AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

Batch #22

1. SUBJECT CLASSIFICATION

A. PRIMARY: Agriculture — AM00-0000-G324

B. SECONDARY: Fisheries--Haiti

2. TITLE AND SUBTITLE

Technical assistance in freshwater fisheries development in Haiti,August 1973

3. AUTHOR(S)

Smitherman,R.O.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1973	16p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

Auburn

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*

9. ABSTRACT

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-RAB-353	
12. DESCRIPTORS	**13. PROJECT NUMBER**
Fresh water fishes Haiti Technical assistance	**14. CONTRACT NUMBER** CSD-2270 GTS
	15. TYPE OF DOCUMENT

AID 590-1 (4-74)

TECHNICAL ASSISTANCE IN FRESHWATER FISHERIES DEVELOPMENT IN HAITI
August 20 - 31, 1973

by

R. Oneal Smitherman

International Center for Aquaculture
Auburn University
Auburn, Alabama 36830

ITINERARY FOR R.O. SMITHERMAN IN HAITI
August 20 - 31, 1973

August 20	Arrived Haiti from Auburn University
August 21	Orientation at U.S. Embassy with Mr. Lèroy Rasmussen, Rural Development Officer, and Mr. Scott Behoteguy, USAID Representative in Haiti
August 22	Consultations with Mr. J.E. Garnier, Chief of the Fisheries Service, Ministry of Agriculture, on site at Damien Fish Culture Station
August 23	Field trip with Mr. J.E. Garnier to the Village of Fond Parisien and Lac Azuei Tilapia Fishery
August 24	Field trip to rice paddy fish culture in Dessalines
August 25	Field trip to meat markets and fish markets in Port-au-Prince
August 26	Preparation for field trip to Cap Haitien and environs
August 27	Field trip with Messrs. Garnier, Behoteguy and Rasmussen to the Central Plateau. Visited fish ponds of Missionary Church near Pignon
August 28	Field trip continued. Visit to Mission of Mennonite Central Committee at Grande Riviere du Nord
August 29	Field trip continued. Visit to fish markets and pond culture area near Limbe. Visit with HACHO (Haitian-American Community Help Organization) officials at Gonaives to discuss fish culture. Visit with Nationalist Chinese Agricultural Mission near St. Marc to discuss rice paddy fish culture
August 30	Debriefing and reporting to Rural Development Officer and and USAID Representative
August 31	Depart Haiti for Auburn University

TECHNICAL ASSISTANCE IN FRESHWATER FISHERIES DEVELOPMENT IN HAITI
August 20 - 31, 1973

by

R. Oneal Smitherman
International Center for Aquaculture
Auburn University
Auburn, Alabama 36830

INTRODUCTION

At the request of the Haitian Government, USAID/Haiti provided for two weeks technical assistance in freshwater fisheries through the International Center for Aquaculture, Auburn University, Auburn, Alabama. The travel, study and consultations with Haitian fisheries personnel was carried out August 20 - 31, 1973

BACKGROUND

The Government of Haiti, with the assistance of the United Nations Mission, initiated a program of freshwater fisheries improvement in 1950. A fishculture station was established at Damien as a fingerling production center for carp and tilapia and so that some fish production tests could be done. United Nations experts remained in Haiti for 4 years and the present Chief of the Fisheries Service, Mr. J.E. Garnier, received on-site training and limited out-of-country training in British Guiana and Brazil. A Fisheries Service was created by law in 1958 and, although it has as its responsibilities both marine and freshwater fisheries, work has been concentrated in freshwater

areas and fishculture on farms. A vigorous program of fingerling production (both carp and tilapia) was pursued at Damien Fish Culture Station during 1958 - 1966 (Table 1). In 1966, Mr. J.E. Garnier left the country for a year's training in Marine Fisheries in France and Germany. During his absence, no fish were produced or stocked, the single vehicle owned by the Fisheries Service was sold and not replaced, and fish production and distribution from the Damien Station has been reduced to about 10 per cent of its former output. Fishes which have been distributed were carried by individual farmers using public transportation.

In 1971, an Auburn University Team, Lovell and Moss, recommended that the U.S. Government respond to requests for assistance in Haiti by providing three vehicles for use at the Damien Fish Culture Station for fish transport to the interior and for extension work. Other equipment recommended included fish transport tanks, nets and supplies. The critical lack of budget for the Fisheries Service was noted and a minimum figure for vehicle operation and pond maintenance was suggested.

These recommendations were followed by the U.S. Embassy to Haiti, and the vehicles and other equipment were procured for the Fisheries Service by the U.S. Government during 1972. Customs clearance problems were encountered through an apparent series of communication breakdowns, but all items have been received by the Haitian Ministry of Agriculture with the exception of three fish nets, which were still in Customs as of August 22, 1973 (Table 2). Operational budgets for the Damien Fish Culture Station, including vehicle maintenance and travel for employees, apparently is non-existent,

necessitating personal expenditures by the Chief of the Fisheries Service. Budgets have been submitted for the fiscal year 1973 - 1974, beginning in October 1973. Without allocation of this budget, the U.S. Government investment in the Fisheries Development Project will have been virtually for naught.

CURRENT PROGRAMS AND PROPOSED ACTIONS BY HAITIAN GOVERNMENT

The Project Agreement 72-2 which serves as a base for the U.S. Government - Haitian Government undertaking in freshwater fisheries development was finalized on January 28, 1973 and requires the following actions by the Haitian Government:

1) Plans and itineraries are to be made to implement an extension program, and, to the extent possible, begin renovation and prepare ponds for stocking at Damien;

2) Extension workers from the Fisheries Service are to provide demonstrations at Etang Saumatre and other inland waters to instruct and encourage fishermen to use improved fishing methods, construct boats and rafts and preserve fish by salt or sun-drying;

3) Ponds and new inland waterways are to be cleaned, repaired and stocked.

Although formal plans have not been reviewed, discussions with the Director of Fisheries indicate that budgetary limitations have prevented renovations at Damien and have similarly prevented extension work at Lac Azuei and other interior locations. The work, as stated in the project agreement, will be followed by the Fisheries Service in October. (It is noted that this starting date is also the beginning of fiscal year 1973 - 1974).

Current programs which consist mainly of stocking existing lakes and ponds have concentrated mainly on carp since this fish commands a higher price $.20/pound versus $.10 to $.15/pound for tilapia. There is, however, need for continual restocking of carp by the Fisheries Service after each crop of 4 - 6 months growing season, since carp do not normally spawn in small ponds without special handling techniques. However, carp have reproduced successfully in rivers and lakes, and both carp and tilapia have formed valuable additions to the animal protein supply of Haiti.

EDUCATIONAL LEVEL OF FISHERIES PERSONNEL

As indicated in Table 3, only the Chief of the Fisheries Service, Mr. Garnier, has had any outside fisheries training. Mr. Garnier gained a great deal from the FAO experts, but is lacking in several basic areas of fish culture. Some of his problems are compounded by budgetary limitations. Mr. Garnier, and his assistant, Mr. Dessources, could both benefit by training at Auburn University. The possibility of a one-year special training course, or 1 - 1/2 to 2-year advance degree program should be considered for Mr. Dessources. He is a young agronomist, recently added to the fisheries staff, and, according to Mr. Garnier, was a good student and speaks English well.

MAJOR PROBLEMS OBSERVED IN THE HAITIAN FISHERIES PROGRAM

These problems center mainly about a lack of resources. The great personal effort made by Mr. Garnier to keep the fish culture program alive over a 20-year period, with the aim to improve the nutrition of the Haitian

peasant, is to be highly commended. The program deserves continued assistance but it appears that some insistance must be made on the part of the U.S. Government to see that the terms of the agreement are carried out. The terms cannot be carried out by the Haitian Government unless Mr. Garnier is given a more nearly adequate budget. The major steps needed to improve the fisheries program are:

1) Improve the water supply to Damien Fish Culture Station Ponds. It was discovered that an auxiliary 6" well at Damien was dug by the Point IV program several years ago, and is lying idle some 200 yards from the fish ponds. It is likely that this, with replacement of the pump engine for a cost of approximately $2,000, could greatly improve the water supply. If not, a 6" - 8" well should be drilled.

2) Damien ponds should be cleaned and deepened, although this is not as critical as water supply.

3) Office and storage at Damien Station should be expanded from 45 m^2 to 100 m^2.

4) Labor and maintenance at Damien Station should be increased from 3 to 10 men.

5) Extension work at Lac Azuei and Lac Peligre should be begun as soon as possible to improve fishing methods and preservation

of the catch. These activities will require capital investment by the Haitian Government since nets and other improved gear is not presently owned by either the local fishermen or the Fisheries Service.

6) Extension workers in each district should be provided with 10' - 15' x 4' x 1/8" seines so the adequacy of fish reproduction could be simply checked to reduce unnecessary costs in annual restocking of lakes and streams.

7) Various improvements in fish feeding, pond fertilizing, insect predator control, etc. (already discussed with Mr. Garnier), should be instituted.

8) Training should be provided to selected Haitian fisheries personnel at Auburn University, International Center for Aquaculture. Presently 60 graduate students, representing 12 developing countries are studying fisheries at that institution.

9) A technician from Auburn University, or selected by the International Center for Aquaculture, should be provided for two years as counterpart to Mr. Garnier to provide on-site training in fish production techniques and to assist in extension programs.

Table 1

DISTRIBUTION OF FISH; CONSTRUCTION OF PONDS; STOCKING OF PONDS, LAKES AND RIVERS
1958-1973

Fiscal Year	Distributed		Ponds		Stocked	
	Carp	Tilapia	Constructed	Stocked	Rivers	Lakes
58-59	113,428	106,428	400	400	3	2
59-60	94,428	212,858	754	754	2	1
60-61	115,428	165,000	754	754	3	1
61-62	98,428	74,428	600	600	1	2
62-63	99,728	106,428	800	800	2	1
63-64	115,428	63,625	900	900	4	1
64-65	117,428	70,500	414	414	-	1
65-66	25,000	15,000	100	100	-	-
66-67	-	-	-	-	-	-
67-68	13,000	8,000	62	62	-	-
68-69	15,673	3,500	40	40	-	-
69-70	35,620	2,025	98	175	-	-
70-71	34,822	1,125	70	225	-	-
71-72	42,117	-	40	325	-	-
72-73	-	-	-	-	-	-
Totals	920,528	828,917	5,032	5,549	15	9

TABLE 2 STATUS OF USAID COMMODITIES PURCHASED FOR FISHERIES SERVICE, HAITI AS OF 8/22/73

REF.: PROAG 72-2; PROJECT 521-15-998-062; PIO/C 521-062-5-20005

ITEMS	QUANTITY	DESCRIPTION	ARRIVED HAITI	CLEARED CUSTOMS	PRESENT LOCATION
1	1	1½ ton Dodge Truck	Jan. 1973	Apr.1973	Fac.Agr.Vet.Medicine
2	2	½ ton Dodge Pickup	Jan. 1973	Apr.1973	Fac.Agr.Vet.Medicine Damien Fishculture Sta.
3*	2	1½ m^3 Fish Transport Tank	I./A*	N/A*	Damien Fishculture Sta.
4a**	1	Fishnet, 200 ft. 2-inchmesh	Aug. 1972	Not** Cleared	Customs, Port-au-Prince
b**	2	Fishnet, 50 ft. 1.5-inchmesh	Aug. 1972	Not** Cleared	Customs, Port-au-Prince
c	2	Aquarium, 55 gal.	Aug. 1972	Apr.1973	Damien Fishculture Sta.
d***	2	Aquarium Air Pump	Aug. 1972	N/A***	Damien Fishculture Sta.

* Local construction, U. S. Treasury check to Ministry Agriculture, Natural Resources and Rural Development.

** Shipped by net company from U. S. without required Haitian Consulate customs documents.

*** Sent by air pouch from Washington to U. S. Embassy, Haiti, no clearance required.

TABLE 3. EDUCATIONAL LEVEL OF FISHERIES SERVICE STAFF HAITI, August 22, 1973

STAFF	POSITION	Primary School	Secondary School	University	Special Training
Agr. E. Carnier	Chief, Fisheries Service	X	X	X	X *
Mr. C. Mothersil	First Ass't to Chief	X	X		
Agr. C. Dessources	Second Ass't to Chief	X	X	X	
Mr. E. Charles	Station Foreman Damien	X			
Mr. P. Innocent	Ponds Keeper	X			
Mr. Joseph Rénélus	Net Maker	X			
Mr. D. Germain	Watchman	X			
3 Laborers	Maintenance	X			
9 Field Staff	Fisheries Extension Agents	X			

* Agr. E. Carnier received the following special training:
A. 1950 - 1954: Counterpart to FAO Fishculture Visiting Experts
B. 1952 : 5 months observation with Brazilian Freshwater Fisheries Biologists, Fortaleza, Brazil
C. 1952 : 3 months observation with Dutch Freshwater Fishculturist in British Guiana
D. 1965 : 1 year study of Marine Fisheries in Paris, France
E. 1966 : 2 months short course in Fisheries Technology, Germany

TABLE 4. DAMIEN FISHCULTURE STATION STAFF HAITI, August 22, 1973

NAME	PRESENT POST	YEARS EXPERIENCE	SALARY/ $MO.
Agr. Emmanuel Carnier	Chief Fisheries Service; Chief Damien Station	20	$260
Mr. Gérard Mothersil	First Ass't to Chief, Fisheries Service, Damien Station	14	150
Agr. Cauvain Dessources	Second Ass't to Chief, Fisheries Service, Damien Station	4	160
Mr. Edner Charles	Station Foreman	20	70
Mr. Princivil Innocent	Ponds Keeper	14	40
Mr. Joseph Rénélus	Net Maker	4	40
Mr. Dieujuste Germain	Watchman	10	40
3 Laborers *			21

* Labor force down from 10 to 3 since year 1955, resulting in poor pond and water canal maintenance.

TABLE 5. FISHERIES EXTENSION AGENTS HAITI August 22, 1973

NAME	PRESENT POST	PREVIOUS POST	TIME AT DAMIEN FISHCULTURE STA.	YEARS EXPERIENCE	SALARY/ $MO
Mr. Wesner Hendrick	Lac Azuei (Thomazeau)	Lac Péligre	3 months	10	50
Mr. Marc Avril	"	-	"	2	60
Mr. Damolière St. Cyr	Léogane	-	"	14	80
Mr. César Noléon	Verrettes	-	"	14	110
Mr. Strahibert Michel	St. Marc	Damien	18 years	20	40
Mr. Philippe Datus	Dessalines	-	3 months	20	90
Mr. Silencieux André	Limbé	-	"	14	70
Mr. Eberlé Anglade	Aquin	-	"	14	70
Mr. Wilga Jean-Baptiste	Cayes	-	6 months	4	60

Table 6

RIVERS STOCKED WITH CARP & TILAPIA 1954 - 1973

RIVER	LOCATION	DEPARTMENT
Rivière Grise	Port-au-Prince	West
Rivière Momence	Léogane	West
Riviere du Sud	Cayes	South
Rivière Grande Anse	Jérémie	South
Rivière Artibonite	Petite Rivière de l'Artibonite	Artibonite
Trois Rivières	Port-de-Paix	Northwest
kivière Limbé	Limbé	North
Rivière Plaisance	Plaisance	North
Rivière du Borgne	Borgne	North
Rivière Aguamouche	Hinche	Central
Rivière Ondever	Mirebalais	Central
Rivière Laterme	Mirebalais	Central
Rivière Canot	Maissade	Central
Rivière Samana	Hinche	Central
Grande Rivière du Nord	Grande Rivière	North

Table 7

LAKES STOCKED WITH CARP AND TILAPIA, 1958-1973

	LAKE	LOCATION	DEPARTMENT
1.	Azuei	Thomazeau	West
2.	Bois Neuf	St. Marc	Artibonite
3.	Dovaite	St. Marc	Artibonite
4.	Péligre	Mirebalais	Artibonite
5.	Miragoane	Miragoane	South
6.	Grande Feuille	Jérémie	South
7.	Duricy	Petit Goave	South
8.	La Chaux	Cayes	South
9.	Cocoyé	Cayes	South

Table 8.

PONDS USE ON DAMIEN FISH CULTURE STATION
FISHERIES SERVICE
GOVERNMENT OF HAITI
AUGUST 22, 1973

POND	SIZE (M^2)	PRESENT USE	FUTURE USE *
1	1,200	Carp Fry Production	Same
2	290	Carp Fry Production	Same
3	290	Carp Fry Production	Same
4	290	Carp Fry Production	Same
5	300	Carp Brood Holding	Same
6	2,000	No Water	Carp Fry Production
7	840	No Water	Carp Fry Production
8	1,600	Rice + Carp	Same
9	1,500	Rice + Carp	Same
10	1,400	Carp Brood Holding	Same
11	1,600	No Water	Carp Fingerling Production
12	1,400	Tilapia Brood Holding	Same
13	600	♀ Carp Brood Holding	Same
14	420	Carp Brood Holding	Same
15	600	♂ Carp Brood Holding	Same
16	400	No Water	Carp Fry Production
17	5,000	No Water	Carp Food Fish Production
18	10,000	Carp Food Fish Production	Same

* Assuming that water supply to ponds is increased