

NORTH CENTRAL
REGIONAL AQUACULTURE CENTER

OPERATIONS MANUAL

OCTOBER 2005

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NORTH CENTRAL REGIONAL AQUACULTURE CENTER

PREFACE

This manual serves as a guide for the operation of the North Central Regional Aquaculture Center (NCRAC) and the development and implementation of regional projects sponsored by the Center. This issue of the manual is to serve as a working draft for the activities of NCRAC. It is subject to review and revision as may be determined by NCRAC's Board of Directors.

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INTRODUCTION

Congress recognized the opportunity for making significant progress in aquaculture development in 1980 by passage of the National Aquaculture Act (P.L. 96-362). Congress amended the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (P.L. 95-113) in Title XIV of the Agriculture and Food Act of 1981 (P.L. 97-98) by granting authority to establish aquaculture research, development, and demonstration centers in the United States in association with colleges and universities, State Departments of Agriculture, Federal facilities, and non-profit private research institutions. Five such centers have been established: one in each of the northeastern, north central, southern, western, and tropical/subtropical Pacific regions of the country. Subsequent Farm Bills have reauthorized the Regional Aquaculture Center (RAC) program at \$7.5 million per annum.

As used here, a center refers to an administrative center. Centers do not provide monies for brick-and-mortar development. Centers encourage cooperative and collaborative aquaculture research and extension educational programs that have regional or national application. Center programs complement and strengthen other existing research and extension educational programs provided by the U.S. Department of Agriculture (USDA) and other public institutions. As a matter of policy, centers implement their programs by using institutional mechanisms and linkages that are in place in the public and private sector.

The mission of the RACs is to support aquaculture research, development, demonstration, and extension education to enhance viable and profitable U.S. aquaculture production which will benefit consumers, producers, service industries, and the American economy.

NCRAC was established in February 1988. It serves as a focal point to assess needs, establish priorities, and implement research and extension educational programs in the twelve state agricultural heartland of the United States which includes Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. NCRAC also provides coordination of interregional and national programs through the National Coordinating Council for Aquaculture (NCC). The council is composed of the RAC directors and USDA aquaculture personnel.

ORGANIZATIONAL STRUCTURE

Michigan State University (MSU) and Iowa State University (ISU) work together to develop and administer programs of NCRAC through a Memorandum of Understanding. USDA has designated MSU as the prime contractor for the Center. MSU has fiscal and administrative responsibilities for its operation. The Director of NCRAC is located at MSU. ISU shares in leadership of the Center through an office of the Associate Director who is responsible for all aspects of the Center's publications, technology transfer, and outreach activities.

The Center Director has the following responsibilities:

- ▶ Developing and submitting proposals to the USDA Cooperative State Research, Education and Extension Service (USDA/CSREES) which, upon approval, becomes a grant to the Center;
- ▶ Developing appropriate agreements (sub-contracts) with other parties, including ISU for the Associate Director's office, for purposes of transferring funds for implementation of all projects approved under the grants;
- ▶ Serving as executive secretary to the Board of Directors (Board), responsible for preparing agenda and minutes of Board meetings;
- ▶ Serving as an ex-officio (non-voting) member of the Technical Committee (TC) and Industry Advisory Council (IAC);
- ▶ Coordinating the development of research and extension plans, budgets, and proposals;
- ▶ Coordinating and facilitating interactions among the Administrative Center, Board, IAC, and TC;
- ▶ Monitoring research and extension activities;
- ▶ Arranging for review of proposals for technical and scientific merit, feasibility, and applicability to priority problems and preparing summary budgets and reports as required;
- ▶ Recruiting other Administrative Center staff as authorized by the Board;
- ▶ Maintaining liaison with other RACs;
- ▶ Serving on the NCC.

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The Associate Director has the following responsibilities:

- ▶ Coordinating, facilitating, and executing regional aquaculture extension program activities;
- ▶ Serving as head of publications for NCRAC, including editor of the fact sheet, technical bulletin, culture manual, and video series as well as of the *NCRAC Newsletter*;
- ▶ Serving as the NCRAC liaison with national aquaculture extension programs, including in particular, extension programs of the other four RACs;
- ▶ Serving as a member of the Executive Committee of the Extension Subcommittee of NCRAC's TC.

The Center consists of a Board, the primary policy-making body of NCRAC, an IAC, and TC.

BOARD OF DIRECTORS

The Board will consist of 11 individuals. There will be one representative from each of the two administrative universities, Michigan State and Iowa State; the North Central Region Agricultural Experiment Station Directors; the North Central Region Cooperative Extension Service Directors; and the aquaculture oriented, non-land grant institutions in the region. Those five representative members will serve 4-year terms and may serve more than one term. There will also be four IAC members who will serve as voting members of the Board. The IAC Board members will serve 2-year terms and will be represented by the IAC Executive Committee. Chairs of the two subcommittees of NCRAC's TC will also serve 2-year terms as voting members of the Board. The Board will elect a chair from the non-IAC and TC members to serve a two-year term of office. A chairperson may serve more than one term in office. The Board may approve additional members from 1890 and 1994 institutions, federal and state institutions, and non-profit private institutions in the region.

The Board will:

- ▶ Be responsible for overall administration and management of the regional center program;
- ▶ Establish overall regional aquacultural research, development and extension goals, and allocate fiscal resources to ensure that the center develops strong programs both in research and in extension;
- ▶ Establish priorities for regional aquacultural research and extension education activities based on inputs from the IAC and TC and guidance from the National Aquaculture Development Plan.

INDUSTRY ADVISORY COUNCIL

An IAC is established by the Board. The IAC will consist of 18 individuals. There will be one *regular* member from each of the 12 state aquaculture associations in the region who will be elected by their membership. Members of the state aquaculture associations will also select an *alternate* who will participate in business of the Council on occasions when the elected (*regular*) member cannot do so. The Board will appoint six at-large members to the IAC to assure that various facets of the regional industry are represented on the Council. NCRAC extension contacts in each state will be asked to submit a brief résumé for each of not more than two at-large nominees. The Board will select at-large appointees from among those nominated. Members of the IAC (including alternates) will serve 4-year terms and all members (including alternates) may serve for more than one term. There will be a rotation of membership. Every two years, one-half of the state aquaculture association representatives and at-large members will be replaced or reappointed. Rotation of the state aquaculture association representatives will be in alphabetical order. A chairperson of the IAC will be elected by the members for a 2-year term of office and may serve more than one term. The chairperson is also a member of the IAC Executive Committee. The IAC Executive Committee are voting members of the Board.

The IAC provides an open forum wherein maximum input from private and public sectors can be gained and incorporated into annual and ongoing plans for the Center. The IAC will:

- ▶ Recommend to the Board, jointly with the TC, research and extension needs and priorities from an industry perspective;
- ▶ Develop with the TC problem statements and objectives for research and extension activities that have been identified for program development;
- ▶ Review annual progress reports;
- ▶ Recommend to the Board, jointly with the TC, actions regarding new and continuing regional projects and project modifications and terminations.

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TECHNICAL COMMITTEE

A TC is established by the Board. The TC is composed of representatives from participating research institutions and representatives from participating State Extension Services, other State public agencies as appropriate, and non-profit private institutions. The TC will have a subcommittee for research and a subcommittee for extension. Each subcommittee will elect a chair to serve a 2-year term of office. The TC will:

- ▶ Recommend to the Board, jointly with the IAC, research and extension needs and priorities from a scientific and extension perspective;
- ▶ Develop with the IAC problem statements and objectives for research and extension activities that have been identified for program development;
- ▶ Review annual progress reports;
- ▶ Recommend to the Board, jointly with the IAC, actions regarding new and continuing regional projects and project modifications and terminations.

TECHNICAL COMMITTEE/EXTENSION MEMBERSHIP

The Extension Subcommittee of NCRAC's Technical Committee (TC/E) will consist of 12 individuals who represent the regional Cooperative Extension Service and/or Sea Grant College Extension programs, and who are appointed by CES directors from each state to serve as NCRAC aquaculture extension contacts. Membership longevity on the TC/E has no prescribed limit but every two years the CES Director in each state will be contacted to reappoint that state's member to the TC/E, or to make a new appointment. This procedure is intended to allow for rotation of TC/E personnel in those states that have several aquaculture extension specialists. Members of the TC/E will elect a chairperson for a 2-year term of office. The chair will be a voting member of the Board as well as a member of the TC/E Executive Committee. A chairperson may serve more than one term in office.

TECHNICAL COMMITTEE/RESEARCH MEMBERSHIP

The Research Subcommittee of NCRAC's Technical Committee (TC/R) will consist of 16 individuals appointed by the Board in a manner that provides appropriate representation to individual states, and a broad base of expertise in the various facets of aquaculture that are important in the North Central Region (NCR), including aquaculture extension. Nominations for positions on the TC/R will be solicited from directors of Agricultural Experiment Stations at universities in each North Central state. Aquaculture related units at other universities, and in state and federal agencies in the region, will also be asked to submit nominations. Each university or unit will submit no more than three nominations. Nominees will supply NCRAC with 1-page curriculum vitae for use by the Board. TC/R members will serve 4-year terms and may serve more than one term. The 16 members will serve staggered terms; eight members will be appointed every two years. Members of the TC/R may be reappointed by the Board. Members of the TC/R will elect a chairperson for a 2-year term of office. The chair will be a voting member of the Board as well as a member of the TC/R Executive Committee. A chairperson may serve more than one term in office.

MEMBERSHIP ON EXECUTIVE COMMITTEES OF THE IAC AND TC

Executive Committees of NCRAC's IAC, TC/E, and TC/R exist for the purpose of conducting business on behalf of committees-of-the-whole. Executive committees may appoint ad hoc subcommittees.

Membership on executive committees will be determined by appointment or vote at the discretion of committees-of-the-whole. Members will serve for a period of two years. Individuals may remain on executive committees for more than one term. Committees-of-the-whole are responsible for insuring that any changes in composition of membership at 2-year intervals provides the degree of continuity that they desire, but also results in a rotation that allows suitable representation of geographic interests, as well as commodity, marketing and investment concerns, and extension and research expertise.

The Executive Committee of the IAC will consist of four members: the chairperson and three others. The IAC Executive Committee will be voting members of the Board. If one of the IAC Executive Committee members cannot attend a Board meeting, an *alternate* will attend on their behalf. The *alternate* member will be identified at the same time as are the four *regular* IAC Executive Committee members and will also serve for a period of two years. The Executive Committee of both the TC/E and TC/R will consist of the chairperson and two others (not including the Director or Associate Director). The Associate Director of NCRAC will serve as one of the members of the TC/E Executive Committee. The Director of NCRAC will

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serve as an ex officio member to the IAC and TC/R Executive Committees as well as the TC/E Executive Committee, if the position of Associate Director is not occupied by an extension specialist.

ADMINISTRATIVE OPERATIONS

The Center functions in the following manner.

- ▶ After Board approval of Administrative Center costs, the Center submits a grant proposal to USDA/CSREES's Grants Management Branch for approval. Funds for the RAC program are appropriated annually by the U.S. Congress. USDA/CSREES awards grants annually for proposals they approve. Each grant has a duration of four years with a possibility of up to a one year no-cost extension. A grant proposal contains a description of the activities proposed for the Administrative Center and the Associate Director's office. A timetable for Center activities is given in the proposal as well as costs for these activities, normally covering a period of 12 months. Other activities, research and extension projects, constitute the remainder of activities in a grant, and utilize the remainder of monies in a grant. A footnote is added to USDA/CSREES's proposal budget form [CSREES-2004] stating that allocation of this balance of funds will be made according to a USDA approved Plan of Work (POW). Plans of Work consist of work subcontracted through the Center to research and extension projects over the lifetime of the grant. A POW consists of a brief overview of each program element: that is, each project that will be subcontracted by the Center under a particular grant number. It also includes a detailed description of each project with time frames for completion of tasks, project leaders' vitae, and names of participating institutions. A summary of the process used to identify and invite institutions within the region to participate is included, as well as a description of the review/selection process used to obtain projects for a POW.
- ▶ The Center typically coordinates a Program Planning meeting during which priorities are set for the next funding cycle and calls for development of project outlines to address priority problem areas.
- ▶ Work Groups are formed (see below under **PROJECT DEVELOPMENT**) which submit project outlines to the Center. The project outlines are peer reviewed by experts from both within and outside the region.
- ▶ The Board decides which projects are to be approved.
- ▶ The Center then submits the project outlines as a POW to USDA/CSREES for approval.
- ▶ Once a POW is approved by USDA/CSREES, the Center then prepares subcontracts for each participating institution. The Center receives all invoices for subcontractual agreements and prepares payment vouchers for reimbursement. Thus, the Center staff serve as fiscal agent for both receiving and disbursing of funds in accordance with all terms and provisions of the grants.

PROJECT DEVELOPMENT

The NCRAC Board, based on input from the IAC working in conjunction with the TC, selects priority areas for which projects will be developed. The Board also specifies a maximum funding level for each project. IAC and TC members then develop objectives for each project. For projects with more than one objective, the IAC ranks the objectives by priority. The objective(s) are then included in a Call for Statements of Interest that is broadly distributed throughout the NCR and posted on NCRAC's Web site. Individuals who are willing to become a team member and have an interest in the subject area of the project, as well as a demonstrated record of expertise and access to facilities, are invited to submit a statement or statements of interest to the NCRAC Director's office (see Appendix A). A Project Review Committee (PRC), which has been selected by the Director with input from the IAC and TC, then selects a Work Group to develop a project outline. Each PRC will consist of three technical and three industry representatives. Anyone serving on a PRC cannot become a funded Work Group member. All who submitted a statement or statements of interest will be informed by the Director of the PRC's decision as to who will be members of the Work Group. Work Group membership and responsibilities are outlined in Appendix B. The NCRAC Director selects industry and extension liaisons and convenes a conference call and/or meeting of the Work Group. They elect a chair, who will be responsible for submitting the project outline (following the format described in Appendix C) to the NCRAC Director by a specified due date. The proposed work cannot deviate from the objective or objectives included in the Call for Statements of Interest. All project outlines are peer reviewed by qualified technical and industry representatives both in and outside of the region. The PRC, based on the peer-review and their own assessment of the project outline, then make a recommendation to the Board. Additionally, the Work Group chair has the opportunity to provide a response/rebuttal to peer reviewers' concerns. The Board will make the final decision regarding each project outline. All Work Group members are apprised of the Board of Director's decision. If the Board approves the project outline, it is then revised as needed and submitted by the Work Group chair to the

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NCRAC Director. The revised project outline is then included in a POW that is submitted to USDA/CSREES. Upon approval by USDA/CSREES, the Center issues subcontracts to the funded Work Group members.

The following criteria typically apply to those projects that are funded by NCRAC.

- ▶ Involves participation by two or more states in the NCR;
- ▶ Involves extension personnel (see Appendix H);
- ▶ Requires more scientific manpower, equipment, and facilities than are generally available at one location;
- ▶ Approach is adaptable and particularly suitable for inter-institutional cooperation resulting in better use of limited resources and a saving of funds;
- ▶ Will complement and enhance ongoing extension and research activities by participants, as well as offer potential for expanding these programs;
- ▶ Is likely to attract additional support for the work which is not likely to occur through other programs and mechanisms;
- ▶ Is sufficiently specific to promise significant accomplishments in a reasonable period of time;
- ▶ Can provide the solution to a problem of fundamental importance or fill an information gap;
- ▶ Can be organized and conducted on a regional level, assuring coordinated and complementary contributions by all participants.

The NCRAC program pays no overhead or tuition remission to participating institutions, has no brick-and-mortar money, and typically relies on in-place salaried personnel, equipment, and facilities to carry out the projects. Due to the collaborative and cooperative nature of these regional projects, typically no one individual or institution receives a significant portion of the total project funds.

PROJECT REPORTING

Each year the Center is required by USDA/CSREES to prepare an annual progress report. Summaries of the administrative operations and all funded projects that were ongoing or terminated before August 31 of the year of the report are included. Appendices E and F describe the guidelines and formats for project reports. Copies of annual progress reports are available from the Director's office at MSU as well as posted on the Center's Web site.

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APPENDICES

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APPENDIX A

North Central Regional Aquaculture Center (NCRAC) Work Group Selection Process

- Step 1. NCRAC Director disseminates Call for Statements of Interest to all potential participants and interested parties within the North Central Region, and also posts them on the NCRAC Web site. Call for Statements of Interest will indicate the total dollars available and will generally call for formation of multi-state Work Groups to conduct research, extension, and/or demonstration activities to address specifically worded objectives.
- Step 2. Interested participants submit seven (7) copies of both a Statement of Interest, not to exceed 3 pages, and 1-page vita (see attachments for format) to NCRAC Director for each objective for which they wish to participate. Alternatively, a Statement of Interest can be submitted electronically to Ted Batterson at batters2@msu.edu.
- Step 3. NCRAC Director submits Statements of Interest and accompanying vitae to a Project Review Committee (PRC) that consists of three technical (to include at least one extension person) and three industry representatives. The PRC will be comprised of qualified individuals not having conflicts of interest with potential participants, and may come from outside of the region.
- Step 4. PRC members individually rank Statements of Interest based on specific criteria (see attachment) and submit rankings to NCRAC Director. The NCRAC Director compiles the rankings, develops a matrix of scores and proposed budgets, and submits the matrix back to the PRC.
- Step 5. NCRAC Director convenes a conference call of the PRC to deliberate on selection of Work Group members. Selection will be based on a combination of rankings and budgetary constraints. The PRC will set the level of funding for each objective and may elect to eliminate one or more objectives.
- Step 6. NCRAC Director notifies selected and non-selected participants.
- Step 7. NCRAC Director selects industry and extension liaisons, and convenes a conference call and/or meeting of Work Group participants. The Work Group selects a chair and timelines are established. The full proposal is submitted to NCRAC Director.
- Step 8. NCRAC Director submits proposal for peer review to qualified technical and industry representatives both in and outside the region.
- Step 9. Peer reviews are completed and returned to NCRAC Director.
- Step 10. NCRAC Director submits anonymous reviews to the PRC. Members of the PRC deliberate and recommend to NCRAC Board to either (a) accept proposal as is, (b) accept with revision, (c) return for major revision and additional peer review, or (d) reject. If option "c" is selected, the process starting at "Step 8" is repeated.
- Step 11. Work Group members are provided with copies of the anonymous reviews and a summary of PRC recommendations and comments. Work Group has opportunity to submit a rebuttal/response prior to Board consideration.
- Step 12. NCRAC Board action.

APPENDIX A

Statement of Interest for Participation in the NCRAC Work Group

(fill in project name)

Investigator:

Name
Affiliation
Street Address
City, State, Zip Code

Phone:
Fax:
E-mail:

Objective:

Approach:

Facilities Available:

Industry Relevance:

Budget (adjust the number of years accordingly if different than the example below):

	NCRAC Funds	
	Year 1	Year 2
Salaries, Wages, and Fringe Benefits		
Nonexpendable Equipment		
Materials and Supplies		
Travel		
All Other Direct Costs		
Total		

APPENDIX A

VITA

Name
Address

Phone:
Fax:
E-mail:

EDUCATION

B.S. (Institution, Year, Major/Field of Study)
M.S. (Institution, Year, Major/Field of Study)
Ph.D. (Institution, Year, Major/Field of Study)

POSITIONS

List each position on a separate line from newest to oldest

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

List alphabetically each organization on a separate line

SELECTED PUBLICATIONS

List from newest to oldest relevant publications. Follow format of the American Fisheries Society which is as follows, including spelling out journal titles:

- (1) ARTICLES IN JOURNALS AND OTHER PERIODICALS listed in Serial Sources for the Bioses Data Base: author(s); year; title; serial; volume; (issue); inclusive pages. Include the issue number only when each issue within a volume starts with page 1.

Buck, D.H. 1977. The integration of aquaculture with agriculture. *Fisheries* (Bethesda) 2(6):11-12, 14-16.

de Vlaming, V.L., A. Kuris, and F.R. Parker, Jr. 1978. Seasonal variation of reproduction and lipid reserves in some subtropical cyprinodontids. *Transaction of the American Fisheries Society* 107:464-472.
- (2) BOOK: author(s); year; title; edition (other than 1st) or volume (if part of a series); publisher; city; state or country (only if needed to locate city). Omit the number of pages.

Balon, E.K., and A.G. Coche, editors. 1974. *Lake Kariba: a man-made tropical ecosystem in central Africa*. Dr. W. Junk, The Hague.

Carlander, K.D. 1977. *Handbook of freshwater fishery biology, volume 2*. Iowa State University Press, Ames.
- (3) ARTICLE IN A BOOK: author(s); year; title; pages; editor(s); book title; publisher; city; state or country (only if needed to locate city).

Bardach, J.E., and T. Villars. 1974. The chemical senses of fish. Pages 49-104 in P.T. Grant and A.M. Mackie, editors. *Chemoreception in marine organisms*. Academic Press, London.
- (4) DISSERTATION OR THESIS: author; year; title; dissertation; university; city; state or country (only if needed to locate city).

Kendall, R.L. 1969. An ecological history of the Lake Victoria basin. Doctoral dissertation. Duke University, Durham, North Carolina.
- (5) GOVERNMENT PUBLICATION: author(s); year; title; agency; type and number of publication; city; state or country (only if needed to locate city).

Demory, R.L. 1975. The Dover sole. Oregon Department of Fish and Wildlife, Information Report 75-4, Portland.
- (6) CONTRACT REPORT: author(s); year; title; organizations that received the report; receiver's city; state or country (only needed to locate city).

APPENDIX A

**North Central Regional Aquaculture Center
Confidential Peer-Review - Statement of Interest**

Investigator:

Objective:

Please provide a numerical score for each of the following:

Score

- Qualifications of the principal investigator; competency to complete the work (maximum = 15 points) _____
 - Quality/appropriateness of the approach (maximum = 40 points) _____
 - Quality of the facilities (maximum = 20 points) _____
 - Relevance/benefits to industry (maximum = 20 points) _____
 - Appropriateness of budget (maximum = 5 points) _____
- TOTAL (100 maximum)** _____

Comments:

APPENDIX B

WORK GROUPS

Membership will include:

- ▶ All funded participants;
- ▶ Extension liaison;
- ▶ IAC liaison;
- ▶ Administrative Advisor if applicable.

Responsibilities of the Work Group:

- ▶ Preparing the project outline (see Appendix C), and revisions thereof, including budgets (Form CSREES-2004) for each participant;
- ▶ Conducting the project as outlined;
- ▶ Coordinating the project activities of all participants;
- ▶ Reporting, discussing, and/or evaluating the yearly progress in achieving objectives of the project;
- ▶ Preparing progress reports (see Appendix E);
- ▶ Preparing termination reports (see Appendix F).

Responsibilities of the Work Group Chair:

- ▶ Submitting the original project outline to the Director's office by the specified due date;
- ▶ Submitting the revised project outline to the Director's office by the specified due date;
- ▶ In conjunction with the designated project extension liaison, writing and submitting the annual progress report as outlined in Appendix E;
- ▶ Compiling and submitting termination reports to the Director's office as outlined in Appendix F.

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APPENDIX C

FORMAT FOR PROJECT OUTLINES

INSTRUCTIONS: A project outline for each proposed project must be provided both as hard copy and electronically by the Work Group Chair to the Director of NCRAC by a specified date each year. It is the responsibility of the Work Group Chair to either send copies of the project outline simultaneously to the other Work Group members, including the liaisons, or to inform the Director's office to do so. The outlines are then reviewed and considered by NCRAC's Board for approval. If approved, the Work Group then revises the project outline, and the Chair provides hard copy and electronic version to the Director of NCRAC by a specified date. The revised version is then incorporated into a Plan of Work and submitted to USDA for approval. Format for the project outline must contain all elements given below. There could potentially be one difference in formatting between the project outline as originally submitted and the revised version and that is in regard to the Budget. The revised version only needs to contain one completed budget form (CSREES-2004) for a participating institution that is involved in more than one objective. In the original project outline, if a participating institution is involved in more than one objective there needs to be a completed budget form and justification for each objective. **NOTE:** Measurement data are to be given in metric units, however, to minimize confusion, a dual system of measurement may be used.

SUMMARY OVERVIEW

This contains the Title, Chairperson, Industry Advisory Liaison(s), Extension Liaison(s), Funding Request, Duration, Objectives, Proposed Budgets by objective for each participant, and Non-funded Collaborators. An example for the format follows on page 18.

JUSTIFICATION

A statement of the problem and its importance in aquaculture and/or consumer concerns, describing the extent of the problem, the need for and advantages in a cooperative approach, and benefits that might be expected to result.

RELATED CURRENT AND PREVIOUS WORK

A brief review of related research on the problem, how it falls short of meeting current and future requirements, and how the proposed work will supplement and extend it. If the project outline is concerned with continuation of work previously funded by NCRAC, this section should also include a list of the objectives of that work and discuss results obtained and how proposed work builds on those results.

ANTICIPATED BENEFITS

Tell how the project will benefit the aquacultural industry.

OBJECTIVES

State objectives clearly and concisely in a logical sequence. Include only those objectives on which significant progress can be made during the life of the project with the facilities, and human and financial resources committed in the project outline. Objectives should be related to a coordinated effort of individuals involved, and should relate to a problem of regional scope.

PROCEDURES

There should be a numbered statement of procedure to correspond with each numbered objective. Procedure should be given in sufficient detail to clearly delineate the methodology to be followed. All details need not be given, but descriptions should be adequate enough to allow a reviewer familiar with the subject to evaluate the approach. The responsibilities and work assignments for each participating unit must be stated in the procedure for each objective.

APPENDIX C

FACILITIES

There should be a numbered statement of facilities to be used to correspond to each numbered objective. Describe the facilities available, the location of each facility and specific procedures to be conducted at the location. Sufficient information should be included to enable the reviewer to assess the suitability of facilities and to evaluate the joint planning and coordination by the Work Group.

REFERENCES

Provide a listing of all references following the format of the American Fisheries Society (see the VITA in Appendix A for examples of that format).

PROJECT LEADERS

Provide a list of all participants using three columns. In the first column give the name of the state of the participant; in the second give the name and institution; and in the third the area of specialization.

BUDGET

Provide budgets and budget explanations for each participant for each year of their involvement in the project by completing CSREES-2004 (see Appendix D).

Also provide a separate summary budget for each year of the project for all participants (identifying each by their institution or company) following the format below.

Year #

	Participant #1	Participant #2	Participant #3	Total
Salaries and Wages				
Fringe Benefits				
Total Salaries, Wages, and Fringe Benefits				
Nonexpendable Equipment				
Materials and Supplies				
Travel				
All Other Direct Costs				
Totals				

SCHEDULE FOR COMPLETION OF OBJECTIVES

Indicate when objectives will begin and when they will be completed.

LIST OF PRINCIPAL INVESTIGATORS

List in alphabetical order, by last name, all principal investigators.

CURRICULUM VITAE FOR PRINCIPAL INVESTIGATORS

One (1) page vitae must be included for each listed principal investigator. Content of vitae should reflect expertise to accomplish proposed tasks. Format for curriculum vitae is shown in Appendix A.

APPENDIX C

TITLE

Chairperson:

Industry Advisory Council Liaison(s):

Extension Liaison(s):

Funding Request:

Duration:

Objectives:

Proposed Budgets (adjust the number of years accordingly if different than the example below):

Institution/Company	Principal Investigator(s)	Objective(s)	Year 1	Year 2	Year 3	Total
Totals						

Non-funded Collaborators:

Facility	Collaborator(s)

APPENDIX D

INSTRUCTIONS FOR COMPLETING BUDGET FORM CSREES-2004

NOTE: Form CSREES-2004 of the USDA/CSREES follows. That page can be photocopied and completed following the instructions below. To help with the review of the proposed project's costs by the USDA/CSREES Grants Management Branch (GMB), budgets need to include a narrative detailing the various line items. All items should be described in the narrative in sufficient detail that would enable GMB to determine that the costs are reasonable and allowable for the project per the regulations. Indirect costs and tuition remission are not allowable expenses.

- A. Salaries and Wages** - Salaries of the principal investigator and other personnel associated directly with the project should constitute direct costs in proportion to their effort devoted to the project. Charges by academic institutions for work performed by faculty members during the summer months or other period outside the base salary period are to be at a monthly rate not in excess of that which would be applicable under the base salary and other provisions of the applicable cost principles.

NOTE: The NCRAC program does not ordinarily pay salaries for principal research investigators or extension specialists (PIs) who participate in funded projects. A priority of the program is to use PIs who are salaried on hard-money by their employing unit. The Board will consider, on a case-by-case basis, those situations during a period of 2-3 months in a year when that PI's hard-money contract does not pay salary (e.g., PIs on 9-10 month hard-money appointments). Salary support for technicians, student labor, and graduate student stipends are allowable on grants. In this regard, the intention of the Board will be to approve personnel budgets that have adequate support to accomplish the work proposed by PIs. Justification of request for personnel monies must be attached to budgets submitted in project outlines. Secretarial and clerical salaries must be justified as to how that person will be directly involved in the project. General administrative or accounting duties are not considered acceptable. The duties must be directly related to the project plan.

Award funds may not be used to augment the total salary or rate of salary of project personnel or to reimburse them for consulting or other time in addition to a regular full-time salary covering the same general period of employment.

The submitting organization may request that senior personnel salary data not be released to persons outside the Government. In this case, the item for senior personnel salaries in the formal proposal may be expressed as a single figure and the work-months represented by that amount omitted. If this option is exercised, however, senior personnel salaries and work-months must be itemized in a separate statement, two copies of which should accompany the proposal. This statement must include all of the information requested on CSREES-2004 for each person involved. The detailed information will not be forwarded to reviewers and will be held privileged to the extent permitted by law.

Under the **CSREES Funded Work Months** on the Form CSREES-2004, show the actual number of months for which salary is being paid by USDA to individuals listed in Item A.1. a. & b. (e.g., 2 PI's listed in A.1.a. on a 12-month project. One will spend 100% of time (12 mos.) and one will spend 50% of time (6 mos.). Total work months for A.1.a. would be 18 months.)

For other personnel (graduate students, technical, clerical, etc.), only the total number of persons and total amount of salaries per year in each category are required. Salaries requested must be consistent with the regular practices of the institution.

- B. Fringe Benefits** - If the usual accounting practices of the performing organization provide that the organizational contributions to employee "benefits" (social security, retirement, etc.) be treated as direct costs, award funds may be requested to defray such expenses as a direct cost. Show the percentage rate of fringe benefits for each salary category.
- C. Total Salaries and Benefits** - (A plus B)
- D. Nonexpendable Equipment** - Nonexpendable equipment is defined as an item of property which has an acquisition equal to or less than \$5,000 (or lower depending on your institutional policy), an expected life of more than one year, and does not lose its identity when joined or made a part of

APPENDIX D

another piece of equipment. Details such as the type of equipment, cost, and a brief narrative on the intended use of the equipment for project objectives is required. Purchases of less than \$5,000 may be listed under "Materials and Supplies." Please note that a computer system (keyboard, monitor, and hard-drive) would be considered a unit and does not have to be listed separately. Organizations performing research with the support of a CSREES award are expected to have appropriate facilities, suitably furnished and equipped. Only under very unusual circumstances may award funds be requested for office equipment and furnishings, air-conditioning, automatic data processing equipment (ADPE), or other "general purpose" equipment which is usable for other than project-specific purposes. This type of equipment requires special justification and prior approval from the CSREES Authorized Departmental Officer.

- E. Materials and Supplies** - The types of expendable materials and supplies required should be indicated in general terms with estimated costs, e.g., Office supplies such as pens, paper, toner, etc. - \$500.
- F. Travel** - The type and extent of travel and its relationship to the project should be briefly specified. Funds may be requested for field work or for travel to scientific meetings. Provide the destination (or note "Destination to be determined" if unknown at the time project outline is submitted), purpose, number of travelers, number of days, and estimated cost per trip, e.g., St. Louis, Missouri, to attend a conference; 5 days, 2 persons - \$1,000 each. For local travel (where personal auto is used and mileage reimbursed), provide the purpose and total dollar amount of reimbursement for the vehicle use. If any overnight stays are anticipated, include the number of nights and the amount for meals and lodging, e.g., local travel for site visits to aquaculture facilities - \$500 for mileage and \$500 for meals and lodging (5 days @ \$100/day = \$1,000).

NOTE: Beginning with 1990 Work Group project outlines and all future funding cycles, the Board will require travel budgets to list money for: (1) travel required to carry out research or extension functions, (2) travel to attend Work Group meetings, and (3) travel to attend meetings or professional societies. Persons using NCRAC funds to travel to meetings of professional societies at which they make an officially scheduled presentation are required to submit an abstract and/or copy of their paper to NCRAC no later than two months after the meeting.

Travel in Canada, Puerto Rico, or the United States or its possessions is considered domestic travel. All other travel is considered foreign. If foreign travel is planned in connection with the project, the proposal should include relevant information (including countries to be visited) and justification. Travel and subsistence should be in accordance with organizational policy. Irrespective of the organizational policy, allowances for airfare will not normally exceed round trip jet economy air accommodations. Persons traveling under Federal awards must travel by U.S. flag carriers, if available, unless:

1. The traveler, while en route, has to wait 6 hours or more and no U.S. flag carrier is available during this period, and
2. The flight by a U.S. flag carrier takes 12 or more hours longer than a foreign air carrier. (Air freight must also be under U.S. flag carriers.)

- G. Publication Costs/Page Charges** - No publication costs will be allowed on individual projects but these costs may be paid by the NCRAC Publication Office (see Appendix G - Publication Policy).
- H. Computer (ADPE) Costs** - The cost of computer services, including computer-based retrieval of scientific and technical information may be requested. A justification based on the established computer service rates at the proposing organization should be provided. Reasonable costs of leasing automatic data processing equipment may be requested, if justified.
- I. All Other Direct Costs** - Anticipated direct project charges not included in other budget categories. A description, cost, and justification must be included in the budget narrative. Examples include:
- ▶ *Communications* - Mailings, postage, express mail, faxes, and telephone long distance charges. Provide the estimated cost for each of these items.
 - ▶ *Photocopying* - In-house photocopying of materials associated with the program.

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- ▶ *Subcontracts* - When a portion of the work proposed will be performed by outside sources, a statement of work (proposal) and cost details (CSREES-2004, "Budget" and budget narrative) from the proposed subcontractor should be submitted. The level of detail required for the subcontract budget is the same as the recipient's organization.
- ▶ *Consultants* - A consultant is someone who renders expert advice in his/her field. A consultant should not be affiliated with the performing organization. Budget details should include the name of the consultant and his/her organization, a statement of work, and a breakdown of the amount being charged to the project (e.g., number of days of service, rate of pay, travel, per diem, etc.). A curriculum vitae should also be included.
- ▶ *Service or maintenance contracts* - Costs should be in direct correlation to the use of the equipment for the project. Provide details of the type of equipment and the full rate of the service contract, as well as what percentage the Federal funds are paying.
- ▶ *Conferences/Meetings* - Costs of holding a conference or meeting, e.g., rental of facilities and equipment for the meeting, honorariums or fees for trainers or guest speakers and travel and per diem for participants and speakers. Details of costs for each conference or meeting must be broken out and provided in the budget narrative.
- ▶ *Speaker/Trainer Fees* - Provide details such as who the speaker(s) are and what the fee(s) are (include number of persons, number of days, and cost per person), as well as a description of the services they are performing.
- ▶ *Honorariums* - Honorariums to persons providing a service are allowable. Provide information regarding the honorarium amount (e.g., number of hours/days and rate of pay) and a brief statement regarding what the person is doing to earn the honorarium.
- ▶ *Other/Miscellaneous* - These costs must always be identified and itemized.

Proposed subaward or subcontracts should be disclosed in the proposal, including a detailed budget and work statement, so that the award instrument may contain prior USDA authorization, if appropriate.

J. Total Direct Costs - (C through I)

K. Indirect Costs - Indirect costs are not allowed on NCRAC funded projects.

L. Total Direct and Indirect Costs - (J plus K)

M. Other - This line is not applicable on NCRAC funded projects.

N. Total Amount of This Request - (L)

O. Cost Sharing - A breakdown of the detailed costs which are considered cost shared or contributed should be provided.

UNITED STATES DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE

OMB Approved 0524-0039
Expires 03/31/2004

BUDGET

ORGANIZATION AND ADDRESS				USDA AWARD NO.			
PROJECT DIRECTOR(S)				Duration Proposed Months: ____	Duration Proposed Months: ____	Non-Federal Proposed Cost-Sharing/ Matching Funds (If required)	Non-federal Cost-Sharing/ Matching Funds Approved by CSREES (If Different)
				Funds Requested by Proposer	Funds Approved by CSREES (If different)		
A. Salaries and Wages				CSREES FUNDED WORK MONTHS			
1. No. of Senior Personnel				Calendar	Academic	Summer	
a. ____ (Co)-PD(s)							
b. ____ Senior Associates							
2. No. of Other Personnel (Non-Faculty)							
a. ____ Research Associates-Postdoctorates . . .							
b. ____ Other Professionals							
c. ____ Paraprofessionals							
d. ____ Graduate Students							
e. ____ Prebaccalaureate Students							
f. ____ Secretarial-Clerical							
g. ____ Technical, Shop and Other							
Total Salaries and Wages							
				\$0	\$0	\$0	\$0
B. Fringe Benefits (If charged as Direct Costs)							
C. Total Salaries, Wages, and Fringe Benefits (A plus B)				\$0	0	\$0	\$0
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies							
F. Travel							
G. Publication Costs/Page Charges							
H. Computer (ADPE) Costs							
I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.)							
J. All Other Direct Costs (In budget narrative, list items and dollar amounts and provide supporting data for each item.)							
K. Total Direct Costs (C through I)				\$0	0	\$0	\$0
L. F&A/Indirect Costs. (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs in on/off campus bases.)							
M. Total Direct and F&A/Indirect Costs (J plus K)				\$0	0	\$0	\$0
N. Other							
O. Total Amount of This Request				\$0	0	\$0	\$0
P. Carryover -- (If Applicable)				Federal Funds: \$	Non-Federal funds: \$	Total \$	
Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)							
Cash (both Applicant and Third Party)							
Non-Cash Contributions (both Applicant and Third Party)							
NAME AND TITLE (Type or print)				SIGNATURE (required for revised budget only)			DATE
Project Director							
Authorized Organizational Representative							
Signature (for optional use)							

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing the reviewing the collection of information.

APPENDIX E

FORMAT FOR ANNUAL PROGRESS REPORT

INSTRUCTIONS: An annual progress report for each funded project must be provided both as hard copy and electronically to the Director of NCRAC by October 31 of each year. These reports are to be three to five (3-5) single-spaced pages or less excluding publications (which are to be appended), written in a narrative style without figures, graphs, or tables. Details may be appended. These reports will be written by the designated project extension liaison in conjunction with the Work Group chair(s). Progress reports are to be an accumulation of activities through August 31 of the year of the report or up until the completion of a termination report (see **Appendix F**) which can serve in lieu of the annual progress report. Format for the report must adhere to the headings given below.

PROJECT: Title

REPORTING PERIOD:

NCRAC FUNDING LEVEL: Total NCRAC-USDA funding allocated to date.

PARTICIPANTS: Funded cooperating personnel and institutions, agencies, and business entities including Industry Advisory Council liaison(s), extension liaison(s), and non-funded collaborators.

PROJECT OBJECTIVES: List

ANTICIPATED BENEFITS: State how the project will benefit the aquaculture industry either directly or indirectly.

PROGRESS AND PRINCIPAL ACCOMPLISHMENTS: Summarize in a concise form the progress toward accomplishment of each objective for the duration of the project, omitting details unless essential to understanding. Measurement data are to be given in metric units. However, to minimize confusion, a dual system of measurement may be used to express results.

WORK PLANNED: Detailed statements of individual plans of participants should not be included unless essential to understanding.

IMPACTS: In concise statements (possibly a bulleted list) indicate how the project has or will benefit the aquaculture industry either directly or indirectly and resulting economic values gained (where appropriate).

SUPPORT: Use the format in the table below to indicate NCRAC-USDA funding and additional other support, both federal and non-federal, for the project. Indicate the name of the source(s) of other support as a footnote to the table.

Year	NCRAC-USDA Funding	Other Support					Total Support
		Univer- sity	Industry	Other Federal	Other	Total	
Totals							

APPENDIX E

PUBLICATIONS, MANUSCRIPTS, OR PAPERS PRESENTED: List under an appendix with the following subheadings: *Publications in Print*; *Manuscripts*; and *Papers Presented*. For the first two subheadings, include journal articles, popular articles, extension materials, videos, technical reports, theses and dissertations, etc. using the format of the American Fisheries Society. Under *Papers Presented* subheading include the authors, title, conference/workshop, location, and date(s).

APPENDIX F

FORMAT FOR PROJECT OR PROJECT COMPONENT TERMINATION REPORT

INSTRUCTIONS: NCRAC has typically funded two-year projects, but many have continued for a longer duration. A termination report for the entire project or individual components (objectives) that have ended must be provided both as hard copy and electronically to the Director of NCRAC within ninety (90) days of the termination date. To accomplish this, all investigators will prepare and provide both hard copy and computer diskette versions of their report to the Work Group chair who will then compile a project or project component termination report to submit to the Director. The report will have two separate parts: a first part that will be five to seven (5-7) single-spaced pages or less excluding publications (which are to be appended) of narrative text (no figures, graphs, or tables) and a second part that is more comprehensive and detailed. Format for the two parts must adhere to the headings given below. The first part will be written by the designated project extension liaison in conjunction with the Work Group chair and will be due no later than October 31 or within ninety (90) days of termination.

PART I

PROJECT: Title

DATES OF WORK:

NCRAC FUNDING LEVEL: Total NCRAC-USDA funding.

PARTICIPANTS: Funded cooperating personnel and institutions, agencies, and business entities including Industry Advisory Council liaison(s), extension liaison(s), and non-funded collaborators.

REASON FOR TERMINATION: Indicate objective(s) completed, funds terminated, or other specific reason for project termination.

PROJECT OBJECTIVES: List

PRINCIPAL ACCOMPLISHMENTS: Summarize in a concise form the findings for each objective for the duration of the project. Measurement data are to be given in metric units. However, to minimize confusion, a dual system of measurement may be used to express results.

IMPACTS: In concise statements (possibly a bulleted list) indicate how the project has or will benefit the aquaculture industry either directly or indirectly and resulting economic values gained (where appropriate).

RECOMMENDED FOLLOW-UP ACTIVITIES: State concisely how future studies may be structured.

SUPPORT: Use the format in the table below to indicate NCRAC-USDA funding and additional other support, both federal and non-federal, for the project. Indicate the name of the source(s) of other support as a footnote to the table.

Year	NCRAC-USDA Funding	Other Support					Total Support
		Univer- sity	Industry	Other Federal	Other	Total	
Totals							

APPENDIX F

PUBLICATIONS, MANUSCRIPTS, OR PAPERS PRESENTED: List under an appendix with the following subheadings: *Publications in Print*; *Manuscripts*; and *Papers Presented*. For the first two subheadings, include journal articles, popular articles, extension materials, videos, technical reports, theses and dissertations, etc. using the format of the American Fisheries Society. Under *Papers Presented* subheading include the authors, title, conference/workshop, location, and date(s).

PART II

PROJECT: Title

AUTHOR(S):

DATES OF WORK:

PARTICIPANTS: Funded cooperating personnel and institutions, agencies and business entities, and non-funded collaborators.

PROJECT OBJECTIVES: List

TECHNICAL SUMMARY AND ANALYSIS: Describe the work undertaken and results obtained for each objective. Major results should be presented in detail, including graphs, figures, and/or tables. Methodology should be briefly described and statistical analyses included where appropriate. This section of the report should be written in a style similar to a professional publication. Manuscripts previously or currently prepared and/or accepted for publication may be submitted as part, or all, of this section.

APPENDIX G

PUBLICATION POLICY

This Publication policy describes procedures to help regional aquaculturists achieve appropriate exposure for their work. NCRAC encourages persons to seek publication in professional journals, and in trade and technical publications. The Publications Office is the outlet for regional aquaculture communications. The Associate Director of NCRAC is in charge of the Publications Office.

NCRAC Publications Office
Department of Natural Resources Ecology and Management
Iowa State University
124 Science II
Ames, IA 50011-3221
Telephone: (515) 294-5280

RESEARCH PUBLICATIONS

Research publications are refereed journal articles intended for the scientific community and knowledgeable practitioners of aquaculture. The statement below must appear on all journal articles whether supported in whole or in part with NCRAC funds; the grant number can be obtained from the Publications Office.

This publication is a result of work sponsored by the North Central Regional Aquaculture Center Program under grant number _____ from the U.S. Department of Agriculture. The U.S. Government and the North Central Regional Aquaculture Center are authorized to produce and distribute reprints for governmental purposes notwithstanding any copyright notation appearing herein.

The Publications Office will pay for reprints and page charges (within reason) for articles based on NCRAC-funded research **if authors confer with the Publications Office before submitting manuscripts**. If NCRAC agrees to pay for publication costs, the invoice for page charges and/or reprint orders should be sent to the Publications Office for processing.

NCRAC will pay the cost of up to a maximum of 50 reprints for the first author. The Publications Office will order additional reprints in sufficient quantity to satisfy the requirements of the Publication Policy of the National Aquaculture Coordinating Council. These copies will go to USDA/CSREES aquaculture personnel; USDA National Aquaculture Library's Aquaculture Information Center or its corollary; other RACs; and other interested parties.

NCRAC BULLETIN SERIES

The purpose of this series is to make available technical bulletins, periodic publications of progress on NCRAC-supported projects, manuals and other technical documents. The content of technical bulletins is to have scientific merit that is not necessarily appropriate for refereed journals. Guidelines and instructions for authors for this series are available from the Publications Office. The Publications Office will require a camera-ready manuscript for documents in this series. Where appropriate, author(s) should work with the extension liaison(s) of their particular Work Group to prepare manuscripts. Documents in this series will be reviewed for content and style.

THESES AND DISSERTATIONS

A single copy of all theses and dissertations that are funded in whole or in part by NCRAC are to be submitted to:

NCRAC
Office of the Director
Michigan State University
13 Natural Resources Building
East Lansing, MI 48824-1222

Theses and dissertations can be considered for inclusion in the NCRAC Bulletin Series, if desired, by the author and/or major professor. A list of theses and dissertations will be maintained in the Publications Office for referral to interested parties.

APPENDIX G

EXTENSION PUBLICATIONS AND VIDEOS

Publications Based Upon NCRAC-Funded Research

The NCRAC Extension Work Group will help to publicize research through the North Central Region extension network and the *NCRAC Newsletter*. Researchers will work with project extension liaisons to prepare NCRAC extension bulletins and to keep the program informed of significant progress in research and extension activities. To have work published as a NCRAC Extension Publication, the following steps must be taken.

1. Before preparing a manuscript for NCRAC Extension Publication, discuss concepts with the extension liaison for the research work group. At this stage, decisions are made to determine the appropriateness as an extension product, the intended audience, and a tentative schedule for publication. When the first author is an extension liaison, he/she should first discuss the publication with the work group and then the Extension Work Group.
2. Contact the Publications Office to determine guidelines for appropriate style and format and an estimated production schedule. The address for the Publications Office is listed above.
3. At least two NCRAC Extension Work Group members and one outside reviewer will evaluate each submitted manuscript. Author(s) may suggest appropriate reviewers. The decision to produce the material as a NCRAC Extension Publication will be based on reviewers' comments.
4. Once NCRAC has accepted the manuscript, the Publications Office will arrange final editing and printing. The author(s) will have an opportunity to review and comment on the edited manuscript. The author(s) are responsible for submitting camera-ready copies of any artwork or figures to be included in the publication.
5. Expected demand and an appropriate number of reprints need to be indicated to the Publications Office. The first author will receive a maximum of 50 copies from NCRAC. The Publications Office will order additional reprints in sufficient quantity to satisfy the requirements of the Publication Policy of the National Aquaculture Coordinating Council. These copies will go to USDA/CSREES aquaculture personnel; USDA National Aquaculture Library's Aquaculture Information Center or its corollary; other RACs; and other interested parties.

Publications and Videos Based on Perceived Regional Needs

Extension specialists are encouraged to submit publication and video ideas to the Publications Office that have regional applicability for aquaculture. Development of these products will need to follow the above five steps in order to become part of the NCRAC Extension Publication effort.

OTHER PUBLICITY

NCRAC Newsletter

Please keep NCRAC informed of newsworthy items stemming from NCRAC research and extension activities. The *NCRAC Newsletter* is an excellent vehicle for publicizing information about your activities throughout the region. To submit materials to the *NCRAC Newsletter*, please contact the newsletter editor:

NCRAC Newsletter Editor
Department of Natural Resources Ecology and Management
Iowa State University
124 Science II
Ames, IA 50011-3221

Mention of Participants and Programs

Please provide both the Office of the Director at MSU and the Publications Office with any newspaper, newsletter, or magazine articles that mention participants and programs of the NCRAC. These materials are important for maintaining good communication linkages with the Center's clientele groups.

APPENDIX G

Photographs

Photographic prints or slides of NCRAC research and extension activities (principal investigators, extension specialists, students, technicians, meetings, activities, slide presentations, sites, etc.) are always appreciated. They should be sent to the Publications Office. Duplicates will be made and the originals returned. Any photographs or slides used will be properly credited.

OPERATIONS MANUAL

APPENDIX H

GUIDELINES FOR EXTENSION INVOLVEMENT IN THE NORTH CENTRAL REGIONAL AQUACULTURE CENTER

NOTE: These guidelines were developed by a team of extension specialists including USDA's National Program Leader for Aquaculture and representatives from each of the Regional Aquaculture Centers. These Guidelines were adopted by NCRAC's Board of Directors on February 4, 1994.

BACKGROUND

The goal of the USDA Regional Aquaculture Center's (RAC) program is the enhancement of sustainable, profitable commercial aquaculture production and allied industries to benefit producers, consumers and the American economy. To accomplish this goal, funded projects are directed at high priority industry needs that include development of new technologies and application of research findings that will benefit diverse constituencies. The process involves scientific research as well as professionally designed and implemented educational outreach programs developed in close collaboration with industry.

The following guidelines will enhance the integration of research and extension activities into all projects. They also highlight Extension's diverse capabilities for participation in the RAC program and encourage development of coordinated educational programs and services that will benefit diverse audiences.

The guidelines are intended to assist persons and actions associated with the design, approval and implementation of RAC funded projects. Each RAC is encouraged to add more specificity and make amendments as appropriate to address any additional needs/issues that are not adequately presented. The development of clearly defined accountability standards and measurements to assess project impacts is also suggested.

RECOMMENDED GUIDELINES

The following recommendations are presented for various topics and issues that involve extension outreach participation in RAC funded projects. The recommendations were developed by a team of aquaculture extension specialists from each of the five RACs in collaboration with each of the RAC Directors and the Extension Service National Program Leader.

1. Research Projects

- A. An extension professional should participate in the Work Group phase of project proposal development to determine recommended mechanism(s) for information dissemination of research findings and/or outreach activities that facilitate commercialization, technology adoption or decision-making benefits by industry constituencies and other targeted audiences, i.e., consumers.
- B. Outreach should be accomplished in a timely manner and under terms agreeable between research and extension scientists, and involve industry consultation to effectively fulfill the RAC program goal. **(All involved should understand the importance for timely dissemination of significant findings to industry and consumer audiences as well as academic or peer groups.)**
- C. The process of research information translation, dissemination, and associated outreach activity should be assured an adequate level of funding to "complete" any project or project objective by extending the appropriate research "benefits" to the intended beneficiaries.
- D. The scope and specifics of any extension component in a research project should be determined by the technology transfer or educational outreach needs required to effectively reach and impact diverse constituents in a region.

APPENDIX H

2. Field Trials and Demonstrations

- A.** Extension professionals should seek to facilitate and/or become involved in field trial, demonstration and/or validation projects under commercial conditions.
- B.** On-farm trial and demonstration projects should involve partnerships with researchers and private sector participants for effective project design and technology transfer or validation of research study findings.
- C.** Adequate funding and support should be made available to promote adoption of new, benefitting technologies and practices by industry audiences using traditional extension on-farm methods and result demonstrations.
- D.** The feasibility for on-farm outreach activities should be carefully assessed for each RAC funded project.

3. Evaluation of RAC Projects

- A.** An extension professional, along with an industry and research representative, should be designated to track the progress of all RAC funded projects to determine when and by what method(s) any significant findings or results should reach industry constituencies.
- B.** Each RAC funded project should have one or more extension professionals who are responsible for updates and communications from the research scientist(s) and known by other extension staff in the region as a conduit for information specific to an assigned research project.
- C.** Each RAC project should include a final evaluation that includes assurances that an adequate effort is made to inform and reach end-users with significant findings and results.
- D.** The evaluation process is less critical in cases where regular RAC communications and project updates are provided and disseminated widely.

4. Coordination of Extension Projects Among Regions

- A.** Information on RAC funded extension-related projects should be shared between regions in a timely manner to avoid duplication of effort, identify model programs that can be expanded multi-regionally or nationally and assess any opportunities for interregional coordination.
- B.** The Extension Service National Program Leader (NPL) will share extension-related projects and proposals from all RACs with a person designated by the RAC Directors as the chair or leader of the Extension Subcommittee or Work Group so this information can be shared with extension professionals in a region at the time when new or revised extension-related proposals are developed.
- C.** Summaries will also be provided to extension professionals nationwide by the NPL through normal written and electronic communications to apprise state extension programs of planned activities and new educational products that may be of interest or benefit.

5. Distribution of RAC Publications and Videos

- A.** Each RAC state extension contact should receive all RAC-funded educational products per the National Coordinating Council's Publications Guidelines in a timely manner.
- B.** Each RAC state extension contact should be able to provide any requested RAC product to state constituents or have an agreement for referrals with another RAC Extension contact in the Region who will provide materials to requests from outside their state or territory.
- C.** Each RAC state extension contact should apprise constituents and colleagues of the availability of new, appropriate RAC products to assure dissemination.
- D.** Any problems with the dissemination of RAC products should be brought to the attention of the RAC Director and Extension Service National Program Leader so appropriate steps can be taken to provide distribution services to interested persons.

APPENDIX H

6. Assessing Industry Needs

- A.** Extension professionals involved with the RAC TCs are encouraged to interact closely with state aquaculture associations and other trade organizations to help identify or reinforce high priority industry needs.
- B.** Written recommendations may be requested by extension personnel from industry trade organizations for referral and guidance at RAC TC meetings.

7. Supportive Resources

- A.** Extension professionals are involved in an array of activities some of which may include research and teaching for those with joint research/extension/teaching appointments. Most extension budgets cover only salaries, in-state travel and equipment for communication use at work stations. To perform work outside a state or to engage in responsibilities beyond those associated with state or county extension programs, additional external funding is usually required.
- B.** Involvement in RAC extension projects often creates increased work loads because of added regional involvement in addition to current full-time obligations to state or local constituents.
- C.** As appropriate, RAC funding should be made available to support Extension Associates similar to funding provided for Research Associates or graduate students. This provides an option to expand extension's contribution to fulfilling RAC's goal and lessens many already over-extended work loads.
- D.** RAC funding should support the development of timely publications, manuals, computer software programs and other educational support materials as identified and justified to fulfill the RAC mission.
- E.** RACs should support extension directed projects that are identified as high priority by the extension community and research and industry groups that involve research and demonstration activities associated with industry input and cooperation.

8. Implementation

- A.** The approved Guidelines should be shared with research and extension scientists and industry representatives throughout the RAC orientation and project development process.
- B.** Extension professionals throughout a Region with diverse skills and subject matter expertise should be encouraged to participate in RAC projects. However, involvement will depend on personal commitments and availability of adequate RAC supportive resources.