

SOUTHERN REGIONAL AQUACULTURE CENTER
FIRST ANNUAL PROGRESS REPORT

February, 1989

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I. ADMINISTRATIVE OPERATIONS

A. First Year Funds

At a meeting on July 28, 1987, the SRAC Board of Directors voted to solicit proposals for the first year's funding in the following three categories:

Category A -- Marketing/Economics and Statistical Database

Category B -- Regional Educational Programs

Category C -- Water Quality, Conservation and Reuse

Subsequently, thirteen proposals (four in Marketing/Economics and Statistical Database, two in Regional Educational Programs, and seven in Water Quality, Conservation and Reuse) were received by SRAC. Peer review panels were established using several members of the Technical Committee, other aquaculture scientists within the Southern Region, and at least two scientists outside the Region for each category. After peer review, all proposals were submitted to the Board for consideration. On December 2, 1987, the Board directed that a total of \$625,000 be allocated to the combined three categories with these funds to be obligated for the duration of the proposals selected with second and/or third year funding contingent on satisfactory progress and accomplishment of the work proposed. After consideration of all proposals submitted, the Board approved the following funding:

Category A -- \$350,000 for the project "Analysis of Regional and National Markets for Aquacultural Products Produced for Food in the Southern Region" (1/1/88-9/30/89)

Category B -- \$150,000 for the project "Preparation of Southern Regional Aquaculture Publications" (1/1/88-12/31/89)

Category C -- \$125,000 for the project "Performance of Aeration Systems for Channel Catfish, Crawfish, and Rainbow Trout Production" (3/1/88-2/28/90)

The Southern Regional Aquaculture Center's First Annual Plan of Work for the period September 15, 1987, through September 30, 1990, contains a summary of the procedures used for selection of priority categories and solicitation of proposals, the procedures used for selection of proposals, and copies of the final proposals funded with first year monies.

The annual progress reports for each of the three proposals funded in 1988 were submitted to SRAC in November, 1988, and approved by the Board of Directors, Technical Committee co-chairmen and Industry Advisory Council chairman on December 14, 1988. Copies are included in this Southern Regional Aquaculture Center First Annual Progress Report.

B. Second Year Funds

On June 1, 1988, the Board of Directors met to discuss and select priority categories for funding with second year funds. At that time it was decided that SRAC would utilize all annual appropriations each year rather than funding proposals for their duration. The following four categories, methods of solicitation of proposals, and annual appropriations were approved by the Board:

Category A -- Data Collection Systems (Work Group) -- \$50,000

Category B -- Effects of Nutrition on Fat Catfish (Work Group) -- \$275,000

Category C -- Aquatic Health Management (Competitive Proposals) -- \$100,000

Category D -- Harvesting Technology (Work Group) -- \$125,000

Five proposals are under preparation in the above categories. The process used to develop these proposals, together with a copy of the final proposals, as approved by the Board of Directors on December 14, 1988, will be included in the Southern Regional Aquaculture Center Second Annual Plan of Work. Titles of the proposals are:

Category A -- "Develop a Statistical Data Collection System for Farm-raised Catfish and Other Aquaculture Products in the Southern Region"

Category B -- "Effect of Nutrition on Body Composition and Subsequent Storage Quality of Farm-Raised Channel Catfish"

Category C -- (1) "Enhancement of the Immune Response to Edwardsiella ictaluri in Channel Catfish"; and (2) "Immunization of Channel Catfish"

Category D -- "Harvesting, Loading and Grading Systems for Cultured Freshwater Finfishes and Crustaceans"

C. Other SRAC Administrative Activities

In addition to the work involved with soliciting, reviewing and selecting proposals for funding by the Southern Regional Aquaculture Center, the Center staff provides a variety of administrative support functions for the Board of Directors, Technical Committee, Industry Advisory Council, and Work Groups. Some of the support functions the Center provides are listed below:

Attend and assist with meetings of the Board of Directors, Technical Committee and Industry Advisory Council; prepare minutes of Board of Directors meetings.

Solicit and receive nominations for membership on the Technical Committee and Industry Advisory Council.

Prepare Request for Proposals and Guidelines for Preparation of Proposals.

Attend and participate in meetings of the National Coordinating Council.

Prepare Grant Applications for FY 87 and FY 88.

Establish and maintain mailing lists for solicitation of proposals and announcement of Ad Hoc Work Group meetings.

Solicit external peer reviews of all project proposals.

Attend and participate in meetings of producers, industry representatives, scientists, and other involved in the aquaculture industry in the Southern Region and nationally.

Enter into subcontracts with all institutions participating in funded proposals; notify lead institutions for proposals not funded.

Prepare and submit to USDA the First Annual Plan of Work.

Participate in testimony before the House Subcommittee on Rural Development, Agriculture and Related Agencies Appropriations in support of the Regional Centers.

Contact members of the House Appropriations Committee as well as other members of Congress in the Southern Region regarding support for the Regional Centers.

Establish procedures for appointment of Administrative Advisor and Steering Committee, and use of Work Group to prepare proposals.

Assist Steering Committee with preparation and revision of Problem Statement for each category.

Prepare and distribute announcement and agenda, attend and assist with meetings of the Ad Hoc Work Groups, and prepare and distribute minutes.

Preparation and distribution of SRAC Operations Manual.

Serve as fiscal agent in distributing grant monies; receive and process invoices from participating institutions and track budget expenditures for each funded proposal; monitor proposal status and progress.

Establish procedures for publication of manuscripts and videos.

II. PROJECT PROGRESS REPORTS

A. ANNUAL PROGRESS REPORT OF REGIONAL PROJECTS

Southern Regional Aquaculture Center
February 1 to October 30, 1988

PROJECT: 87-CRSR-2-3218. "Analysis of Regional and National Markets for Aquacultural Products produced for Food in the Southern Region."

COOPERATING INSTITUTIONS:

AUBURN UNIVERSITY: Carol Engle¹, Upton Hatch and Henry Kinnucan
CLEMSON UNIVERSITY: Robert Pomeroy
LOUISIANA STATE UNIVERSITY: Lynn Dellenbarger
MISSISSIPPI STATE UNIVERSITY: James Dillard
TEXAS A&M UNIVERSITY: Oral Capps

PROGRESS OF THE WORK AND PRINCIPAL ACCOMPLISHMENTS:

Objective 1. To obtain and analyze comprehensive market information from consumers, retail groceries, and restaurants.

The work group began work in April, 1988, immediately upon receiving formal notice that the project was approved. The first task was to design and pre-test three different questionnaires for use in nation-wide surveys of consumers, restaurants and retail grocery stores. Copies of the questionnaires are appended.

The next task was to select a private marketing firm to develop random samples and conduct the telephone surveys. Bids were solicited and received from three firms, and two firms were invited to make personal proposals to the work group. Miller Research Associates of Little Rock, Arkansas was selected, primarily because of their low bid. A contract with Miller Associates was approved in May. The random sample of telephone numbers from

¹Carol Engle moved to University of Arkansas at Pine Bluff since initiation of the project, but continues to participate on a consulting basis.

all three populations (households, restaurants and grocery stores) was purchased by Miller Associates from a highly reputable Connecticut firm, Survey Sampling, Inc., which specializes in drawing samples. The actual telephone interviewing was begun the last week in May, and was completed in Mid-July. By the end of July, Miller Associates provided to the work group complete data sets representing 7200 interviews with 3600 consumers, 1800 grocery stores and 1880 restaurants.

The work group began editing and "cleaning-up" the data files in August. Analysis of the data is underway and publication of results should begin in the near future. The work group is meeting in November to finalize plans for publication, agree on authorship, etc.

The work group is developing a slide presentation consisting of high quality slides supported by a brief narrative of significant results of the survey data. This slide presentation will be made available to the SRAC, TCI, and other organizations. The work group members hope to use the slide presentations in meetings of producers, processors, and researchers involved in aquaculture in the Southern region.

Work at Texas A&M University is underway to utilize scanner data from a retail food firm in Houston, Texas to conduct demand analyses of aquacultural products - notably catfish, crawfish, trout, and shrimp. Three years of weekly data from this firm (January 1986 to December 1988) are being collected for the respective analyses.

Once the collection and organization of the data are completed, descriptive and empirical analyses will be conducted. The descriptive analyses will center on comparisons of shares of aquacultural products to finfish and shellfish products in general. The empirical analyses will focus on the development of single-equation or multi-equation demand models.

The endogenous variables will correspond to purchases of the respective products per customers. The respective exogenous variables will include: (1) the price per unit of the respective aquacultural products, (2) the prices per unit of substitute products, (3) square centimeters of advertising space of aquacultural products, (4) square centimeters of advertising space of other products, (5) total meat, poultry, and fish sales, (6) dummy variables to measure seasonality. On the basis of the econometric models, it will be possible to identify and assess the impacts of prices and advertising, total meat, poultry, and fish sales, and seasonality on purchases per customers. In this respect, for a particular market, it is possible to gain knowledge of the retail demand for aquacultural products.

Objective 2. To assess the effectiveness of advertising and promotion of farm-raised catfish.

Attempts to obtain data required for Objective 2 was initiated in September. A letter requesting certain data from the several larger catfish processing firms was mailed September 6 (see Attachment I). To date, only two firms have responded; one positively and one negatively. The response has been disappointing, particularly in view of the potential value to the catfish industry of completing this objective. The work group will continue to encourage processors to cooperate with this research (see Attachment II).

Objective 3. To develop an overall assessment of potential for producing and marketing catfish and crawfish in the Southern Region.

Work on this objective will begin immediately upon completing Objectives 1 and 2.

USEFULNESS OF FINDINGS:

Statistical analysis of survey data is just getting underway, thus the work group is hesitant to report any conclusions based on preliminary analysis. When the analysis is complete, findings should be of much interest to marketers of catfish, crawfish, and perhaps other aquaculture products. Statistical models are being developed that will relate regional levels of consumption, at home and away from home, with several demographic variables, and attitudes and perceptions of consumers, grocery store managers, and restaurant managers. This kind of information, coupled with findings from the advertising objective, should be of much value to firms and individuals planning marketing strategies.

WORK PLANS FOR NEXT YEAR:

All work proposed under objective 1 should be completed. At least three publications (plus papers and graphic presentations) are planned for the year. Work proposed under objective 2 will also be completed, if processors agree to release the information required for the research. The final assessment of market potential (objective 3) may carry over into the next fiscal year since this project was not approved and started until mid-way of the first fiscal year. The demand analysis being conducted at Texas A&M will be completed as proposed.

BUDGET:

Only 49 percent of funds approved for this fiscal year were used because of the late starting date. However, the services of several research associates and graduate students have been obtained, and are currently on-board working on this project. To obtain top quality research associates, two participating states made two-year commitments for these

positions. Thus, a request may be made to the SRAC to carry-over some unused funds into the third fiscal year. This will extend the project for two full years from initiation date, as proposed.

The budget originally approved for this project is shown in Table 1. A revised budget (Table 2) is submitted for approval. The proposed revised budget reflects the following changes:

1. The unused balance from year 1 was moved to year 2.
2. Four states (AL, LA, MS, and SC) reduced their salaries and wages budgets by \$500 each to provide \$2,000 travel funds for Dr. Carol Engle. These funds were added to Mississippi's travel budget under Year 2 and will be transferred to University of Arkansas at Pine Bluff as travel invoices are received.

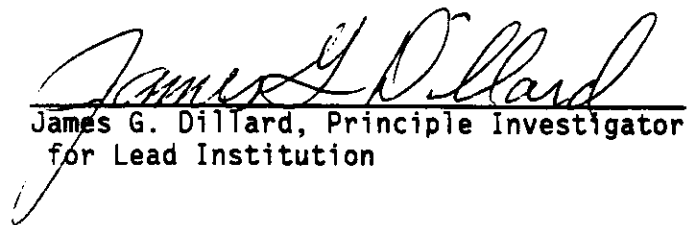

James G. Dillard, Principle Investigator
for Lead Institution

Table 1

Estimated Allocation of SRAC Funds to Cooperating States over two fiscal (Federal) years, by Budget Category.

BUDGET CATEGORY	-----FY88-----										-----FY89-----									
	AL	SC	LA	MS	TX	TOTAL YR.1	AL	SC	LA	MS	TX	TOTAL YR.2	TOTAL 2 YRS.							
Salaries and Wages	30.4	17.4	29.8	26.7	5.1	109.4	30.0	18.5	29.8	27.8	3.2	109.3	218.7							
Fringes a/	3.7	3.5	1.5	3.3	0	12.0	3.7	3.7	1.5	3.4	0	12.3	24.3							
Expendable b/ Materials	1.5	1.5	0	2.1	.5	5.6	0	1.5	0	1.5	.5	3.5	9.1							
Non-expendable Equipment c/	0	1.8	0	0	0	1.8	0	0	0	0	0	0	1.8							
Travel	1.3	1.7	1.0	1.3	1.5	6.8	1.0	1.7	.6	1.0	2.0	6.3	13.1							
Analytical Services	0	0	0	75.0d/	4.5	79.5	0	0	0	0	1.5	1.5	81.0							
Publications	0	0	0	0	0	0	0	0	0	1.0	1.0	2.0	2.0							
TOTAL	36.9	25.9	32.3	108.4	11.6	215.1	34.7	25.4	31.9	34.7	8.2	134.9	350.0							

a/ Estimated to average 11 percent

b/ Includes paper, typing supplies, copying, postage, telephone, and computer diskettes.

c/ Consists of expense for portable computer

d/ Contractual costs of conducting surveys.

Table 2

ESTIMATED ALLOCATION OF SRAC FUNDS TO COOPERATING STATES OVER TWO FISCAL (FEDERAL) YEARS, BY BUDGET CATEGORY. (REVISED 11-4-88)

BUDGET CATEGORY	FY88						FY89						TOTAL 2 YRS.
	AL	SC	LA	MS	TX	TOTAL YR.1	AL	SC	LA	MS	TX	TOTAL YR.2	
SALARIES AND WAGES	6750	5091	2250	3259	2060	19410	53250	30409	56950	50841	6240	197690	217100
FRINGES A/	1428	527	590	36	0	2581	5872	6573	2310	6564	0	21319	23900
EXPENDABLE B/ MATERIALS	23	783	0	709	104	1619	1477	2217	0	2891	896	7481	9100
NON-EXPENDABLE EQUIPMENT C/	0	1700	0	0	0	1700	0	0	0	0	0	0	1700
TRAVEL	692	116	313	243	910	2274	1608	3384	1287	4057D/	2590	12926	15200
ANALYTICAL SERVICES	0	0	0	75000E/	2940	77940	0	0	0	0	3060	3060	81000
PUBLICATIONS	0	0	0	0	0	0	0	0	0	1000	1000	2000	2000
TOTAL	8893	8217	3153	79247	6014	105534	62207	42583	60547	65353	13786	244466	350000

- A/ ESTIMATED TO AVERAGE 11 PERCENT
- B/ INCLUDES PAPER, TYPING SUPPLIES, COPYING, POSTAGE, TELEPHONE, AND COMPUTER DISKETTES.
- C/ CONSISTS OF EXPENSE FOR PORTABLE COMPUTER
- D/ INCLUDES \$2,000 FOR DR. CAROL ENGEL AT UNIVERSITY OF ARKANSAS AT PINE BLUFF
- E/ CONTRACTUAL COSTS OF CONDUCTING SURVEYS

Aquaculture Marketing Survey
Consumer Questionnaire

F80448C

Hello, this is _____ from Miller Research Group in Little Rock, Arkansas. We're doing an opinion survey about people's food purchases. May I speak with an adult male living in your household? IF UNAVAILABLE, SUBSTITUTE ADULT FEMALE, UNTIL SEX QUOTA IS FILLED.

1. Do you eat fish or seafood? (1) Yes (2) No - Skip to Q.7
2. What member of your family generally purchases fish and seafood for home consumption?
 - (1) Respondent
 - (2) Other family member
- 2a. How often do you or your family generally purchase fish and seafood for home consumption? Would you say . . . ?
 - (1) Less than once a month
 - (2) 1 - 2 times per month
 - (3) 3 - 4 times per month
 - (4) More often
 - (7) Never - Skip Q.4
 - (9) Don't know, it depends
3. When you or your family eat fish or seafood at home, where is it generally purchased?
 - (1) Supermarket or grocery store
 - (2) Fish or seafood market
 - (3) Gourmet specialty store
 - (4) Caught by some member of the family
 - (5) Local live market/fish farm
 - (6) Restaurant take-out
 - (7) It varies
 - (9) Don't know
4. How often do you generally purchase fish and seafood at a restaurant? Would you say . . . ?
 - (1) Less than once a month
 - (2) 1 - 2 times per month
 - (3) 3 - 4 times per month
 - (4) More often
 - (7) Never
 - (9) Don't know, it depends
5. What are your three favorite types of fish or seafood?
6. When you think of a good fish to eat which species do you think of?

7. Using a scale from 1 to 10, where 1 means strongest disagreement and 10 means strongest agreement, please tell me whether you agree or disagree with the following statements. You may use any number in between. (99) Don't know, it depends

- 7a. Fish is readily available.
- 7b. Fish is of consistently high quality.
- 7c. The appearance and packaging of the fish is attractive.
- 7d. Fish has no undesirable fishy odor.
- 7e. Fish has a mild, delicate flavor.
- 7f. Fish is of high nutritional value.
- 7g. Doctors recommend eating more fish for health reasons.
- 7h. Fish has few bones.
- 7i. Fish is easy to prepare at home.
- 7j. Fish is inexpensive compared to other meat.

8. Have you heard of farm-raised catfish?
(1) Yes (2) No-Skip to Q.9

8a. IF YES, Do you perceive farm-raised catfish as different from other catfish?
(1) Yes (2) No (9) Don't know

9. Have you ever eaten catfish? (1) Yes (2) No - Skip to Q.10

9a. On a 10 point scale where 1 means catfish is worst and 10 means that catfish is best, how would you compare catfish to other fish and seafoods?

9b. How often do you or your family purchase catfish for consumption at home? Would you say . . . ?

- (1) Less than once a month
- (2) 1 - 2 times per month
- (3) 3 - 4 times per month
- (4) More often
- (7) Never - Skip to Q.9f
- (9) Don't know, it depends

9c. What form of catfish do you generally purchase for home consumption? RECORD UP TO THREE MENTIONS.

- (1) Fresh fillets
- (2) Fresh steaks
- (3) Fresh dressed w/out head
- (4) Prepared entrees
- (5) Frozen fillets
- (6) Frozen steaks
- (7) Frozen dressed w/out heads
- (8) Prebreaded
- (9) Don't know

9d. When you or your family eat catfish at home, where is the catfish generally purchased:

- (1) Supermarket or grocery store
- (2) Fish or seafood market
- (3) From a local live market/fish farm
- (4) Caught by some member of the family
- (7) It varies
- (9) Don't know

9e. What quantity of catfish do you normally purchase at one time? RECORD ANSWER TO THE NEAREST POUND.

9f. How often do you purchase catfish at a restaurant? Would you say . . . ?

- (1) Less than once a month
- (2) 1 - 2 times per month
- (3) 3 - 4 times per month
- (4) More often
- (7) Never
- (9) Don't know, it depends

9g. Have you seen, read or heard any advertising for catfish?

- (1) Yes - ASK Q.9H
- (2) No

9h. Where did you see, hear or read it?

- (1) Television
- (2) Radio
- (3) Magazine
- (4) Newspaper
- (8) Other
- (9) Don't know/don't remember

10. ASK EVERYBODY. Using a scale of 1 to 10, where 1 means strong disagreement and 10 means strong agreement, do you agree or disagree with the following statements? You may use any number in between.

(99) Don't know, it depends

- a. Catfish is readily available.
- b. Catfish is of consistently high quality.
- c. The appearance and packaging of catfish is attractive.
- d. Catfish has no undesirable fishy odor.
- e. Catfish has a mild, delicate flavor.
- f. Catfish is of high nutritional value.
- g. Catfish has few bones.
- h. Catfish is easy to prepare at home.
- i. Catfish is inexpensive compared to other meat.
- j. Catfish is inexpensive compared to other fish.

11. Have you heard of crawfish? (1) Yes (2) No-Skip to Q.13

12. Have you ever eaten crawfish? (1) Yes (2) No-Skip to Q.13

12a. How often do you or your family purchase crawfish? Would you say . . . ?

- (1) Less than once a month
- (2) 1 - 2 times per month
- (3) 3 - 4 times per month
- (4) More often
- (7) Never - Skip to Q.13
- (9) Don't know, it depends

12b. What form of crawfish do you generally purchase?

- (1) Boiled
- (2) Live
- (3) Tail meat or
- (4) Prepared entrees
- (7) It varies
- (8) Other (write in)
- (9) Don't know

12c. Do you ever eat crawfish at home?

- (1) Yes - continue
- (2) No - Skip to Q.13

12d. When you or your family eat crawfish at home, where are the crawfish generally purchased?

- (1) Supermarket or grocery store
- (2) Fish or seafood market
- (3) Gourmet specialty store
- (4) Processing facility
- (5) From a farmer
- (7) It varies
- (9) Don't know

13. ASK EVERYBODY. On a scale of 1 to 10, where 1 means strong disagreement and 10 means strong agreement, do you agree or disagree with the following statements? You may use any number in between.

(99) Don't know, it depends

- a. Crawfish is readily available.
- b. Crawfish is of consistently high quality.
- c. The appearance and packaging of crawfish is attractive.
- d. Crawfish has nice flavor.
- e. Crawfish is of high nutritional value.
- f. Crawfish is easy to prepare at home.
- g. Crawfish is inexpensive compared to other meat.

14. Do any members of your family fish recreationally?

- (1) Yes
- (2) No - Skip to Q.15

14a. Does your family's recreational fishing . . . ?

- (1) increase your family's fish and seafood purchases
- (2) decrease them or
- (3) does it have no effect

INTERVIEWER NOTE: If no in Q.1 - Skip to Q.16

15. During which season of the year do you eat fish most often?

- (1) Winter
- (2) Spring
- (3) Summer
- (4) Fall
- (5) More than one season
- (6) No seasonal difference
- (9) Don't know

ASK EVERYONE Q.16 - Q.24

16. Does the female head of household work away from the home?

- (1) Yes
- (2) No

17. Do you reside in a:

- (1) Rural environment
- (2) Suburban area
- (3) Urban area

18. Is the occupation of the head of household:

- (1) Professional or administrator
- (2) Sales or clerical
- (3) Blue collar laborer
- (4) Full time agricultural worker
- (5) Unemployed
- (8) Other (write in)

19. Does the head of the household have:

- (1) Less than a high school education
- (2) A high school education
- (3) Some college
- (4) A college degree or
- (5) An advanced college degree

20. Is your household income:

- (1) Less than \$10,000
- (2) Between \$10,000 and \$20,000
- (3) Between \$20,000 and \$30,000
- (4) Between \$30,000 and \$40,000
- (5) Between \$40,000 and \$50,000
- (6) Greater than \$50,000
- (8) Refused
- (9) Don't know

21. How many individuals including yourself reside in your household?

21a. IF MORE THAN ONE: How many are under age 0 - 10?

- b. How many are age 11 - 20?
- c. How many are age 21 - 40?
- d. How many are age 41 - 60?
- e. How many are age 61 and over?

22. Is your religious preference:

- (1) Protestant
- (2) Catholic
- (3) Jewish
- (8) Other (write in)

23. Is your racial background?

- (1) White
- (2) Black
- (3) Hispanic
- (4) Asian
- (8) Other (write in)

24. What is your age?

25. Sex of respondent. (1) Male (2) Female

26. Census Subdivision.

27. Area code.

AQUACULTURE MARKETING STUDY
RETAIL GROCERIES QUESTIONNAIRE

F80448S

Hello, this is _____ from Miller Research Group in Little Rock, Arkansas. We're doing an opinion survey among retail grocery stores all over the country, not including convenience stores. Is your store a convenience store? IF YES, DISCONTINUE. May I speak to the manager, assistant manager, or meat manager please? Whoever would have the most familiarity with fish and seafood. ARRANGE FOR CALL-BACK IF NECESSARY.

1. Does your store sell catfish? (1) Yes - Skip to Q.2 (2) No

1a. What are the reasons your store does not sell catfish?

- (1) Haven't heard of it
- (2) Negative consumer attitudes
- (3) Unreliable supply
- (4) Storage problem
- (5) Wholesale price too high
- (6) Not fresh
- (7) Unavailable at certain times of the year
- (8) Other (write in)
- (9) Don't know

1b. Within the next year, what is the likelihood of your store beginning to sell catfish? Would you say . . . ?

- (1) Very likely
- (2) Somewhat likely
- (3) Somewhat unlikely
- (4) Very unlikely
- (9) Don't know

SKIP TO Q.12

2. How many years has your store been selling catfish?

- (1) Less than 6 months
- (2) 6 months - 1 year
- (3) Between 1 and 2 years
- (4) More than 2, but less than 5 years
- (5) More than 5 years
- (9) Don't know

3. Has your catfish supply been consistent?

- (1) Yes - Skip to Q. 4 (2) No

10. Does your store promote catfish?

- (1) Yes (2) No - Skip to Q. 11

10a. What means of promotion do you use? RECORD UP TO 3 RESPONSES.

- | | |
|-------------------------|----------------------|
| (1) In store signs | (6) Newspaper |
| (2) Discounted specials | (7) In store samples |
| (3) News circular | (8) Other (write in) |
| (4) Radio | (9) Don't know |
| (5) TV | |

11. Did the National Advertising Campaign for catfish result in the addition of catfish to your product line?

- (1) Yes (2) No (9) Don't know

12. Does your store sell crawfish?

- (1) Yes - Skip to Q. 13 (2) No

12a. What are the/is the reason(s) your store does not sell crawfish? RECORD UP TO TWO RESPONSES.

- (1) Haven't heard of it
(2) Consumer attitudes
(3) Wholesale price too high
(4) Not fresh
(5) Lack of demand
(8) Other (write in)
(9) Don't know

12b. Within the next year, what is the likelihood of your store beginning to sell crawfish? Would you say . . . ?

- (1) Very likely
(2) Somewhat likely
(3) Somewhat unlikely
(4) Very unlikely
(9) Don't know

SKIP TO Q.20

13. How many years has your store been selling crawfish?

- (1) Less than 6 months
(2) 6 months - 1 year
(3) Between 1 and 2 years
(4) More than 2 years, but less than 5 years
(5) More than 5 years
(9) Don't know

14. Which of the following forms of crawfish does your store sell?

(1) Sell (2) Don't sell (9) Don't know

- a. Fresh tail meat
- b. Frozen tail meat
- c. Individually frozen tail meat
- d. Fresh whole crawfish
- e. Frozen whole crawfish
- f. Breaded or processed tail meat

15. What other forms of crawfish does you store sell?

16. Has your crawfish supply been consistent?

(1) Yes - Skip to Q. 17 (2) No

16a. What problems have you had? RECORD UP TO TWO RESPONSES.

- (1) Insufficient quantity
- (2) Unavailable at certain times of the year
- (3) Certain product forms not always available
- (4) Inconveniently - sized purchased lots
- (8) Other (write in)
- (9) Don't know

17. How many pounds of crawfish do you sell weekly?

- (1) Less than 10
- (2) 11 - 50
- (3) 51 - 99
- (4) More than 100
- (9) Don't know

18. Have you had any problems with the quality of crawfish products?

(1) Yes (2) No - Skip to Q.19

18a. What problems have you had? RECORD UP TO TWO RESPONSES.

- (1) Freshness
- (2) Packaging
- (3) Wholesale price to high
- (4) Form of product
- (8) Other (write in)
- (9) Don't know

19. Does your store promote crawfish?

- (1) Yes (2) No - Skip to Q. 20

19a. What means of promotion do you use? RECORD UP TO THREE RESPONSES.

- | | |
|-------------------------|----------------------|
| (1) In-store signs | (4) Radio |
| (2) Discounted specials | (5) TV |
| (3) News circular | (6) Newspaper |
| (8) Other | (7) In-store samples |

20. What is the overall weekly sales volume of your store?
IF NECESSARY, ASK "IS IT . . . "

- (1) Less than \$40,000
(2) \$40,000 - 75,000
(3) \$76,000 - 99,000
(4) \$100,000 - 149,000
(5) \$150,000 - 200,000
(6) over \$200,000
(8) Refused
(9) Don't know

21. How many square feet does your store have?

- (1) Less than 20,000
(2) 20,000 - 29,000
(3) 30,000 - 39,000
(4) 40,000 or more
(9) Don't know

22. Is your store located in a:

- (1) Rural (2) Suburban (3) Urban area

23. Which two of these groups make up the largest part of your customer base:

- | | |
|------------------------|-----------------------|
| (1) Low income black | (5) High income black |
| (2) Low income white | (6) High income white |
| (3) Middle class black | (7) Asian |
| (4) Middle class white | (8) Hispanic |

24. What is the name of your store?

24a. Is your store part of a chain?

- (1) Yes (2) No - Skip to Q. 25

24b. How many stores does it have nationwide?
(99) Don't know

25. Does your store have a specialized fish market section separate from the meat counter?

- (1) Yes - Skip to Q. 26 (2) No

25a. What is the likelihood of your store adding such a seafood section?

- (1) Very likely
(2) Somewhat likely
(3) Somewhat unlikely
(4) Very unlikely
(9) Don't know

26. What are the top five fish and seafood products in terms of sales? USE CODE SHEET A

27. What are the three seafood items with fastest sales growth in the last year?

28. Census Subdivision

29. Area Code.

7. Have you always been able to get a consistent supply of catfish? (1) Yes - Skip to Q.8 (2) No - ASK Q.7a
- 7a. What has the problem been?
- (1) Size availability
 - (2) Unavailable at certain times of the year
 - (3) Ocean or river catfish not always available
 - (8) Other (write in)
8. What form of catfish do you purchase? RECORD UP TO 5 RESPONSES.
- (1) Whole fresh
 - (2) Whole frozen
 - (3) Fresh fillets
 - (4) Frozen fillets
 - (5) Fresh steak
 - (6) Frozen steak
 - (7) Prepared entree (fresh)
 - (8) Prepared entree (frozen)
 - (9) Other (write in)
9. How many pounds of catfish do you purchase weekly?
- (1) Less than 50 lbs.
 - (2) 50 - 99 lbs.
 - (3) 100 - 199 lbs.
 - (4) More than 200 lbs.
 - (9) Don't know
10. In which of the following ways do you prepare catfish?
- (1) Prepare (2) Do not prepare (9) Don't know
- a. fried
 - b. baked
 - c. grilled
 - d. blackened
 - e. whole
 - f. broiled
 - g. breaded
 - h. headless
 - i. fillet
 - j. boiled/stew/gumbo
11. In what other ways, if any, do you prepare catfish?
12. In which of the following ways do you serve catfish?
- (1) Serve (2) Do not serve (9) Don't know
- a. sandwich
 - b. main dish or entree
 - c. appetizer
13. In what other ways, if any, do you serve catfish?

14. Have you had any problems with the quality of catfish products?
(1) Yes (2) No - Skip to Q.15

14a. What problems have you had? RECORD UP TO TWO RESPONSES.

- (1) Off-flavor
- (2) Freshness
- (3) Packaging
- (4) Form of product
- (8) Other (write in)
- (9) Don't know

15. Using a scale of 1 to 10, where 1 means strongest disagreement and 10 means strongest agreement, do you agree or disagree with the following statements? You may use any number in between.
(99) Don't know

- a. Selection of menu items is under your control.
- b. Supply of catfish is of reliable quality.
- c. Catfish is always readily available.
- d. The patrons of my restaurant like to eat catfish.
- e. Catfish is a high quality fish.
- f. Catfish has little fishy odor.
- g. Catfish has little fish taste.
- h. Catfish has a nice fresh flavor.
- i. Catfish is easy to prepare.
- j. The price of catfish is too high relative to my patron's desire to eat catfish.
- k. The patrons of my restaurant like the variety that catfish on the menu provides.

SKIP TO Q.17

16. On a scale of 1 to 10 where 1 means you strongly disagree and 10 means you strongly agree, how do you feel about these statements? You may use any number in between.
(99) Don't know

- a. Selection of menu items is under your control.
- b. I have considered adding catfish to my menu.
- c. It would be difficult to add catfish to my menu.
- d. Supply of catfish is of reliable quality.
- e. Catfish is always readily available.
- f. The patrons of my restaurant do not eat catfish.
- g. Catfish is a high quality fish.
- h. Catfish has little fishy odor.
- i. Catfish has little fish taste.
- j. Catfish has a nice fresh flavor.
- k. Catfish is easy to prepare.
- l. The price of catfish is too high relative to my patron's desire to eat catfish.
- m. The patrons of my restaurant would like the variety that adding catfish to the menu would provide.
- n. I would consider adding catfish to my menu within the next year.

17. Does your menu include crawfish?
 (1) Yes (3) No - Skip to Q.27
18. In which of the following ways do you prepare crawfish for your menu? (1) Prepare (2) Do not prepare (9) Don't know
- a. gumbo d. bisque (pronounce: "BISK")
 b. boiled e. etoufee (pronounce: "A-TOO-FAY")
 c. fried
19. In what other ways, if any, do you prepare crawfish?
20. In which of the following ways do you serve crawfish?
 (1) Serve (2) Do not serve (9) Don't know
- a. whole
 b. side dish
 c. main dish
 d. tails
21. In what other ways, if any, do you serve crawfish?
22. What form of crawfish do you purchase?
 (1) Purchase (2) Don't purchase (9) Don't know
- a. fresh f. live
 b. tails g. peeled
 c. softshell h. unpeeled
 d. frozen i. prepared entree
 e. whole
23. What other form, if any, do you purchase?
24. How much crawfish do you purchase weekly (pounds)?
- (1) Less than 25 lbs.
 (2) 25 - 50 lbs.
 (3) 50 - 100 lbs.
 (4) More than 100 lbs.
 (9) Don't know
25. Have you always been able to get a consistent supply of crawfish? (1) Yes - Skip to Q.26 (2) No
- 25a. What has the problem been?
- (1) Unavailable at certain times of the year
 (2) Freshness
 (3) Packaging
 (4) Wholesale price too high
 (5) Product form
 (6) Negative consumer attitudes
 (8) Other (write in)
 (9) Don't know

26. On a scale from 1 to 10 where 1 means you strongly disagree and 10 means you strongly agree, how do you feel about these statements?

(99) Don't know

- a. Selection of menu items is under your control.
- b. Supply of crawfish is of reliable quality.
- c. Crawfish is always readily available.
- d. The patrons of my restaurant like to eat crawfish.
- e. Crawfish goes well with the menu.
- f. Crawfish has a nice fresh flavor.
- g. Crawfish is easy to prepare.
- h. The price of crawfish is too high relative to my patrons' desire to eat crawfish.
- i. The patrons of my restaurant like the variety that crawfish on the menu provides.

SKIP TO Q.29

27. On a scale from 1 to 10 where 1 means you strongly disagree and 10 means you strongly agree, how do you feel about these statements?

(99) Don't know

- a. Selection of menu items is under your control.
- b. I have considered adding crawfish to my menu.
- c. It would be difficult to add crawfish to my menu.
- d. Supply of crawfish is of reliable quality.
- e. Crawfish is always readily available.
- f. The patrons of my restaurant do not eat crawfish.
- g. Crawfish has a nice fresh flavor.
- h. Crawfish is easy to prepare.
- i. The price of crawfish is too high relative to my patrons' desire to eat crawfish.
- j. The patrons of my restaurant would like the variety that adding crawfish to the menu would provide.
- k. I would consider adding crawfish to my menu within the next year.

SKIP TO Q.29

INTERVIEWER NOTE: If "No" - Code 2 in Q.1, ask:

28. On a scale from 1 to 10 where 1 means you strongly disagree and 10 means you strongly agree, how do you feel about these statements?

(99) Don't know

- a. Selection of menu items is under your control.
- b. I have considered adding fish to my menu.
- c. The restaurant does not have the necessary space or equipment to prepare fish.
- d. It would be difficult to add fish to our menu.
- e. Fish is more difficult to prepare.
- f. Fish can cause storage problems.
- g. Fish storage and preparation give the restaurant an undesirable odor.
- h. Supply of fish is not of reliable quality.
- i. Fish is not always readily available.
- j. The patrons of my restaurant do not eat fish frequently.
- k. The price of fish is too high relative to my patrons' desire to eat fish.
- l. The patrons of my restaurant would like the variety that adding fish or seafood to the menu would provide.
- m. I would consider adding fish or seafood to my menu within the next year.

ASK EVERYONE:

29. What is the seating capacity of this restaurant?

30. How many years has this restaurant been in business?

31. In which of the following categories does this restaurant fall?

- (1) National Chain
- (2) Regional Chain
- (3) Independent
- (4) Family owned
- (8) Other (write in)
- (9) Don't know

32. In which of the following categories does this restaurant fall?
RECORD UP TO TWO RESPONSE(S).

- | | |
|----------------|--|
| (01) Steak | (07) Mexican |
| (02) Chicken | (08) Pizza |
| (03) Chinese | (09) Seafood |
| (04) Greek | (77) Combination of above,
no specialty |
| (05) Hamburger | (88) Other (specify) |
| (06) Italian | |

33. How important are the following to your restaurant business profit? Would you say . . . ?

- (1) Very important
- (2) Somewhat important
- (3) Less important
- (8) Service not available

- a. Breakfast
- b. Lunch
- c. Dinner/supper
- d. Carry out
- e. Banquet

34. Is your restaurant located in a . . . ?

- (1) Rural Area
- (2) Suburban Area
- (3) Urban Area

35. Census Subdivision.

36. Area Code.

B.

ANNUAL REPORT

SRAC PROJECT NUMBER: 32-61-2-9025-350 CSRS NUMBER 87-CSRS-2-3218

Title: Preparation of Southern Regional Aquaculture Publications

Cooperating Institutions, Agencies and Business Entities:

John Jensen - Alabama Cooperative Extension Service
Leroy Gray - Arkansas Cooperative Extension Service
Charles Cichra - Florida Cooperative Extension Service
Thomas Wellborn - Florida Cooperative Extension Service
George Lewis - Georgia Cooperative Extension Service
Ronnie Gilbert - Georgia Cooperative Extension Service
Michael Masser - Kentucky State University
Larry De La Bretonne - Louisiana Cooperative Ext. Svc.
Gary Jensen - Louisiana Cooperative Extension Service
Robert Duburow - Mississippi Cooperative Extension Svc.
Jeffrey Hinshaw - North Carolina Cooperative Ext. Svc.
Ronald Hodson - North Carolina Cooperative Ext. Svc.
Thomas Schwedler - South Carolina cooperative Ext. Svc.
Joe T. Lock - Texas Agricultural Extension Service
Billy Higginbotham - Texas Agricultural Extension Svc.
George Chamberlain - Texas Agricultural Extension Svc.
Russell Miget - Texas Agricultural Extension Service.
James T. Davis - Principal Investigator, TAEX
(approximately 18 other scientists are participating as reviewers of publications)

Progress of the Work and Principle Accomplishments: The first objective of this project was to prepare a series of reference manuals for use and distribution throughout the Southern Region in cooperation with the State Cooperative Extension Services. Progress to date on each series is as follows:

1. Channel Catfish in Delta Ponds - Three of the 7 or 8 fact sheets have been prepared and are ready for paste-up except for art work.
2. Channel Catfish in Hill Country Ponds - Author is writing
3. Rainbow and brown trout - Author is writing
4. Baitfish - All fact sheets are in and awaiting art work
5. Tilapia - Scheduled for early 1989
6. Small Scale Marketing - Author is writing
7. Caged Fish Production - Returned to author for final approval of manuscript. (all 7 fact sheets)
8. 4-H Fish Production - Author is writing
9. Aeration Equipment and Utilization - Author is writing
10. Catfish Processing - Scheduled for 1989
11. Striped Bass and their Hybrids - Scheduled for 1989
12. Red Drum - Scheduled for 1989
13. Penaeid Shrimp - Scheduled for 1989
14. Crawfish - Scheduled for 1989
15. Largemouth Bass - Returned to Author for final approval (all fact sheets complete)

16. Forage fish - Returned to author for final approval of manuscript (all fact sheets complete)

The second objective of this project was the preparation of a series of videos to illustrate succinct points in the production of aquacultural products. Status of these is as follows:

1. Induced Spawning - Author indicates that script is completed and some film has been taken.
2. Crawfish Production - Most film footage has been completed and shooting script is out for final approval.
3. Catfish Production - Video is nearing completion and no pending final approval of credit lines, SRAC logo preparation and final editing.
4. Trout Production - Some filming is completed and will be finished in early 1989.
5. Alligator Production - Major portion of film footage has been completed along with scripting. Final editing and filming due in early 1989.
6. Striped Bass Production - Scheduled for 1989
7. Penaeid shrimp production - Scheduled for 1989
8. Red Drum Production - Script has been approved, filming has been completed, voicing and editing in progress, to be completed in early 1989.
9. Water quality, pond management and instrument use - Author working on script.

The third objective of this project was to collect and evaluate all of the aquacultural related computer software in the Southern Region and evaluate the possibilities of developing a common format. This was expanded to include software from all of the world that was applicable to Southern Regional species. These computer programs have been collected and are being evaluated at this time. It is expected that this report will be completed and printed in mid-1989.

The final objective of this project was to manage this project for the maximum output with the least travail for cooperating Extension Services. This objective has generally been reached with the exception of the amount of time required to prepare the publications and videos has been greater than expected by most of the authors. We are behind in our schedule in preparation of manuscripts but expect to recover during the winter months when field work schedules are less harassing for Extension Specialists

Usefulness of findings: Upon completion of an acceptable number of written publications (about 20) copies will be sent to each Cooperative Extension Service for their decision on how they would like to use the publications in their state. Camera-ready copy can be furnished or the Texas Agricultural Extension Service will print the publications at their cost (plus postage and handling) complete with individual state indices. Distribution will then be at the discretion of the individual states.

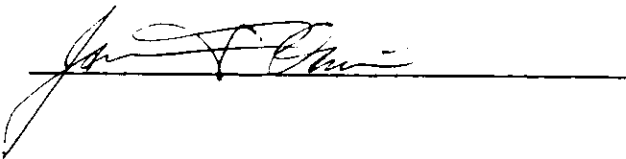
As each video is complete a 3/4 studio quality copy will be sent to each state. The decision on the use of these videos will be on a state-by-state basis. The original of each video will be retained by the preparing state for sale of copies outside the region.

Work planned for next year: All efforts will be made to encourage authors to complete and forward their completed manuscripts and shooting scripts by the February 1 deadline. At this time personnel commitments have been made only through July 1, 1989 for editors, artists and publications specialists. It is anticipated that this schedule can still be met with cooperation of the authors.

Publications issued or manuscripts approved during the year: as indicated above.

Budget See attached sheet.

Prepared by:

A handwritten signature in cursive script, appearing to read "John F. Elmer", is written over a horizontal line.

Date: November 1, 1988

Budget: 1989

Arkansas	\$ 5,000.00
Alabama	8,000.00
Georgia	4,000.00
Florida	9,000.00
Kentucky	5,000.00
Louisiana	17,000.00
Mississippi	5,000.00
N. Carolina	26,000.00
S. Carolina	12,000.00
Texas	47,072.37

REVISED BUDGET
 PREPARATION OF SOUTHERN REGIONAL AQUACULTURE PUBLICATIONS
 RECEIVED 11/3/88

	<u>ARK</u>	<u>AL.</u>	<u>GA</u>	<u>FLA</u>	<u>KY</u>	<u>LA.</u>	<u>MS.</u>	<u>NC</u>	<u>SC</u>	<u>TX</u>
SALARIES	3,000	5,000	2,400	4,000	3,000	10,500	3,000	9,000	9,000	30,000
FRINGE	500	810	300	750	400	1,500	540	--	1,200	5,125
SUPPLIES	100	500	500	500	--	--	--	2,000	--	1,125
CONT.SERV.	--	--	--	--	--	--	--	12,000	--	14,000
TRAVEL	400	500	300	1,250	600	2,000	460	3,000	800	2,075
EDIT ANALYST	800	1,000	400	2,000	600	2,000	800	--	1,000	6,300
PUBLICAT.	200	190	100	500	400	1,000	200	--	--	375
TOTALS	5,000	8,000	4,000	9,000	5,000	17,000	5,000	26,000	12,000	59,000

C. ANNUAL PROGRESS REPORT OF COOPERATIVE REGIONAL PROJECTS

PROJECT: "Performance of Aeration Systems for Channel Catfish, Crawfish, and Rainbow Trout Production"

COOPERATIVE INSTITUTIONS: Auburn University - Claude E. Boyd
Louisiana State University - F. Eugene Baker, J. David Bankston,
Thomas B. Lawson, and Robert P. Romaine
Mississippi State University - Craig S. Tucker
North Carolina State University - Jeffrey M. Hinshaw
Texas A & M University - James T. Davis

PROGRESS:

North Carolina. - Low-head packed columns filled with 1-inch Jaeger Tri-Park media had water flow rates up to 500 gpm and an average oxygen transfer efficiency of 62%. However, when installed on trout farms, the packed columns quickly lost oxygen transfer efficiency because of bacterial fouling of the packing media. Therefore, a different system has been constructed. It is a pressurized packed column of high oxygen-transfer efficiency which yields 350 gpm of water containing 400 mg/liter dissolved oxygen for mixing into production units. Oxygenation of raceways with this system has increased production per unit water flow by 170%. Oxygen cost is about \$0.10 per pound trout produced.

Environmental measurements (dissolved oxygen, carbon dioxide, ammonia, nitrite, nitrate, pH, etc.) and hematocrits and hemoglobin levels in fish blood are being measured in production units with and without oxygenation. Preliminary data fail to reveal large differences between treatments.

Auburn University. - A water circulation device has been designed and fabricated. It consists of a 40-inch diameter by 6-ft long tube into which was installed a large propeller. The device will propel water horizontal to the pond surface to affect mixing. Testing of this device will be initiated

before the end of the year. A hood for permitting the use of pure oxygen to supplement oxygenation by a surface aerator has been designed and the device will be constructed soon.

Several methods for measuring water circulation in ponds have been tested as follows: mixing of salts or dyes, movements of floats, and current meters. None of the methods have been entirely satisfactory, but of the three methods, floats are probably the best. Consultation with oceanographers revealed the clod card method for measuring water movement. In this method, blocks of plaster of Paris are placed on cards and suspended in the water. The dissolution rates of the plaster of Paris are related to the amount of current. This technique will be tested for use in measuring water currents in ponds.

Mississippi State University. - No work was scheduled for Mississippi State University during the first year of the project. However, the MSU investigator travelled to Auburn University to cooperate in the design of the water circulation device.

Texas A & M University. - Three paddle wheel aerator demonstration projects were conducted. In August 1987, paddle wheels were installed at 2.5 hp/acre. This amount of aeration provided adequate aeration. Afterwards, it was decided that aeration at 1.25 hp/acre was adequate for good water circulation and aeration. Water circulation precluded low oxygen spots in ponds and resulted in higher catch rates because it caused better dispersion of bait scent from traps. This project was toured by 431 people.

In June 1988, two of the paddle wheel aerators were moved to another 8-acre demonstration facility at the same site. This allowed 1.12 horsepower per acre. This level was adequate to maintain dissolved oxygen levels above 2.0 ppm during most of the month of June in spite of the very dense growth of rice in the pond. Catch rates in this pond were excellent until early July when water temperatures began to exceed 30 degrees daily and seldom dropped

below 23 degrees at night. Dissolved oxygen levels fell to below 1 ppm during the early morning hours. The addition of 2 more paddle wheels did not increase the dissolved oxygen levels. For the remainder of the months of July and August only two paddle wheels were operated. This demonstration was visited by 231 people.

On August 31 the four paddle wheel aerators were again installed in an 8-acre demonstration pond (2.5 hp per acre) and data are being collected and results disseminated to visitors at the demonstration site.

Louisiana State University. - Four paddle wheel aerators of a type previously tested at Auburn University were installed in four commercial crawfish ponds. Three of the ponds were designed for recirculation, the other was an open pond system without baffle levees. Two of the aerators were installed in St. Martin Parish, Louisiana; one in the pond of Russell Guidry, and one in the pond of Jeff Durand. A third unit was installed in Jeff Davis Parish in a pond belonging to Steve Alexander and a fourth unit was installed in an open pond system in Vermilion Parish belonging to Donald Sagrera.

The Guidry pond contains 33 acres and is long and narrow with a series of three baffle levees running the longitudinal direction. A 10 hp S&N aerator designed for catfish pond installations was installed in this pond. The 22 acre Jeff Durand pond has a recirculating system consisting of the perimeter levees and three interior baffle levees. A 5 hp S&N aerator was used. It was powered by a diesel generator set furnished by the Diesel Engine Center in Lafayette, Louisiana.

In the 30 acre Steve Alexander pond, a 10 hp S&N was used. The Alexander pond had three internal baffle levees and was designed for recirculation. The open pond system belonging to Don Sagrera was 20 acres in size and was aerated by a 10 hp Geddie system mounted in one corner of the pond.

Observations on the velocity of the water flowing in the return channel indicated that the initial velocity was much greater than the velocity of flow once a constant head across the aerator had been reached. This normally took

from 15 to 20 minutes. The aeration capability of these units had been previously established at the Auburn tests. Thus, since the dissolved oxygen levels in the ponds were near saturation, the emphasis of this work was the aerators ability to pump or circulate water.

We were also interested in the amount of energy required to operate these units under actual commercial operation. Therefore, the Kw demand and kilowatt hours usage were recorded as was diesel consumption of the generator set. The studies indicated that the capacity of these units to move water varied with the size, the vegetative matter in the pond and the physical arrangement to prevent short circuiting the water through the aerator. The range on the 10 hp units was from 2,284 gpm once stable velocity had been reached to 5,145 gpm. The Kw demand on these units was 6.5 (approximately 45.5 cents per hour). It was estimated that approximately 3 to 4 days was required to cycle the water throughout the pond systems tested. The 5 hp S&N unit installed in the Durand pond was moving water at 1,328 gpm minute and operating at a cost of approximately 30 cents per hour (diesel fuel cost).

USEFULNESS OF FINDINGS: The research efforts have not progressed far enough to benefit producers. However, by the end of the project, several items of benefit to producers will be available. Work at North Carolina State University indicates that pure oxygen application in raceways can increase trout production and methods for using pure oxygen will be forthcoming. Work at Auburn University and Mississippi State University will provide a better understanding of the importance of water mixing in channel catfish ponds.

The crawfish part of the proposal had a sizable extension component. In Texas, 662 people toured aerator demonstration projects. In Louisiana, an indication of producer interest was evidenced by the attendance of several area producers during the course of the studies. On May 16 and 17, 1988, Field Days were held at all pond locations in which the studies had been conducted. The data collected was presented and the units were demonstrated as was the use of dye to determine circulation within the pond system.

An exhibit was developed on the information collected, and was used at the Sugarcane Festival near New Iberia, Louisiana this year. This festival is attended by many individuals in aquaculture. The data collected was also the subject of presentations in Vermilion and Iberia Parishes at the Producer meetings this past year attended by approximately 250 individuals.

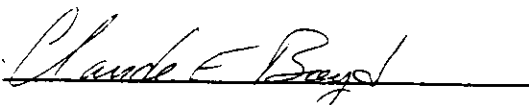
Next year's effort at Texas A & M and LSU should provide producers with recommendations on use of paddle wheel aerators in crawfish ponds.

WORK PLANNED FOR NEXT YEAR: The work plan for next year is essentially the same as that outlined in the original proposal. Work at Auburn University is slightly behind schedule because graduate student assistants were unavailable for the project until June. Now, the work at AU is progressing well and all objectives can be met by the end of the second year.

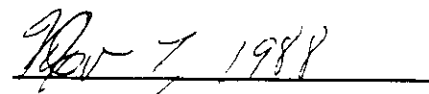
PUBLICATIONS: The project has not been in progress long enough for preparation of research reports. However, extension results have been presented at the Crawfish Farmers of Texas Workshop by J. T. Davis, and an article on use of paddle wheel aerators in crawfish ponds has been prepared for the Louisiana Crawfish Growers publication "Crawfish Tales" by the Louisiana investigators.

BUDGET: Budget requests for the upcoming year have not changed from those presented in the original proposal. However, Auburn University has not spent as much money as requested for last year because several aspects of the project were not initiated as early as hoped. However, these funds will be needed during the upcoming year. Therefore, the AU researcher requests that he be allowed to transfer the unspent portion of last year's budget to the budget for the upcoming year.

APPROVED:



Principal Investigator



Date

Auburn University

Auburn University, Alabama 36849-5419

College of Agriculture

Department of Fisheries
and Allied Aquacultures

International Center
for Aquaculture

Telephone: (205) 826-4786
Telex: 5106002392

United States of America

November 9, 1988

Dr. C. G. Shepherd
Director
Southern Regional Aquaculture Center
Delta Branch Experiment Station
P.O. Box 197
Stoneville, Mississippi 38776

Dear Dr. Shepherd:

As I told you by telephone, we were late starting on the AU part of the SRAC proposal for several reasons: failure to find graduate students, problems getting bids on water circulator, and slow delivery of water circulator by machinist. However, we are underway and will do everything that we proposed. However, we essentially need to ask for an 8-month extension of the project (until October 31, 1990) and be allowed to spend the total amount originally requested.

I have tried to explain our expenditures on the attached sheets. I will call you and discuss these items to make sure that you understand the status of the AU budget before your board meeting.

Sincerely,

Claude E. Boyd
Claude E. Boyd
Professor

CEB/jab

Salaries and Wages

Available 3/01/88 - 12/31/88: \$9,900

<u>Item</u>	<u>Amount</u>	<u>Status</u>
1. Graduate student salary	\$5,575	Will be spent by 12/31/88
Amount remaining	\$4,325	

Comment: The \$4,325 needs to be carried over into 1989.

Nonexpendable Equipment

Available 3/01/88 - 12/31/88: \$8,000

<u>Item</u>	<u>Amount</u>	<u>Status</u>
1. Variable speed mixing devices, small pump, and thermometer	\$1,435	P.O. prepared
2. Barometers	\$1,423	P.O. prepared
3. Flow meter	\$460	Paid
4. Tools	\$19	Paid
5. DO meter and probes	\$2,175	P.O. prepared
6. Salinity meter	\$800	P.O. prepared
7. Current meter	<u>\$1,675</u>	P.O. prepared
Total	\$7,987	

Comments: Cannot use the propeller-aspirator-pump aerator in original request. We must build the aerator for pure O₂ work, so the funds will come from Expendable. The actual items needed in this section are somewhat different from original request, because we found it necessary to alter some of our techniques.

The purchase orders have been made, but we do not know if all bids will be accepted by December 31. Therefore, it is impossible to state with certainty the total amount and to say that the amount will actually be spent by December 31.

Expendable Equipment

Available 3/01/88 - 12/31/88: \$14,660

<u>Item</u>	<u>Amount</u>	<u>Status</u>
1. Water circulator	\$3,708	Paid out
2. Modifications of water circulator	\$1,200	Waiting invoice
3. Chemicals and other items	\$465	Paid out
4. Paddle wheel aerator and hood	<u>\$3,500</u>	Out for bid
Total	\$8,873	
Amount remaining	\$5,787	

Comments: It is not possible to state total with certainty or to say that the total will actually be spent by December 31.

We want to be able to use the remaining amount on fabrication of a water circulator in 1989.