefits for the community oyster harvesters.
- Inform the drafting of vision guidelines, institutional and capacity building framework for management of the resource.

2.0 RESULTS OF THE OYSTER FISHERIES PROFILING

The key results and highlights of the profiling were captured and represented mostly in graphics and charts; and focused on areas such as but not limited to:

- Historical trends of the resource
- Oyster harvesting and value chain addition
- Oysters and mangrove harvesting activities in the Densu Delta by women harvesters
- Fishery and other non-fishery economic activities
- Some major challenges and proposed solutions for the resource utilization

2.1 Historical Trends of the Resource

It was revealed during the profiling of the resource that there was increasing unsustainable oyster resource usage in the past years; with more and more people engaged in the activity in recent years. Currently, there are approximately 400 people (Figure 1) involved in oyster harvesting, compared to a few hundreds of people in the past 30 years.

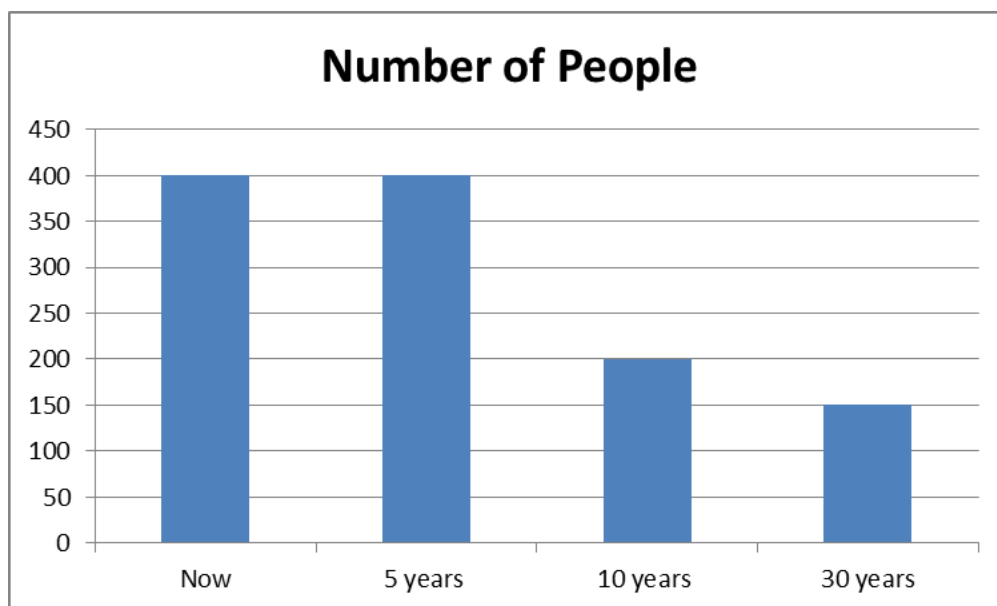


Figure 1: Number of people involved in harvesting oysters now, compared to 30 years ago

Not only has the number of harvesters increased, but the harvesting efforts for the oyster resources has also increased as seen in the increase in the number of oyster harvesting boats. These boats are either owned by men or hired by women harvesters for their expedition.

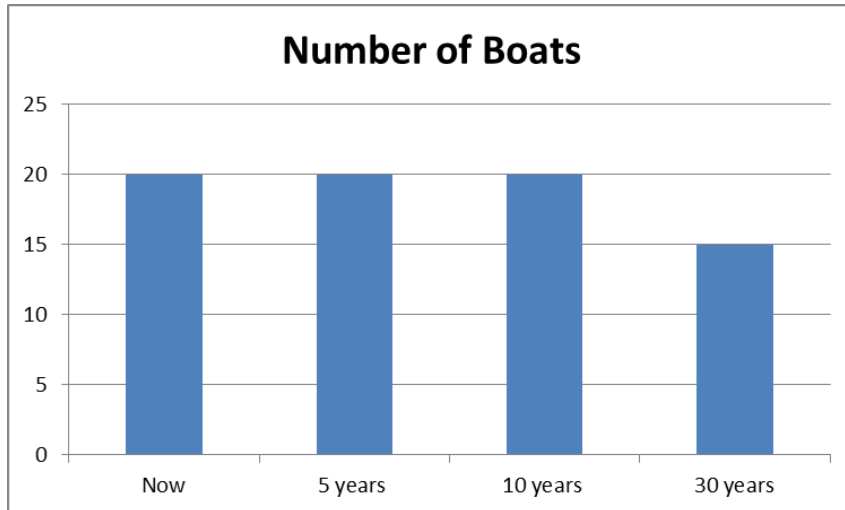


Figure 2: Increase in effort by increase in harvesting boats

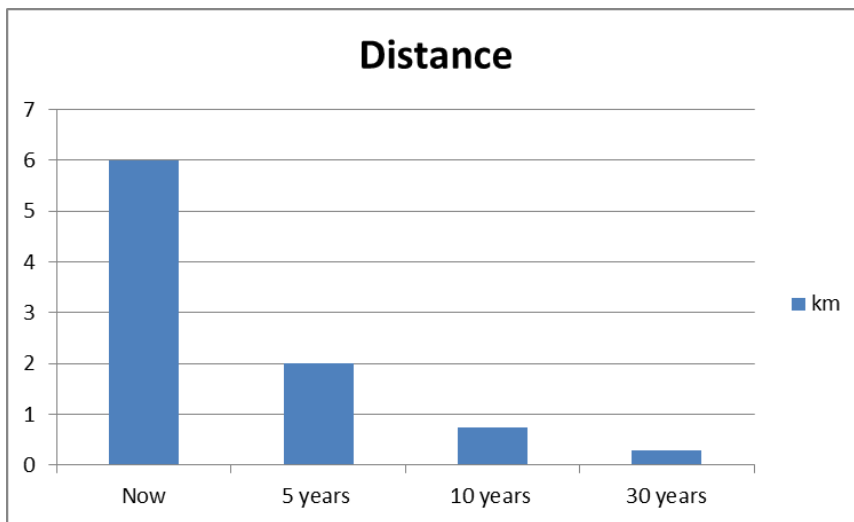


Figure 3: Distance covered in harvesting oysters now, compared to 30 years ago

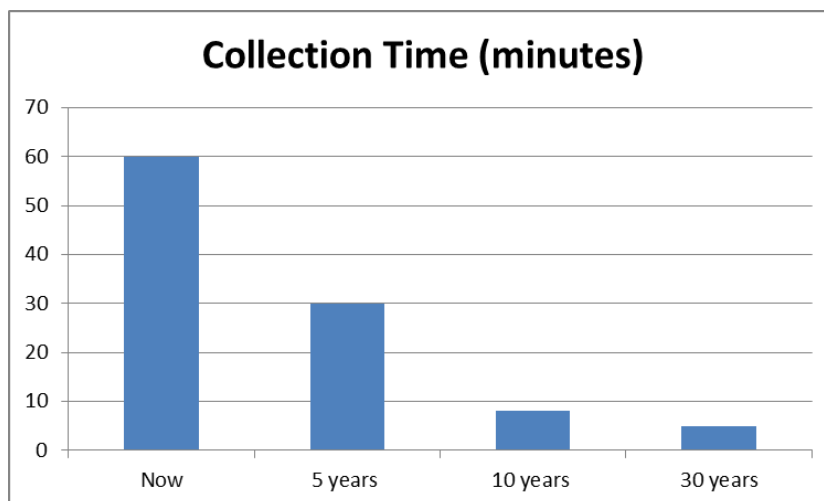


Figure 4: Time spent in oyster collection now, compared to 30 years ago

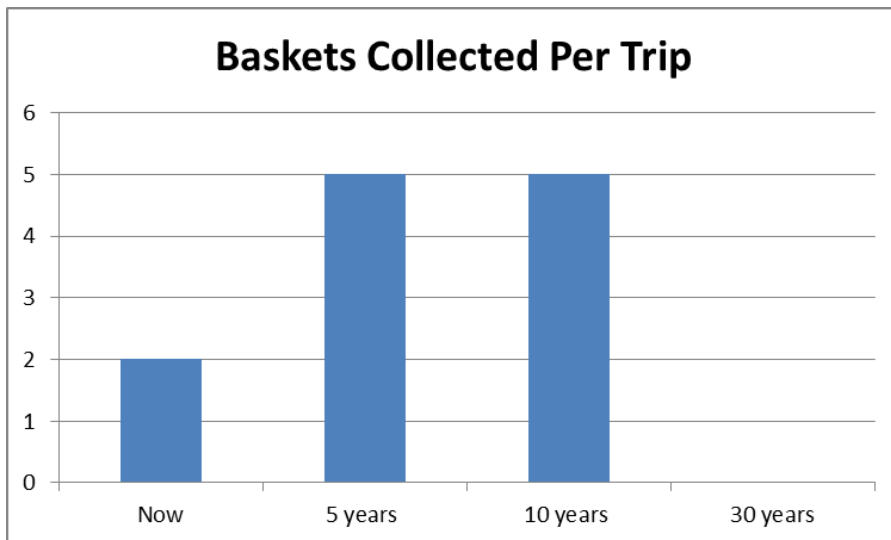


Figure 5: Volume of oysters harvested now, compared to 30 years ago

2.2 Oyster Harvesting and Value Chain Addition

Table 1 shows the various oyster harvesting sites and their various peculiar characteristics. Five main Oyster collection sites were identified by oyster harvesters. They are Kpovoduvo, *Kele*, *Nayo*, *Hoga Nukaji* and *Bojo*. All these sites are active. The sites have varying characteristics which determine not only the level of exploitation, but gender dynamics in the oyster fishery as men normally are able to harvest from deeper water areas and women harvesters generally pick from the shallow areas. The group identified surrounding settlements, outlined their collection areas, site names, identified tributaries, key species, habitats, historical sites, etc. The group assessed the vegetation status; and identified key sites for aquatic species such as fishes, crabs, etc.

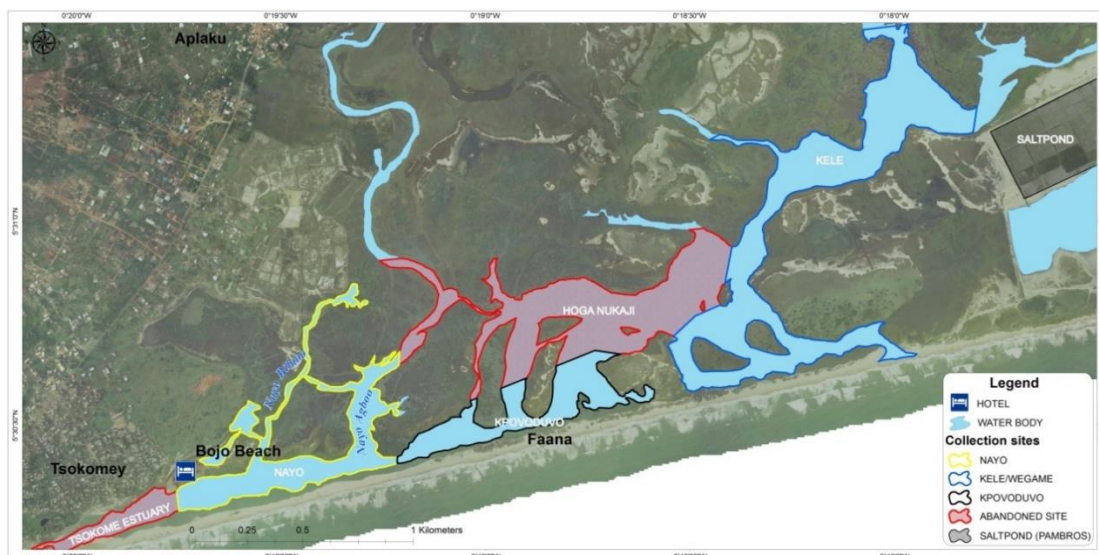


Figure 6: Flexi-banner on Google site image with locations of oyster harvesting, mangrove areas and names

Site Name	Characteristics	Ecological Function	Social Functions	User Rights	Trends and Constraints
NAYO (Big and Small)	<ul style="list-style-type: none"> • Shallow • Few mangroves with fish traps 	<ul style="list-style-type: none"> • Fish • Mangroves providing habitat for fish • Birds • Crabs 	<ul style="list-style-type: none"> • Tourism • Customary rites during the <i>Homowo</i> festival- No picking is done for six weeks i.e. 2 weeks before the festival and 4 weeks after 	<ul style="list-style-type: none"> • Open Access • Restricted access by management of Bojo beach along the inlet of <i>Nayo Bibioo</i> 	<p>Difficult access to oyster sites due to mangrove degradation</p> <ul style="list-style-type: none"> • Longer distance • Deeper water
HUMOO	<ul style="list-style-type: none"> • Shallow-deeper on the eastern side • Very scanty mangroves • Fish traps - brush parks • Located between the sandbar and vast wetland 	<ul style="list-style-type: none"> • Birds • Fish 	<ul style="list-style-type: none"> • Tourism • Customary rites 	Open access	Intrusion of fresh water from the <i>Weija</i> Dam leads to death of oysters
HOGA NUKAJI	<ul style="list-style-type: none"> • Shallow- due to accumulated sediments from the <i>Weija</i> dam inflows • Mangroves have been left to rejuvenate naturally after extensive cutting 	Fish (tilapia)	<ul style="list-style-type: none"> • Tourism • Customary rites 	Open access	Previous site for big oysters. Site used to be very deep, but has accumulated sediments from the load carried by the water from the <i>Weija</i> dam
VUGAME	<ul style="list-style-type: none"> • Deep 	Habitat for big oysters. Habitat for wide varieties of fishes (mudfish, shrimps, anchovies, crabs)	<ul style="list-style-type: none"> • Tourism • Customary rites 	Open Access	Insects/parasites. Water can be very cold, making diving and staying in the water difficult

Table 1: The various oyster harvesting sites and their peculiar characteristics

Oysters in the Densu Delta are generally picked from the river bed as they are not found on mangrove stems; compared to those in Senegal and Gambia. Oyster harvesting and processing through the value chain is done on the same day; and often goes through the following regimes:

- Walking to Nayo and Kpovodu tributaries.
- Picking.
- Transporting to the landing site.
- Washing oysters.
- Broiling oysters.
- Shucking.
- Rinsing.
- Marketing/selling.
-

The chart below shows the average time spent in the various expeditions in a value chain cycle.

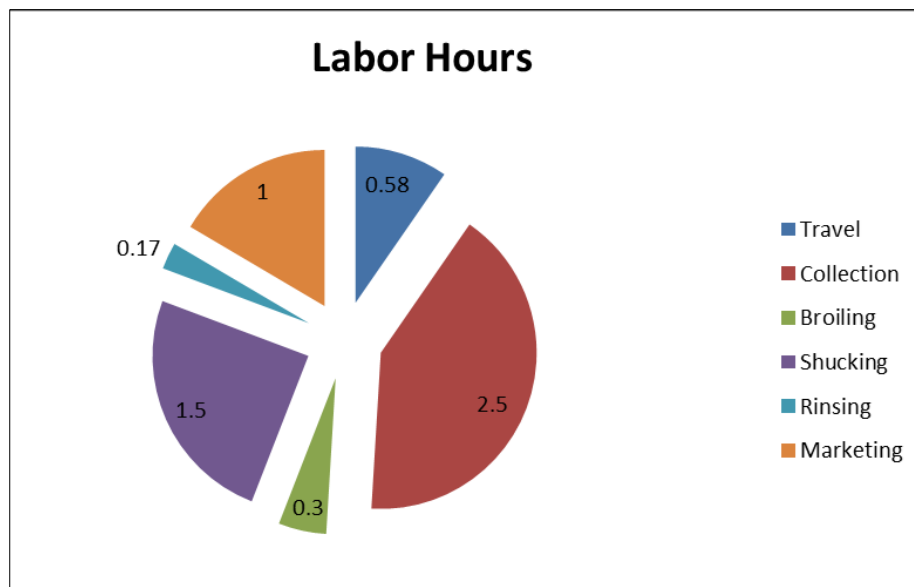


Figure 7: Average time spent in the various expeditions in a value chain cycle

2.3 Fishery and Other Non-Fishery Economic Activities

Most of the population living in the Tsokomey and Bortianor communities where the profiling of fisher folks was done also engaged in other non-fishery economic activities. For many of them, this is the source of their family income and livelihood. Table 2 below shows the summary of various activities carried out by the community fisher folks during the year.

Activity	J	F	M	A	M	J	J	A	S	O	N	D
River fishing*	X	X	X	X	X	X	X				X	X
Basket fishing	X	X	X	X	X	X	X				X	X
Shallow water oyster harvesting			X	X	X	X	X	X				
Fish processing	X	X	X	X	X	X	X	X	X	X	X	X
Fresh fish sale	X	X	X	X	X	X	X	X	X	X	X	X
Sale of food (fried fish, porridge, corn dough)	X	X	X	X	X	X	X	X	X	X	X	X
Deep river oyster harvesting*	X	X	X	X	X	X	X	X	X	X	X	X
Fish cleaning at landing site	X	X	X	X	X	X	X	X	X	X	X	X
Fish porter	X	X	X	X	X	X	X	X	X	X	X	X
Paid labor for coastal and community cleaning	X	X	X	X	X	X	X	X	X	X	X	X
River transport (paddle canoe)*	X	X	X	X	X	X	X	X	X	X	X	X

Table 2: Summary of various activities carried out by the community fisher folks in a year

2.4 Impact of Oyster Harvesting

Participants agreed that oyster harvesting has both positive and negative impact on individuals, families, the community, and the environment.

2.4.1 Positive impact

- Oysters are a significant food source high in protein and minerals and therefore contribute to food security. They presently exist in abundance and are low cost.
- The sale of oysters helps in diversifying livelihoods, thereby contributing to poverty reduction.
- Oyster shells are used in building construction – as filling for foundations and as an ingredient in paint. Shells are also used to fill mud houses to prevent erosion during heavy rainfall and to fill flooded areas
- Shells are used in the cosmetic industry as an ingredient in face powder.
- The leftover liquid in the shell after the meat is removed is used to stop bleeding and the shells are used to treat wounds.
- Mangroves have the potential to host oysters. More sustainable oyster management practices would encourage mangrove protection, regeneration and re-establishment, improving habitat for different animal and plant species that contribute to biodiversity. Mangroves are breeding grounds for fish and they host birds and insects.

2.4.2 Negative impact

- Continuous exposure to river water alters skin color and causes red eye. The practice of women carrying heavy head loads of oysters and fish can have damaging effect on their health.
- Oyster shells have been the cause of serious injury because of poor picking and handling techniques, without the use of protective gear. The abrasive nature of the shells causes injury to children when not properly disposed of.

- Fishermen from a neighboring village use glass bottle traps which when broken, can cause injury to oyster pickers.
- Although the water in the river appears clean, waste management is a problem along the shoreline. There is a refuse dump nearby, serving as breeding area for mosquitoes and other insects. Some inhabitants use the shore and river as toilet.

3.0 CONCLUSION

The following have been observed during the brief profiling of the oyster fishery resource in the Tsokomey and Boartianor communities:

- Harvesters go farther and spend longer periods to collect fewer oysters. The catch per unit effort is in decline. There is a critical need to protect and improve habitat, and sustainably manage harvest rates.
- There are prospects for value chain improvements in collection techniques, post-harvest processing and marketing. Market awareness of the economic and nutritional value of oysters is low.
- The Densu Oyster Pickers Association has been formed with the support of DAA, this is a first step in developing the management and governance capacity needed to achieve sustainable economic benefits for the women oyster pickers, and a healthy

RECOMMENDATIONS

DAA should follow up with the Government of Ghana and other institutions involved in the management of RAMSAR sites in Ghana and the Densu Delta to understand the status of the December 1999 Densu Delta RAMSAR Site Management Plan and the 2008 National Wetlands Conservation Strategy and Action Plan (2007 - 2016).

1. DAA should continue to facilitate the process of supporting oyster harvesters to organize in a representative manner as well as the process of establishing an officially recognized legal entity oyster harvester's association.
2. Women and men oyster harvesters should consider management measures to enhance and sustain the resource in the future.

They should continue the participatory co-management process and the following process recommendations:

- Educate stakeholders (in particular harvesters and DAA) on oyster ecology and biology, and on water quality. Link with the University of Cape Coast on this.
 - Capacity building should be encouraged
 - Select management actions and develop a monitoring plan.
 - Consider implementation of early actions (low hanging fruits) that promote good stewardship of the estuary and oyster fishery such as mangrove replanting or oyster reef restoration
 - Consider peer learning study tours to other locations in Ghana where mangrove harvesting and restoration are taking place; and also The Gambia and Benin where oyster harvesting and management take place.
3. Loss of habitat seems to be a significant factor in the reduction in catch per unit effort of oysters over the last 3 decades as documented in this PRA. Take actions such as mangrove planting. This could include a study tour to Ghana's Western Region to see the mangrove nursery established there.
 4. Train women and men oyster harvesters in water quality testing.

APPENDIX 1

PRA Guide, DAA PRA for Oyster Fishery Management in Tsokomey Village, Greater Accra Region, Ghana

Introduction

Development Action Association (DAA) is planning to develop and implement a Community-based Management and Conservation Plan. The goal of the Plan is to ensure sustainable economic benefits for women oyster harvesters in Bortianor; and maintain a healthy estuary and ecosystem in which oysters can thrive. The management plan will be developed by the women oyster harvesters and include vision, objectives, actions, and institutional framework to empower the women to be the stewards, managers and rights holders of the oyster fishery resources in the Densu Estuary.

This Participatory Rural Appraisal (PRA) is the first step in the development of the Community-based Management and Conservation Plan. The communities will assess the ecological and socioeconomic status of the surrounding area. They will share the history of oyster fishery in the Densu Estuary, highlight their experiences, and identify the opportunities and challenges in oyster harvesting and conservation management.

Session I: Socio-Economic Activities

1. What kind of work do you do to earn a living? Is this the only activity you work on? List the different activities you do during the year.

Calendar of economic activities

Activity	J	F	M	A	M	J	J	A	S	O	N	D

2. Let's look at your oyster harvesting activity in more detail. How does it work? List different things you do as part of oyster harvesting, how long each step takes, and the resources you use

Chain of activities for oyster harvesting

Activity	Site	Time estimate	Resources used	Trend	Observation

3. Site Mapping: Using the GPS map provided, the group will identify surrounding settlements, outline their collection site boundaries, identify local names of sites, identify tributaries, key species habitats, historical sites, etc. Assess the vegetation status; identify key sites for aquatic species such as fishes, crabs, etc.

Site Name	Characteristics	Ecological function	Social functions	User rights	Trends and Constraints

4. Estimate the number of persons engaged in oyster harvesting in this location over the past 30 years

Activity	Now	5 years ago	10 years ago	30 years ago	Observations
Number of people					
Number of boats					
Description of practices					

5. How much effort does it normally take for collection?

Activity	Now	5 years ago	10 years ago	30 years ago	Observations
Duration					
Distance					
Quantity harvested					
Income					

6. What type of relationship exists with neighboring communities and other users?

Community/User type	Type of relationship	Frequency of interaction	Type of Conflict, if any	How is the conflict resolved?

7. What is the impact that different activities have on the environment and wellbeing of families and the communities?

	Positive impact	Negative impact
Your own activity		
Other activities in the location		

Session II. Assessment of Resources

8. Using a scale of 1 to 5 to represent declining and increasing status, assess the state of the resources in the river. Use a new chart to assess different sites where applicable.

Status of Oysters	Now	5 years ago	10 years ago	30 years ago	Observations
Extent					
Density					
Size of oysters					
Fuel wood					

9. Do you own or rent the boat you use for collection? If you rent, tell us the amount and frequency of payment.

10. What are some practices that are good or harmful for the river?

Good practices	Harmful practices

11. For each activity in the value chain, what are the constraints and recommended solutions?

Activity	Constraints	Solutions