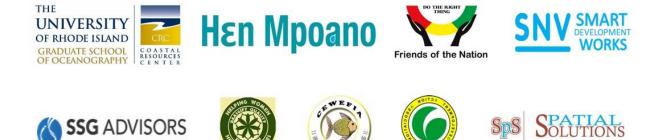


SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Ghanaian Industrial Trawler Fleet Study Tour of US Fisheries Leadership

October-November 2015



This publication is available electronically on the Coastal Resources Center's website at

http://www.crc.uri.edu

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SSG Advisors:	http://ssg-advisors.com/
Spatial Solutions:	http://www.spatialsolutions.co/id1.html

ACRONYMS

AFS	Aquaculture and Fisheries Science
CE	Cooperative Extension
CEDECOM	Central Region Development Commission
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CLaT	Child Labour and Trafficking
DAA	Development Action Association
DCE	District Chief Executive
DSW	Department of Social Welfare
FAO	Food and Agriculture Organization (United Nations)
FoN	Friends of Nation
GITA	Ghana Industrial Trawlers Association
GMRI	Gulf of Maine Research Institute
LEK	Local Ecological Knowledge
MOU	Memorandum of Understanding
NCCE	National Commission for Civic Education
NEFMC	New England Fisheries Management Council
NEFSC	Northeast Fisheries Science Center, NOAA
NFED	Non-Formal Education Division, Ministry of Education
NOAA	National Oceanic and Atmospheric Administration
NSC	Northeast Seafood Coalition
RIDEM	Rhode Island Department of Environmental Management
SFMP	Sustainable Fisheries Management Program
SEK	Scientific Ecological Knowledge
SFMP	Sustainable Fisheries Management Project
SNV	Netherlands Development Organization
STWG	Science and Technical Working Group
UCC	University of Cape Coast
USAID	United States Agency for International Development

TABLE OF CONTENTS

Acronymsiii	i
Background and Objectives of the Study Tour1	
Objectives of the study tour1	
Activities undertaken during the trip and impacts on participants1	
Cooperative Extension1	
Aquaculture and Fisheries Science (AFS) Class1	
Leadership and Behavior Change2	2
Strategies2	
Superior Trawl	;
Fish and Fisheries of Narragansett Bay	;
Discussion with fisherman	;
Cooperative Research Program4	۲
SeaFreeze: Quonset Point Facility- Freezer Trawler operations4	
RI DEM/NMFS Science Center4	۲
Conflict resolution5	
Energy and Fuel Savings Program5	
Fishermen's Wharf, Gloucester -Northeast SeaFood Coalition6	;
Whaling City Seafood Display Auction6	
Bergies Seafood6	
Vessel Tours, Port of New Bedford7	'
Reidar's Gear Manufacturing7	'
Local Ecological Knowledge (LEK)8	;
Additional information provided by GITA8	
Lessons Learned9	
The Way Forward9	
ACTION PLAN9)
Proposed Activities For GITA-URI UCC-SFMP-FC Collaborative Research	;
APPENDICES15	í

BACKGROUND AND OBJECTIVES OF THE STUDY TOUR

The study tour for members of the Ghana Industrial Trawlers Association took place from the 24th of October to 6th of November, 2015.

Objectives of the study tour

The objectives of the study tour were to

- a) Analyze the USA management measures applied to trawl fisheries
- **b**) Appreciate the value and role of voluntary compliance
- c) Learn about cooperative research program
- d) Understand how to develop modern trawling methods that are selective and cause less harm to the marine habitat and the fisheries in general

ACTIVITIES UNDERTAKEN DURING THE TRIP AND IMPACTS ON PARTICIPANTS



Cooperative Extension

Welcome to the College. Discussion with CE Director and Dean about Land Grant and Cooperative Extension Programs. Also covered 4H Programs.

IMPACT: Use of extension programs and youth development to help in behavior change strategies.

Aquaculture and Fisheries Science (AFS) Class

A 50 minute class was given by the participants to AFS 120. Since Ghana was the case study and the class worked with the graduating fisheries class at UCC, there was considerable interest in the presentation. The participants were able to explain clearly their current situation and answer questions.

IMPACT: Recognition of the fact that the participants are professionals and knowledgeable; of equal standing with the course leaders.





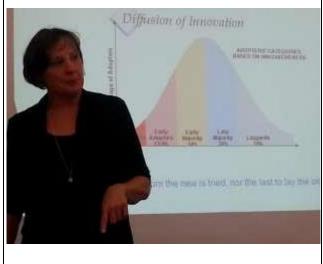
IMPACT: A framework for change that incorporates a long term time frame.

Port of Pt Judith Port agent. The tour provided the participants with an overall view of the fishing industry in Rhode Island from small through large vessels. It also highlighted the port facilities. Participants were impressed with the ability to recycle oil and old gear, as well as the receiving facilities (ice, and storage). They were able to have conversations with fishermen



working on their boat, observe offloading and receiving of product.

IMPACT: Similarities and differences between Ghana and USA were noted. Participants observed how Ghana could improve current structures and avoid loss of





Superior Trawl

Visit net makers loft to discuss design and trawling technology. Two model nets on display (Eliminator and Drop chain). Participants were able to ask questions and see a fisherman/client work on refining his net for better performance.

IMPACT: Net design and selectivity are key for designing effective management.

Fish and Fisheries of Narragansett Bay

A day on the boat trawling. IMPACT: There is no method more effective to teach about the gear, the methods, the fish and the rules and regulations than hands-on on the water training. A great opportunity to ask questions about what they heard the day before at net loft and see sampling operations





Discussion with fisherman Chris Brown: President of RI Commercial Fisheries Fishermen association, and President of Seafood Harvesters of America

IMPACT: Fisherman to fisherman is one of the most effective means of bringing about change in thinking. When Chris mentions morals and ethics and doing what is right for the ocean, you have to listen to him.

Cooperative Research Program Earl Meredith. Discussion about NOAA- NMFS Collaborative Research Program and possible topics for Ghana IMPACT: Power of Cooperation. Set stage for following week.	
	SeaFreeze: Quonset Point Facility- Freezer Trawler operations This facility receives the fish from the freezer trawlers owned by the company. There was much discussion about prices and the Chinese interest in the vessels. IMPACT: The power to say "no" to foreign investors. The true value of fish on the international scale.
RI DEM/NMFS Science Center The value of science and monitoring; comparative structures between Ghana and USA. Had a tour of RIDEM wet lab facility and the Chaffee research vessel. Jason McNamee of RIDEM presented material on fisheries management structure in the Northeast and its challenges, Kevin Freidland of the NEFSC presented material on changes in stocks due to climate, how fisheries data is collected and used for stock assessments.	

IMPACT: The role of science in fisheries

	Conflict resolution Theory and practice of dealing with conflict. IMPACT: Understanding needs of others and your needs critical to developing a win-win.
New England Fisheries Management Council (NEFMC)	
The role of the Council in the Fisheries Management in the Northeast. Pat Fiorelli presented information on the mandate put forth by the Magnuson- Stevens Act. Material included the key	

Stevens Act. Material included the key components of U.S fisheries management, what species are managed in New England and the territorial limits. Enforcement procedures were covered which resulted in an indepth conversation regarding the makeup of the Ghana Fisheries Commission, and corruption.

IMPACT: There is a critical need for researchers and scientists on the

Energy and Fuel Savings Program

Gulf of Marine Research Institute (GMRI)

Reducing fuel consumption to improve profitability. Steve Eayrs presented case studies from the US and Thailand that provided trawlers with fishing gear, fuel and horsepower options that helped them increase their profits while maintaining a comparable level of catch.

IMPACT: A small investment in a fuel sensor can demonstrate/prove that going faster to keep up with fish can actually cost you more money than



Fishermen's Wharf, Gloucester -Northeast SeaFood Coalition (NSC)

Vito Giacalone, Chair, Governmental Affairs and Jackie Odell, Executive Director provided a morning of boat tours, offloading of boats and invaluable discussion about the process of becoming an organized and independent coalition in an ever changing groundfish management scheme. NSC members are small, independent, entrepreneurial businesses from ports all along the northeast that use all groundfish gear types (trawl, longline, gillnet, and others) to fish for and support fishing for cod, haddock, flounders, and other groundfish species.

IMPACT: Multiple ideas about how GITA can possibly cooperate more and become more organized in the trawl fisheries in Ghana. This will give them

Whaling City Seafood Display Auction

The auction starts at 6 AM. The fish to be bid on are shown and purchased through on line bidding by people from their laptops at home. The auction is a room with a large screen that shows all current bids and pricing.

IMPACT: Ideas for GITA to get better prices for catch through a auction/bidding system set up in Ghana.

Bergies Seafood

Local owned processing plant that receives fish from all over the world. Workers hand filet fish, and package scallops. A machine will also debone and split fish, brine it and have it ready for packaging.

IMPACT: New ideas on how to better handle captured fish in Ghana







Vessel Tours, Port of New Bedford

Walking tour of dock & groundfish vessels (primarily owned by Carlos Rafael) by Stephanie Rafael-Mello, sector manager and Anthony Mello). Toured the F/V Apollo, both a groundfish & scallop vessel who discussed the rewards of owning a vessel that is easily adapted for 2 fisheries and the challenges of both fisheries in the Northeast. Carlos Rafael joined us mid tour and took us aboard the Voyager, a factory trawler in the port. He provided a lively discussion with the participants regarding quotas, groundfishing and management.

IMPACT: Management in the Northeast is broken. Too many



Reidar's Gear Manufacturing

Reidar Bendiksen, his sons Tor and Lars design and build innovative new fishing gear used on trawlers and scallopers on the east coast of the USA and Canada. They provided us with an onsite tour with models of many fishing gears and discussion on how the gears and gear modifications can be used effectively in research and fishing practices to help reduce bycatch of unwanted species in the groundfish and scallop fisheries.

IMPACT: New ideas for modifications to trawl nets in Ghana and how to work with researchers for proof of concept.



Local Ecological Knowledge (LEK)

Informal discussions with Carlos Garcia-Quijano about the power of local knowledge and how to use it with scientific knowledge.

IMPACT: Basic of good management is a combination of Local Ecological Knowledge (LEK) and Scientific Ecological Knowledge (SEK).



ADDITIONAL INFORMATION PROVIDED BY GITA.

GITA embarked on the trip from the 24th October to 6th November 2015. The participants were mainly hosted at the University of Rhode Island, with a number of visits to fishing ports, fish processing and storage facilities, fish marketing outlets, fishing gear and technology industry, fisheries research centers and fisheries management institutions in Rhode Island, Massachusetts, and Maine. During these visits, the group interacted with several resource persons including fishermen, fishing boat owners, fishing gear technologists, research scientist, policy makers and regulators to access knowledge about the practices, challenges, solutions and success stories in the US fisheries. Of key interests were:

- Fuel efficiency presentation by Mr. Steve Eayrs at the Gulf of Maine Research Institute
- Fisheries management and behavioural change by Dr. Kathy Castro
- The history and challenges in formation of voluntary compliance fishing associations that liaised with regulators in bottom-up management approach in Rhode Island and the US a whole by Chris Brown
- Developing a Cooperative Research Program by Earl Meredith
- Conflict Resolution and Negotiation Skills by Azure Cygler
- Point Judith the design and efficient use of space in the port to accommodate large number of vessels without crowding and traffic; the incorporation of storage facilities, vessel maintenance workspace and gear maintenance unit within the port; and the high level of sanitary conditions at the port
- Facilities of Seafreeze- good fish stowing arrangement that allows for proper air circulation and easy location of different fish species?
- The fishing gear technology laboratory at the Fisheries Center URI, the fishing gear unit within Port Judith and the Reidar's Trawl Gear Company, New Bedford-design and testing of species specific and habitat specific fishing gears through industry demands and research
- New England Fisheries Council All inclusive nature of the stakeholders constituting the council
- Gulf of Maine Research Institute The use of underwater gadgets such as sensors and cameras to study fish and fishing gear behaviours during trawling
- Seafood Brokerage, New Bedford The use of online technology for transparent marketing of fish where value is added to the product and the fishermen have fair

participation in the pricing regime.

Lessons Learned

- The need to involve the knowledge of fishermen in policy making •
- The need to adopt different approaches in solving different problems instead of the one-size fit all approach used in Ghana
- The essence of science and research in designing selective fishing gear technology for improving sustainable fishing practices to enhance the fishing business through collaboration between the industry, research institutions and policy makers
- The possibility of mobilizing resources of fishermen (GITA) such as funds, vessels, etc. to support industry driven collaborative scientific research
- The need to avoid blame game in conflict resolution and seek a win-win situation through dialogue and negotiation with other fishing associations, regulators and managers in Ghana

THE WAY FORWARD

ACTION PLAN

GITA GOAL:

- 1. GITA to be active, respected and organized
- 2. Bring together fisheries industry for collective action
- 3. Sustainable Resource Management

KEY ISSUES:

- a. The trawl sector is not trusted within the fisheries stakeholder community for fishing sustainably within the Ghanaian EEZ
- b. GITA is not actively engaged within the policy and the scientific space
- c. There is apathy on the part of members of GITA
- d Situation in fisheries is: OBJECTIVE:

Should be specific, measurable, attainable, realistic and timely.

- Bring all active trawl operators under the same umbrella
- Develop effective communication tools and strategy
- To effectively engage with policy makers and scientists on sustainable fisheries management issues
- Raise funds for effective work
- Situation in fisheries changes in the following

KEY ACTION	1 ⁵¹ responsibili ty	2 nd responsibili ty ty	TIME FRAME	OUTPUTS	BUDGET in US\$ or In-kind services
Session on Study Tour of US with all member s	GITA Executiv e	SFMP	24 th Novemb er, 2015	Get all members to buy into the new GITA vision and make	
b. Media Engageme nt	GITA Executiv e	SFMP/Media organization s Minister/ Ministry of Fisheries,	15 th Dec, 2015	Media educated and trained on sustainable trawl fisheries	Use SFMP contacts; identify joint events; contribute materials to SFMP publicatio ns and messagin
c. Engage Policy and Science (Sharing of report and action plan from study tour inclusive)	GITA Executiv e	Fisheries Commission, Scientific Survey Division, University of Cape Coast, SFMP	December r 2015- June 2016	Rolled out a collaborativ e fisheries manageme nt program	Utilize the STWG (Science & Technical Working Group); engage in future national dialogues; identify potential common actions with SFMP
d. Engage Industry		NAFAG	31 st Nov, 2015	Built trust and harmonize working relationship	Utilize partnership training and leads from SFMP via

— — — —			<u> </u>	- · ·	
e. Build	GITA	PRO/Communicatio		Developed	Participate
capacity	Е	n team	Decem	communic	in
of a	xe		ber-	ation skills	SFMP
communic	С		15 th	for	partner
ation	uti		Dece	effective	training;
person on	ve		mber	communic	on
sustainabl				ation on	comms.
e fisheries				sustainabl	Examine
issues				e fisheries	local
Identify media		PRO/Commun		Effectiv	Use
houses		ication and		е	contacts
to		media houses		publicity	from
report				on trawl	SFMP
on				sector	recent
Fisherie				issues	workshop
S					with
issues,					media, as
Present		PRO/Communicatio		Effectiv	Use SFMP
regular		n Team/Media		е	publicati
reports on		Houses		publicity	ons,
successes				on trawl	outreach
within the				sector	vehicles
trawl				issues	
sector					
through					
Support		Scientific		Sign an	SFMP and
Science		Survey		MOU	UCC
to engage in		Division/University		to	collabora
research		of Cape Coast		establish	tive
(providing		Fisheries and		collaborati	research
vessels for		Aquatic Sciences		ve	(IR
scientific				managem	2.3)
research,				ent of the	Develop

program to	Department,	scientific	improving FC
serve	Fisheries	research	data systems;
scientific	Commission	and	
purpose)	/ Ministry of	industrial	
	Fisheries	experience.	
	and		
	Aquaculture		
	Developmen		
GITA			Tap into SFMP
ORGANIZAT			organizationa
IONAL			l assessment,
DEVELOPM			business plan
ENT			and
			strengthening
			services (IR

PROPOSED ACTIVITIES FOR GITA-URI UCC-SFMP-FC COLLABORATIVE RESEARCH

1. Modification of industrial trawl gears in Ghana to optimize their efficiency and selectivity while decreasing their impact on the sea floor

Rationale: The study tour has exposed the participants to a vast array of possible modifications that could be taken into account in designing fishing gear for specific habitats, species, seasons and economic purposes. These modifications vary from footrope, mesh size, netting material, among others. Upon the lessons learned from the US tour, GITA has acknowledged that the current trawl gears used in Ghana, which are "one size fits all" type of gear, could be modified to be more selective with minimal environmental impacts and enhanced economic efficiency. The modification could be a blend of designs from the drop-chain trawl net concept, the eliminator trawl concept and others that place priority on environmentally friendly footrope designs and netting materials that also enhance fuel efficiency in trawling.

Possible implications of the outcome for GITA and fisheries management:

Modifying the current gear would enhance the selectivity of gears of the trawl industry to largely focus on target species and considerably reduce the incidence of by-catch. The modified gear is also expected to have minimal destructive impacts on the sea bed and other critical habitats within the trawl area. A fuel efficient trawl gear would be economically useful to the industry in cutting down the cost of fuel which makes up the largest proportion of the total operations cost.

2. Developing an efficient, selective and habitat specific trawl gear for rocky bottom fishing in offshore waters of Ghana

Rationale: The continental shelf of Ghana comprises both rocky and soft bottoms. Trawling activities by GITA fishers have mainly concentrated on the non-rocky areas due to the difficulties encountered including excessive gear damage when trawling within the rocky environments. This problem was similarly reported by FAO in THE "GUINEA 90" SURVEY report which indicated that the continental shelves of Ghana and Côte d'Ivoire had smaller survey area (i.e. smaller area available for trawling) as rocky bottoms make trawling difficult below 120 m. Some of the GITA participants on the study tour who have sailed in trawl vessels for many years pointed that the rocky bottoms are predominant towards the eastern coast of Ghana especially between Tema and Keta. (This could be confirmed from the bathymetry map Ghana). Important lessons were learned from the visit to the gear maintenance unit at Point Judith fishing port and the Reidar's Trawl Gear Company at New Bedford where there are models of trawl nets designed for trawling rocky bottoms with minimal impacts on the gear and habitat. The participants believe that similar gears could be designed and tested in the Ghanaian waters through a collaborative research.

Possible implications of the outcome for GITA and fisheries management:

If proven successful, this would provide opportunities for the industry to explore new offshore fishing grounds and reduce the pressure of trawling activities on the non-rocky areas. It would also possibly shift some activities of trawlers from the western coast to the east thereby reducing the incidence of conflicts between the trawlers and the artisanal and inshore fleets who mainly fish from the western waters. The gear is expected to be selective and have minimal impacts on the rocky bottom habitats to promote environmental

sustainability in the trawl fishery.

3. Assessment of the state of demersal stocks in offshore waters off the eastern coast of Ghana

Rationale: This research is conceived to be a follow-up to the rocky bottom trawl gear study. It is believed that the design of an appropriate trawl gear for the rocky bottoms should be followed by an assessment of the dermersal stocks off the eastern coast of Ghana where rocky bottom is prevalent to elucidate the state of the stocks, commercial viability and possible management implications for the trawl industry.

Possible implications of the outcome for GITA and fisheries management:

The outcome of this study will inform the trawl industry on the commercial viability of demersal stocks in the offshore waters off the eastern coast of Ghana. Most importantly, the study would bring to light the state of the stocks, and should there be economic opportunities, it could possibly guide the management regimes required to be instituted in exploiting the stocks sustainably.

4. Mapping of breeding grounds for commercial fish species in Ghana's coastal waters as a contribution towards determination of closed areas

Rationale: GITA is committed to supporting the protection of breeding grounds of economically valuable fish species as well as other species that are of conservation interest to the country. In this regard, the trawl industry proposes to collaborate with the research institutions in undertaking a study that clearly identifies and maps out critical breeding and nursery areas of these fishes. It is hoped that this would play a major contributory role in determining areas that should be closed from trawling and other fishing activities at some particular times or over a period of time.

Possible implications of the outcome for GITA and fisheries management:

Protecting critical fish breeding grounds would form an integral part of sustainable fisheries management program that the trawl industry stands to benefit over a medium to long term. It is envisaged that appropriate and reliable scientific data together with fishermen's contributory knowledge would help map out and collaboratively protect these areas for sustainability purposes.

APPENDICES

Study Tour Agenda

Week 1

- Mon, Oct 26: East Farm/URI Main Campus
 - 9:00 Meet with Dean of College of the Environment and Life Sciences (CELS) Dr. John Kirby and Dr. Deborah Sheely, Cooperative Extension Director
 - 10:00 AFS 120 Class; Presentation on Ghanaian Fisheries
 - 11:00 Welcome, Logistics, Discussion about Ghana fishery and needs
 - 12:00 Lunch at East Farm
 - 1:00 Visit Pt Judith Port
 - □ Meet Dan Costa (Port Agent)
 - □ Walk Docks (Ed Everich)
 - □ Offices and marine support businesses
 - □ Processing facilities- Seafreeze
 - 4:00-6:00 GSO Welcome

Reception

Tues Oct 27: East Farm/Pt Judith

- 9:00 Discussion about leadership and vision for the Ghana Trawl fishery
- 12:00 Lunch at East Farm
- 1:00 Hands on gear demonstration Pt Judith (Jon Knight- Superior Trawl)
- Wed, Oct 28: East Farm
 - 9-12 Cap'n Bert (with fishermen) Fisheries of RI and Narragansett Bay
 - 12:00 Lunch at East Farm
 - 1:00 Discussion Capt Chris Brown

Thursday Oct 29: GSO

- 9:00 Developing a cooperative research program (Earl Meredith)
- 11:00 Discussion about what that would look like in Ghana (partners, etc)
- 12:00 Lunch
- 1:00 Quonset Pt: Visit Seafreeze facilities
- Fri, Oct 30: RI DEM/GSO
 - 9:00 Fisheries Management Overview in USA RI DEM Marine Resources (Jason McNamee) NEFSC, Kevin Friedland-Science for Management Discussion of Ghana and US comparisons
 - 12:00 Lunch (GSO)
 - 1:00 Conflict resolution and negotiation skills (Azure Cygler)
 - 4:00 Preparation for weekend and week 2

Week 2

Sun, Nov 1: Travel to MA; stay overnight. Mon, Nov 2.

- 11:00 NEFMC, Newburyport, MA (Pat Fiorelli)
- 1:00 Meet with GMRI (Steve Eayrs): Energy and Fuel Savings Program;
- 3:00 Travel to MA

Tues, Nov 3: Gloucester, MA

- 9:00 NE Seafood Coalition and dock tour
- 5:00 Travel to New Bedford, MA

Wed, Nov 4:

- 6:00 New Bedford auction (Madeline Hall-Arber)
- 7:00 Tour of Bergies seafood plant
- 9:00 Walking waterfront tour
- 10:00 Reidar's gear manufacturing facility
- 12:00 Lunch
- 1:00 Depart for Rhode Island

Thurs, Nov 5: East Farm

- 9:00 Local Knowledge (Carlos Garcia Quijano)
- 10:30 Develop strategy and pilot project for Ghana
- 12:00 Lunch
- 3:00 Continued work on strategy and pilot
- 5:00 Dinner
- Fri, Nov 6: East Farm (1/2 day)
- 9:00 Pilot Project for Ghana Report out
- 11:00 Study Tour Evaluations
- 12:00 Lunch
 - Prepare to leave for New York

Sat, Nov 7: Depart for New York, leave for Ghana.