Project Termination Report for the Period
September 1, 1993 to May 31, 1997

NCRAC FUNDING LEVEL: $40,000 (September 1, 1993 to May 31, 1997)

ARTICIPANTS:

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Location</th>
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<tbody>
<tr>
<td>Susan T. Kohler</td>
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<td>Marshall A. Martin</td>
<td>Purdue University</td>
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<td>Patrick D. O'Rourke</td>
<td>Illinois State University</td>
<td>Illinois</td>
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<tr>
<td>Jean R. Riepe</td>
<td>Purdue University</td>
<td>Indiana</td>
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Extension Liaisons:

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<tr>
<th>Name</th>
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<tr>
<td>Donald L. Garling</td>
<td>Michigan State University</td>
<td>Michigan</td>
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<tr>
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<td>University of Nebraska-Lincoln</td>
<td>Nebraska</td>
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<tr>
<td>Daniel A. Selock</td>
<td>Southern Illinois University-Carbondale</td>
<td>Illinois</td>
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<td>LaDon Swann</td>
<td>Purdue University</td>
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REASON FOR TERMINATION

The objective for this project was completed and funding was finally expended.

PROJECT OBJECTIVE

Develop cost of production budgets and expected revenues for the raising of food-sized walleye, yellow perch, and hybrid striped bass on farms in the North Central Region (NCR).

PRINCIPAL ACCOMPLISHMENTS

HYBRID STRIPED BASS

Kohler compiled a mailing list of 56 producers of phase III hybrid striped bass (HSB) both within and outside the NCR. A mail survey was sent to these 56 producers to obtain data on production costs. The response rate was low due to a hesitation on the part of producers to reveal this information.

Two large fish farms in Arkansas (Malone's and Keo) and one in Missouri (Osage Catfisheries) were visited to discuss HSB production and gather production information. In all three cases, other species in addition to HSB were produced, therefore, species-specific production figures were not available.

Kohler compiled an annotated bibliography on HSB production and production costs. This bibliography is available from Kohler for anyone needing the information. Kohler also summarized HSB cost of production estimates from six published reports on HSB production. Those estimated costs were presented at the North Central Regional Aquaculture Center (NCRAC) Hybrid Striped Bass Workshop in November 1995.
WALLEYE

Work has advanced on identifying and analyzing the cost of production for advanced walleye fingerlings and food-sized walleye in intensive culture systems. O'Rourke and Illinois State University graduate students completed an extensive walleye production/culture literature review with the primary focus of finding research findings that might be useful in ascertaining the cost of production for walleye fingerlings and food-sized fish under intensive and extensive culture regimes. Very little economic research was found and even less was found that was documented well enough to be useful. The literature reviews were reported in two Master's theses. The first thesis was finished in December 1994. It is an economic feasibility analysis of a tank-based intensive walleye fingerling production system. The second thesis, an economic feasibility analysis of a tank based intensive food-sized walleye system, was finished in August 1995.

Research experts and hatchery personnel familiar with walleye culture were surveyed using a modified Delphi approach for both the fingerling and food-sized studies. It was surprising that some "experts" were as reluctant to share research information as were some entrepreneurs/producers. This stage of the research was completed in 1995.

The two theses produced for this project contain the best economic feasibility data for any known/proposed production systems for commercial production of walleye fingerlings and food sized fish. Commercial production is considered to be potentially profitable but highly risky and uncertain due to lack of actual commercial production data for systems (especially for food-sized grow out), the difficulties in domestication of the fish and the potential market (price) impacts of commercial production.

YELLOW PERCH

Knowing the number of commercial producers of yellow perch to be very small, Riepe conducted a literature review in early 1993 to determine whether any data on the production requirements for yellow perch were available. Unfortunately, most research on yellow perch has been limited to attempts to spawn them out of season and successfully culture and harvest eggs, fry, and eventually fingerlings habituated to commercial diets. Riepe then rejected the historical method for developing enterprise budgets and used the economic engineering approach.

Riepe considered alternatives for obtaining the needed information, and came up with two methods. The first method used to collect production-related information upon which the budgets must be based was a record keeping procedure. Riepe developed a record keeping sheet for the non-funded collaborators involved in the yellow perch project who were testing the commercial scale feasibility of food-size yellow perch production systems. The record keeping sheets asked for the itemization of all costs and inputs into the production process used by the collaborators. The resulting information was of limited value.

The second method was a Delphi approach to obtaining the expert opinions of NCRAC researchers on the production relationships needed to underpin the yellow perch production cost budgets. Expert opinions were solicited from the researchers and extension persons involved in the NCRAC Yellow Perch Work Group during 1994. The opinion data were entered into a spreadsheet to average the responses and then re-submitted to the researchers. Also budget assumptions were clarified so that all researchers were thinking of production relationships relating to a similar set of assumptions. Expert opinions were solicited for several types of related production values (death loss, feed conversion, fingerling size, harvest size, etc.) for a producer with average skill under average conditions and then for minimum and maximum values representing above and below average skills and conditions.
It was not financially feasible to model all life stages in all production systems at all sizes of production. Researchers and the membership of the Indiana Aquaculture Association were queried to solicit their views on priorities for budgets modeled. The decision was made that the budgets to be modeled would be the life stage of advanced fingerling grow out; the production systems of cage, constructed fish pond, and recirculating tank; and two sizes, 2,268 kg (5,000 lb) and 22,680 kg (50,000 lb).

Sensitivity analysis was conducted to test the impact of alternative budget parameters (production values and individual cost items) on the overall break-even price. A Master's graduate student was assigned to conduct research in costs of producing perch in recirculating tank systems and a thesis was completed in 1995. Costs of growing out yellow perch in recirculating tank systems were analyzed for two sizes of operations; 1,588 kg (3,500 lb) and 2,268 kg (5,000 lb).

A technical bulletin and a fact sheet (NCRAC Extension Fact Sheet #111 and NCRAC Extension Technical Bulletin #111) detailed the costs of producing yellow perch in cages and ponds. These may contain the best economic feasibility study and data for any known/proposed production systems for commercial production of yellow perch in the NCR.

IMPACTS

Extension Liaison Garling hosted a Yellow Perch Workshop in June 1995. The results of Riepe's work on yellow perch production costs were presented at that workshop. Attendees indicated that they were considering the types of systems modeled by Riepe. O'Rourke presented the preliminary results of the work on walleye fingerling tank based system cost of production at the Minnesota Aquaculture Conference in February 1995. Kohler presented the results of the review of HSB production costs at the NCRAC Hybrid Striped Bass Workshop in November 1995. The information developed and presented is anticipated to be directly useful to the attendees (producers and potential producers) as they consider their own operations and intentions in light of the cost data and analytical tools presented.

This project has already benefited the aquaculture industry in the NCR through those workshop presentations. As a result of this project, economists have been able to develop and deliver presentations on economic issues in aquaculture production to current and potential aquacultural producers. These presentations and publications may reduce the impacts of uninformed investment decisions by current and potential aquaculture entrepreneurs.

RECOMMENDED FOLLOW-UP ACTIVITIES

This project showed that good economics work could contribute to the knowledge base of species studies. Unfortunately the objective and the budget restricted the scope to fish that are not the most common produced commercially in the NCR. A new Economics and Marketing Work Group should be started and adequately funded for at least four years to continue the work of ascertaining the potential profitability of various commercially adopted species and production systems for the NCR.
PUBLICATIONS MANUSCRIPTS, OR PAPERS PRESENTED

See the Appendix for a cumulative output for all NCRAC-funded Economics and Marketing activities. SUPPORT

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APPENDIX

ECONOMICS AND MARKETING

Publications in Print


Manuscripts


Papers Presented


