

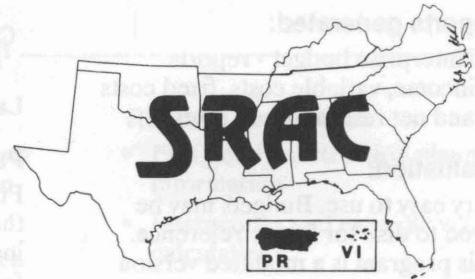
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Texas
Agricultural
Extension
Service

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Southern
Regional
Aquaculture
Center



Computer Software for Aquaculture

Descriptions and Evaluations

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Microcomputers have become an important management tool in many agricultural enterprises. In aquaculture several programs and spreadsheet templates have been developed to assist the farmer, county agent, and researcher. Currently more aquacultural software is being developed.

This publication is a compilation and evaluation of aquacultural software

that is available to the public. Because some of these programs and templates perform similar functions, they have been categorized as: Budgets/Financial Analyses, Pond Construction, Management Decision Aids, Growth Models or Miscellaneous Help. Some software may, however, perform several functions. For example, growth models are also management decision aids.

Software was evaluated on the basis of its special features, restrictions, necessary input requirements, user friendliness and other software requirements. A table lists hardware and software requirements for each program along with other information.

Budgets/Financial Analyses

Aquaculture Cost Analysis

Texas Agricultural Extension Service

Purpose:

Generates enterprise budgets for catfish, catfish fingerlings, crawfish or other freshwater fish. A decision making tool which allows producers to examine the costs of inputs and price of outputs. Standardizes results on a per acre basis for comparisons with other farm enterprises.

Reports generated:

- Enterprise budget - reports income, variable costs, fixed costs, and net return before taxes.



Evaluation:

Very easy to use. Budgets may be saved to disk for future reference.

Price: Texas - \$25.00

Other states - \$35.00

Mariculture Cost Analysis

Texas Agricultural Extension Service

Purpose:

Generates enterprise budgets for shrimp, redfish and other marine fish. A decision making tool which allows producers to examine costs of inputs, price of outputs. Standardizes results on a per acre basis for comparisons with other farm enterprises.

* The Texas A&M University System

Reports generated:

- Enterprise budget - reports income, variable costs, fixed costs and net return before taxes.

Evaluation:

Very easy to use. Budgets may be saved to disk for future reference. This program is a modified version of "Aquaculture Cost Analysis."

Price: Texas - \$25.00
Other states - \$35.00

Catfish Budget

University of Georgia Cooperative Extension Service

Purpose:

Generates budgets for new and existing 5- and 20-acre ponds. A decision-making aid to assess the relative risk and potential profitability of alternative enterprise decisions. These budgets were designed to be customized to fit an individual farm situation.

Reports generated:

- Enterprise budget - reports income, variable costs, fixed costs.
- Break-even table - reports the price per pound marketed necessary to meet variable costs and fixed costs.
- Risk rated net returns table - provides risk-rated net return levels and the chances of obtaining these levels.

Evaluation:

The user should be familiar with spreadsheet software. Fixed costs are determined relative to the portion of that item devoted to the catfish operation. Displays overall chance of profit, and expected value of net returns.

Fixed values which cannot be changed include harvest weight at 1 pound, mortality rate at 6 percent, and stocking rate at 3,500 fingerlings / acre.

Price: \$10.00

Channel Catfish Production and Marketing Computer Program

Langston Development Foundation

Purpose:

Primarily a decision making aid for the prospective fish farmer in assessing the biological and economic feasibility of channel catfish culture. Calculates recommended initial production levels and budgets based on various marketing strategies.

Reports generated:

- Individual pond budgets and system budgets for the entire operation - details variable and fixed costs.
- Aquaculture product marketing - displays potential returns based on various marketing strategies.

Evaluation:

This is a highly integrated, very interactive program, and responds with appropriate information as the user progresses through the program. Automatically sets production levels depending on the pond's primary purpose e.g. recreation, aquaculture, etc. Allows for open or cage culture, and different marketing strategies.

The user can customize all costs and price values in this program.

Price: \$10.00

Financial Analysis of Commercial Red Drum Aquaculture Enterprise

Texas A&M University Sea Grant College Program

Purpose:

Provides a completed financial data and analysis spreadsheet model for a 4-acre hatchery facility and a grow-out facility comprised of six 5-acre yearling ponds and six 20-acre grow-out ponds. Includes a detailed checklist of major capital and operating costs. Financial analyses is provided over a 10-year period.

Reports generated:

- For a red drum hatchery:
- Projected income statement
 - Depreciation schedule
 - Discounted cash flow analysis.

For a red drum farm:

- List of preliminary assumptions and performance characteristics
- Projected income statement
- Discounted cash flow analysis
- Depreciation schedule
- Preliminary equipment list and construction cost estimates.

Evaluation:

The user should be familiar with spreadsheet software. The model can be customized by changing values. Designed to provide illustrative information only.

Price: \$5.00

Financial Analysis of Commercial Shrimp Mariculture Enterprise

Texas A&M University Sea Grant College Program

Purpose:

Provides a completed financial data and analysis spreadsheet model for a commercial shrimp farm. Includes detailed checklist of major capital and operating costs. There are two similar versions which generate slightly different output. Financial analyses is provided over a 12-year period except where noted.

Reports generated:

Both versions:

- Capital expenditures
- Depreciation schedule
- Market value of capital
- Sale of used equipment
- Outstanding loan balances.

Version 1

- Investment in construction and equipment
- Cash flow budget (first 4 years).

Version 2

- Cash flow budget
- Balance sheet
- Income statement.

Evaluation:

The user should be familiar with spreadsheet software. The user can customize the models by changing values. Designed to provide illustrative information only.

Price: \$5.00

Pond Construction

Levee

Mississippi Cooperative Extension Service

Purpose:

Calculates volume of earth to be moved during pond construction. User enters levee width, wet and dry slopes, finished elevation, survey elevations and length of levee segments. Output is in the format used by the Soil Conservation Service.

Reports generated:

- Fill sheet for catfish pond levees - calculates fill, bottom width, cubic yards fill for each station, and total cubic yards fill.

Evaluation:

This program requires that the user be familiar with Soil Conservation Service codes.

Price: Set in accordance with each State Extension Service's software distribution policy.

Fishpond Construction Planning Templates

Texas Agricultural Extension Service

Purpose:

Lists some of the considerations in initial construction planning of fish ponds and allows estimation of excavation and dam volume (cubic yards) required for construction. Pond excavation volumes can be estimated for one pond or a series.

Reports generated:

- Fish pond construction planning information
- Instructions and example volume calculations
- Fish pond excavation volume and dam volume calculation

Evaluation:

The user should be familiar with spreadsheet software. This spreadsheet is easy to use and does not require the user to possess specialized knowledge.

Price: Texas \$25.00
Other states \$35.00

Management Decision Aids

Shrimp Mariculture Production Analysis

Texas Agricultural Extension Service

Purpose:

Intended to aid shrimp farm managers in making production decisions. Through basic production information of expected revenues, population growth, total input costs, and specific farm parameters, different strategies can be examined to maximize revenues above selected costs. Generates weekly costs and revenues for up to 20 ponds.

Reports generated:

- Farmpond summary - displays production figures, costs, and revenue information.
- Breakdown of costs at harvest - provided for each pond/crop combination.
- Weekly pond financial information - displays cumulative values for a selected pond.

Evaluation:

Very easy to use. Revenue and costs are displayed on a pond/crop combination basis.

Price: Texas \$25.00
Other states \$35.00

Crawfish Harvest Evaluator for Aquaculture

Texas Agricultural Extension Service

Purpose:

Aids the crawfish manager in making harvesting decisions. From inputs concerning different factors of daily harvest, a manager can compare ponds in terms of revenue minus variable harvesting cost. Harvesting costs and revenue details of a particular pond may be examined.

Reports generated:

- Pond summary - for each pond, displays production figures, revenue and variable cost information.
- Pond detail - revenue is displayed by size class. Variable costs displayed on a per acre and total basis.

Evaluation:

Very easy to use. Accounts for differential prices per size group.

Price: Texas \$25.00
Other states \$35.00

Fishy

Mississippi Cooperative Extension Service

Purpose:

Intended to facilitate more efficient production management decisions in catfish, shrimp, and crawfish enterprises. This program is a historical recordkeeping system that will input, store, retrieve, display, print, and process data useful for day-to-day decisions and long run analyses. Estimates future fish numbers and weights and gives a future harvest schedule. Estimates future feed needs.

FISHY can be interfaced with a general farm recordkeeping program called RECORDS. RECORDS produces reports relating to the profitability of the operation from a variable cost standpoint.

Reports generated:

FISHY only:

- Extended feed schedule - a weekly report on fish size, and amount and distribution of feed fed.
- General pond information - provides background stocking, current, and predicted information for each pond.
- Year-to-date fish summaries - reports historical information such as pounds harvested, mortality, and feed fed.
- Year-to-date feed summary - reports pounds of feed fed the entire operation to date.
- Future harvest - lists estimated harvest dates for all batches in each pond and pounds harvested in the pond thus far.
- General producer information - displays the fish feeding calendar, feed conversion ratios, percentage body weight fed, etc.
- Feed inventory - reports on feed purchased and consumed.
- Size analysis matrix - displays the number of fish in each pond per size category.

- Year-to-date production - reports fish production by pond and for the entire operation.
- Expected feed needs - details the amount and weekly distribution of feed needs.

FISHY and RECORDS:

- Generates reports concerning transactions, enterprises, payees, and payees within an enterprise.

Evaluation:

This is a very extensive program with many applications, but is not difficult to use. The user can stock up to 5 different size batches in each pond. Flexibility exists in that feed conversion ratios, percent body weight fed, and price of fish can be entered for up to ten user-defined size groups. Feed amounts can be changed up to 6 times per year.

Specialized data needed includes feed conversion ratios, percent body weight fed, percent mortality, percent feed actually consumed.

Generated predictions are only as accurate as the user entered data.

Price: Set in accordance with each State Extension Service's software distribution policy.

Softcrab Educational Program

Louisiana Sea Grant College Program

Purpose:

Designed to educate potential investors in recirculating, soft shell crab shedding systems. May be used in examining how to improve profits. Examines factors such as size of the shedding system, supply source of crabs, effect of survival rates and shedding time on profits.

Reports generated:

- Income statement
- Cash flow statement

Evaluation:

This program is easy to use. Values for labor, fuel and transportation, utilities, equipment, system payout, and miscellaneous costs cannot be changed by the user. Realistic default values are provided.

System sizes are engineered to hold a certain capacity. If the user enters unrealistic values (i.e., stocking too much), a warning will appear.

Price: a replacement diskette

Growth Models

Growcats

Mississippi Cooperative Extension Service

Purpose:

Developed to aid catfish producers and processors. GROWCATS estimates the length of the production period and associated dates, pounds and distribution of feed needed to grow the fish, pounds and numbers of fish produced, and simulated fish mortality over the production period.

Reports generated:

- General producer information report - reports on harvest size, feed limit, feeding calendar, conversion ratios, etc.

- Comprehensive report - provides stocking, and current information along with feed and harvesting information.
- Long report - weekly report on fish size, and feed fed.
- Comprehensive harvest report for fish batches - reports harvest data such as number and weight of fish, date, and feed fed.
- Summary report - reports on fish weight stocked, harvested, and produced, mortality, feed fed, etc.

Evaluation:

Specialized data needed includes: feeding percent, percent mortality, feed conversion ratio, and percent body weight fed.

Flexibility exists in that feed conversion ratios, and percent body weight fed can be entered for up to 10 user-defined size categories. Feed amounts can be changed up to 6 times per year. Up to 5 different sizes of fish can be entered for each pond.

Generated predictions are only as accurate as user entered data.

The manual is informative but may be a little confusing to the novice.

Price: Set in accordance with each State Extension Service's software distribution policy.

CARPplus

Aquasoft

Purpose:

Designed as a hatchery/pond management tool. Calculates required amounts and estimated costs of feed for any species of fish. Schedules fish harvest by forecasting the numbers, weights, and lengths of a user described fish population over a specified time period, simultaneously allowing for up to five shipments of a specified size. Estimates space and water needs for a group of fish.

Reports generated:

- None in public domain version.

Evaluation:

For the public domain version only:

The user should be familiar with hatchery terminology (e.g., hatchery constant method, density index, flow index) and have specific knowledge about the fish population, (e.g., inches grown per day, percent mortality per month).

Generated predictions are only as accurate as user entered data.

Price: Public domain version \$14.00.

An updated version of this program, CARPplusII, is offered for \$49.00.

Aquasyst

Sterling H. Nelson and Sons

Purpose:

A collation of seven individual programs designed to help aquaculturists efficiently produce foodfish, particularly salmonids, under intensively managed conditions. Some of these programs deal with record-keeping, statistical, and descriptive aspects of the operation. Some programs predict fish size, time, space, and feed requirements for the operation.

Reports generated:

- Farm - displays the current physical and chemical description of the operation.
- Predict - reports the time, space and feed required to produce a user-specified lot of fish.
- Market - reports the size a lot of fish will be and their future feed and space requirements.

- Feed - displays the calculated daily feed required and indicates the amount of solids generated. Also predicts fish size.
- Dayfeed - provides daily feed amounts to be fed.
- Daily - displays record keeping information.
- Status - provides the status of a pond and statistical, (observed vs. expected) information.

Evaluation:

Ideally employed in an established facility with good historical records. Requires accurate user input (especially initially) for different growth parameters.

The seven programs are not integrated but are totally separate. Input for one program may come from the output of another and the user is responsible for correctly entering the input.

A customization service is offered for water chemistry analysis data.

The manual provides sample data for practice use.

Price: \$250.00

Miscellaneous Help

Mixit-2

Agricultural Software Consultants, Inc.

Purpose:

Uses linear programming to calculate least-cost feed blends with up to 50 ingredients and 50 restrictions for catfish, tilapia, shrimp, trout and salmon. Rations may be calculated on either an as-fed or dry-matter basis. Ingredients and nutrients can be added and changed.

Reports generated:

Lists:

- Ingredient names and prices
- Nutrient names
- Feed mix list names
- Price ranges

Reports:

- Ingredient data - prints nutrient content of a specific ingredient.
- Feed mix - provides ingredient information and nutritional content of a feed mix.
- Batch and scale weights - provided for each ingredient in a ration over an incremental range. Prints cost of each ration.
- Ingredient list data - displays minimum/maximum constraint information for each ingredient in an ingredient list.
- Least-cost feed mix - reports information for each ingredient in the least-cost feed mix solution.
- Feed mix and nutrient content - provides ingredient and nutrient information of feed mix of a user-defined weight.
- Ingredient restrictions - prints minimum, actual, and maximum percentage composition of each ingredient along with cost.
- Nutrient restrictions - prints minimum, actual and maximum nutrient units along with cost information.
- One-page summary - provides complete summary of nutritional content of the final ration.

Evaluation:

This is a specialty program which can be used by aquaculturists formulating their own feed.

This program will not save an ingredient list containing errors and will display error messages if the user makes a mistake in creating or changing lists.

An excellent tutorial is provided. Other versions of this program are available.

Price: 595.00

Guides: A Program to Access the Florida Pest Control Guides

IFAS Software Communication & Distribution

Purpose:

The "Aquatic Weed Control Guide" portion of this program provides guidance in selecting an herbicide to control specific aquatic weeds on sites in and around Florida. Its comprehensive nature may be of benefit to other southern states.

Reports generated:

- General information about aquatic weeds
- General principles of weed control
- Maintenance of application equipment
- List of weeds and herbicides
- Labeled sites for herbicides
- Herbicide, manufacturer, amount active ingredient
- Aquatic weed terms, definitions, and abbreviations

Evaluation:

A very informative and educational database program. The user is provided with information but does not enter information to which the program provides a response. The user must correctly identify the weed to be treated.

Price: 27.50

Aquacalc

AquaSoft

Purpose:

Converts from one unit of measure to another and can calculate the amount of a chemical to add to provide a specific concentration.

Reports generated:

None

Evaluation:

This program is very easy to use and is useful for static or flowing systems.

Only one measurement conversion can be made at a time.

Price: \$39.00

Pisces

Software Development Group

Purpose:

Designed to aid daily research activities by automatically calculating oxygen saturation, estimated biomass, recommended feeding percentage, and amount to feed. Stores dissolved oxygen levels, mortalities, and the number of fish harvested or restocked.

Reports generated:

- Reports are generated for "monoculture" and "polyculture" systems.

Evaluation:

With polyculture, all species must have the same condition factor and feed conversion ratio, so may not be helpful in a multi-species polyculture operation.

The user must know correct condition factor and feed conversion ratios. Series numbers allow multiple users to keep data separate.

The user can do basic analysis within the program or export data to any compatible statistics or graphics programs.

Price: \$185.00

A demo version is offered for \$18.00.

Aqua Medic

N-Squared Computing

Purpose:

Aids in the diagnosis of fish diseases. Its database contains over 100 diseases of marine and freshwater food fish and freshwater tropical fish and over 200 symptoms and attributes which assist the user in differentiating disease conditions.

Reports generated:

- Analysis results - lists diseases and their rank in response to user specified attributes.
- Disease reference - lists attributes corresponding to user specified disease.

Price: \$295.00

Evaluation:

Very user friendly program with a well written manual.

The user must accurately recognize disease symptoms.

Microcomputer system requirements for aquaculture programs

	Hardware	MS DOS version	Required memory	Other software	Manual	Non-computer expertise
Budgets/Financial Analyses						
Aquaculture Cost Analysis	I	2.0	128K	N	E	1
Mariculture Cost Analysis	I	2.0	128K	N	E	1
Catfish Budget	I	2.1	256K	SC	G	2
Channel Catfish						
Prod. and Mkt. Program	I	3.1	256K	N	E	1
Financial Anal. of Commercial						
Red Drum Aquac. Enterprise	I	3.2	256K	L	F	3
Financial Anal. of Commercial						
Shrimp Mariculture Enterprise	I	3.2	256K	L	N	3
Pond Construction						
Levee	I/T	2.1	256K	N	G	3
Fishpond Construction						
Planning Templates	I	2.0	256K	SC/L	N	1
Management Decision Aids						
Shrimp Mariculture						
Production Analysis	I	2.0	128K	N	E	1
Crawfish Harvest						
Evaluator for Aquaculture	I	2.0	128K	N	E	1
Fishy	I	2.1	256K	N	E	2
Softcrab Educational						
Program	I	3.2	64K	N	E	1
Growth Models						
Growcats	I	2.1	256K	N	G	2
CARPplus	I/A	2.0	64K	B	F	3
Aquasyst	I/A	2.1	64K	N	E	3
Miscellaneous Help						
MIXIT-2	I/A/T/O	varies	varies	N	E	2
Guides: to Access the						
Florida Pest Control Guides						
Aquacalc	I/A	2.0	64K	N	E	1
Pisces	A	N	1M	N	E	2
Aqua Medic	I	2.0	256K	N	E	2

Legend

Hardware:

I = IBM PC or compatible A = Apple or compatible T = TRS-80 O = Other

Other software required to run the program:

N = None SC = SuperCalc L = Lotus 1-2-3 B = Basic

Manual

N = None E = Excellent G = Good F = Fair

Non-computer expertise level:

1 = No expertise required 2 = Some expertise required 3 = Expertise required

Contacts for acquiring computer software

Agricultural Software Consultants, Inc.

P. O. Box 32
Kingsville, Texas 78363
(512) 595-1937
Telex 6713995 ASC KING

AquaSoft

P. O. Box 853
Gresham, Oregon 97030

IFAS Software Communication & Distribution

Building 120, Room 203
University of Florida
Gainesville, Florida 32611
(904) 392-7853

Langston Development Foundation

Glen Gebhart
P. O. Box 730
Langston, Oklahoma 73050

Louisiana Sea Grant College Program

Kenneth J. Roberts, Specialist
Marine Resource Economics
Knapp Hall
Louisiana State University
Baton Rouge, Louisiana 70803

Mississippi Cooperative Extension Service

Mississippi residents: Local County Extension office.

Residents of other states:

Appropriate computer specialist at the state headquarters of their Cooperative Extension Service.

Residents of other countries:

Computer Applications and Services Department
Mississippi State University
Mississippi State, Mississippi 39762

N-Squared Computing

5318 Forest Ridge Road
Silverton, Oregon 97381
(503) 873-5906

Software Development Group

P. O. Box 18027
Boulder, Colorado 80308
(504) 343-8437

Sterling H. Nelson and Sons

Murray Elevators Division
P. O. Box 7428
Murray, Utah 84107
(801) 262-2991

Texas A&M Sea Grant College Program

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Texas A & M University
College Station, Texas 77843-4115

Texas Agricultural Extension Service

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University of Georgia Cooperative Extension Service

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Athens, Georgia 30602

Orders from these states (CA, AR, FL, GA, KY, LA, MD, MS, NC, OK, PR, SC, TN, TX, VA, V.I.) should be placed through their Cooperative Extension Service.

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Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socioeconomic level, race, color, sex, religion, handicap or national origin.

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