

North Central Regional Aquaculture Center

Operations Manual

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United States
Department of
Agriculture

National Institute
of Food and
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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.

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 (7 U.S.C. 3101) 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 (7 U.S.C. 3322). 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; in 2013 RAC program was reauthorized at \$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

Since 1988 when the Center was developed, Michigan State University (MSU) and Iowa State University (ISU) worked together to develop and administer programs of NCRAC through a Memorandum of Understanding. In 2012 USDA designated ISU as the prime contractor for the Center. ISU now has fiscal and administrative responsibilities for its operation. The Director of NCRAC is located at ISU and has leadership of the Center of the Center's publications, technology transfer, and outreach activities.

The Center Director has the following responsibilities:

- Developing and submitting proposals to the USDA National Institute of Food and Agriculture (USDA-NIFA) which, upon approval, becomes a grant to the Center;
- Developing appropriate agreements (sub-contracts) with other parties, 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;

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- 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;
- Coordinating, facilitating, and executing regional aquaculture extension program activities; and
- Serving as head of publications for NCRAC, including editor of the fact sheet, technical bulletin, culture manual, and video series as well as managing the NCRAC Web site (<http://www.ncrac.org>).

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

Board of Directors

The Board will consist of 10 individuals. There will be one representative from the administrative university, 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 2-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 members 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.

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). The Director of NCRAC will serve as an ex officio member to the IAC and TC/R and TC/E Executive Committees.

Administrative Operations

The Center functions in the following manner.

1. After Board approval of Administrative Center costs, the Center submits a grant proposal to USDA-NIFA via Grants.gov. Funds for the RAC program are appropriated annually by the U.S. Congress. USDA-NIFA awards grants for proposals they approve and typically 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. 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-NIFA's proposal budget stating that allocation of this balance of funds will be made according to a USDA approved Plan of Work (POW) (the acronym may also refer to an Amendment to a POW). A POW consists of a brief overview of each program element: that is, each research and/or extension 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 develop projects for a POW.
2. 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.
3. Work Groups are formed (see below under **Timetable and Work Schedule for Sub-Awards**) which submit project outlines to the Center. The project outlines are peer reviewed by experts from both within and outside the region.
4. The Board decides which projects are to be approved.
5. The Center then submits the project outlines as a POW to USDA-NIFA for approval.
6. Once a POW is approved by USDA-NIFA, 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 funds in accordance with all terms and provisions of the grants.

Timetable and Work Schedule for Sub-Awards

Standard Proposals.— The NCRAC annual funding cycle is described in Appendix A and has been used since 2016 to establish the following a work schedule and a calendar of target dates for NCRAC operations. Announcements for all Research for Proposals (RFPs) are distributed to regional state aquaculture associations, universities, colleges and agencies in the 12-state North Central Region as well as the recent use of Pivot internet portal.

Proposal Review Process

All pre-proposal outlines are initially reviewed by NCRAC the Executive Committees of the IAC, TC/R and TC/E (10 members); input is provided to the NCRAC Board to select which proposals to accept for submission as full proposals. Full Proposals are then peer reviewed by individuals who are well qualified for a particular project because of their expertise and interests. Project outlines are mailed to 3-4 reviewers within and outside the NCR. Final selection of projects to be submitted to USDA-NIFA for funding is done by the NCRAC Board with one final review done by the NCRAC community during the annual NCRAC meeting.

Out-of-Cycle Proposals.— The review process consists first of an initial review by the Director and if approved are then developed and reviewed by the Executive Committees of the Industry Advisory Committee and Technical Committee of Research and Extension (10 members); outside reviewers can be done if directed by the Executive Committee. Final approval is done by the NCRAC Board and then submitted to USDA-NIFA for final approval.

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

1. Standard proposals involves participation by two or more states in the NCR (may be waived for out-of-cycle proposals);
2. Involves extension personnel (see Appendix J);
3. Requires more scientific manpower, equipment, and facilities than are generally available at one location;
4. Approach is adaptable and particularly suitable for inter-institutional cooperation resulting in better use of limited resources and a saving of funds;
5. Will complement and enhance ongoing extension and research activities by participants, as well as offer potential for expanding these programs;
6. Is likely to attract additional support for the work which is not likely to occur through other programs and mechanisms;
7. Is sufficiently specific to promise significant accomplishments in a reasonable period of time;
8. Can provide the solution to a problem of fundamental importance or fill an information gap; and
9. 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 in standard proposals.

Project Reporting

Each year the Center is required by USDA-NIFA 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 F and G describe the guidelines and formats for project reports. Copies of annual progress reports are available from the Director's office at ISU as well as posted on the Center's Web site <http://www.ncrac.org>. Format for annual progress and termination reports are located in Appendices J & K, respectively.

Appendices

Appendix A: Standard Project Schedule

<i>Date</i>	<i>Administrative Task(s)</i>	<i>Administration Notes</i>	<i>Proposal Development</i>
<i>February – Even Years</i>	NCRAC Meeting hosted with regional state aquaculture meeting	General meeting limited to 1 day in advance of the regional meeting. Meeting as necessary to present results and to discuss TRAs.	IAC with input from TC/R&E revise/develop targeted research areas (TRAs) under 2-3 common project themes
<i>April</i>	Announcements for RFA Pre-proposals	Information distributed to regional institutions and placed on NCRAC web site	RFP – Call for Pre-Proposals
<i>Mid-May</i>	Receipt of RFA Pre- Proposals.		IAC, TC/R&E Technical Committee conduct electronic reviews of submitted pre-proposals.
<i>Late May</i>			Summary reports by the three Executive Committees indicating which Pre-Proposals that are recommended for Full Proposals presented to Board.
<i>Mid-June</i>	Coordination of NCRAC Board meeting.	Board conference call to select projects for full proposal development.	Selection of Pre-Proposals for Full Proposal Development
<i>Late June</i>	Notification of investigators the result of the RFP pre-proposal phase		
<i>Mid-August</i>	Receipt of full RFP proposals	Acknowledgement of full RFP proposals sent to PIs.	Full RFP proposals developed.
<i>Mid-September</i>	Full Proposals sent out for regional and national	In-House review of submitted RFA full proposals.	

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Mid-October		Coordination of Project Reviews including provision for confidentiality of submitted projects being noted.	
Late November	Receipt of RFP full proposals'		Proposals sent for reviews from within and outside of
Early December			Summary of RFA full proposals' reviews
January			Summary of submitted RFP Projects (Title page, Project Summary, Objectives and overall budget) will be provided to IAC and TC members before annual meeting for review.
February - Odd Years	NCRAC General Meeting	Board Selection of RFP Projects for Funding.	Final IAC selection report submitted to NCRAC Board by IAC Executive Committee Executive committees of TC/R and E after input from members at the annual meeting.
March	Investigators informed of Board decisions on RFP full proposals.		
April			Final RFP Full Proposal Developed for submission to USDA-NIFA for their review
September 1			Start date for new RFP Full proposal projects. Earlier date if possible.
Mid-November	Targeted Research Areas (TRAs) – Review for Changes	IAC Chair contacts IAC and TCR&E members for input into TRAs. Information collected and listed on NCRAC web site in advance of the February NCRAC meeting.	

Appendix B: Pre-Proposal Format

Pre-proposal shall not exceed four (4) pages not including the references, budget and the 1-page vita for all project participants.

Project Title

Targeted Research/Industry Development/Extension Area or Emerging Opportunities/Issues being addressed.

Investigator(s):

Name: Phone:
Affiliation: Fax:
Street Address: E-mail:
City, State, Zip Code

Project Summary:

Text limited to 200 words (approximately half a page) that describes the project in everyday language without the use of scientific or technical jargon. State the problem, challenge or issue your project is addressing. Include dollar estimates if it's an economic issue (e.g., a potential decrease in feed costs). Briefly, tell how this project will address or solve the problem or challenge. Answer the "Who cares?" or "So what?" question: Why is this worth the attention of people? How does this impact the lives of real people? What difference will it make, and to whom? What is the benefit or potential benefit of a successful project?

Objective(s):

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 Pre-proposal. Objectives should be related to a coordinated effort of individuals involved, and should relate to a problem of regional scope.

Approach:

Procedures should correspond with each numbered objective and described in sufficient detail to clearly delineate the methodology to be followed. Descriptions should be adequate enough to allow a reviewer familiar with the subject to evaluate the approach. The responsibilities, work assignments, and budgets for each participating institution must be stated in the procedure for each objective.

Facilities:

Describe the facilities available, the location of each facility and specific procedure(s) 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.

Outreach and Evaluation Plan:

A well-considered and appropriate outreach component is an essential part of any NCRAC project. Increasing attention to the quality of outreach has been emphasized by USDA-NIFA, and has received considerable emphasis from NCRAC's Board of Directors. To ensure the necessary Extension/Outreach components are included in the full proposal investigators should review <http://www.ncrac.org/files/presentation/file/NCRAC%20Logic%20Model%20and%20Impact%20Statements.pdf> for needed details and include text that addresses program development and delivery. A complete Logic Model will be required for all full proposal submissions.

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Proposed Summary Budget for Year

For All Participating Institutions (additional budget pages should be prepared for each year of proposed budget)

	NCRAC Funds				
	Objective #	Institution (PI Name)	Institution (PI Name)	Institution (PI Name)	Project Total
Salaries, Wages, and Fringe Benefits					
Nonexpendable Equipment					
Materials and Supplies					
Travel					
All Other Direct Costs					
Total					

Budget Justification

(PI Name)

Objectives: #

- A. Salary, Wages and Fringe Benefits (\$ and reason)
- B. Nonexpendable Equipment
- C. Materials and Supplies
- D. Travel
- E. All Other Direct Costs

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 *BIOSIS Serial Sources* (BIOSIS, Philadelphia): author(s); year; title; serial; volume; issue (if needed); inclusive pages. Include the issue number only when each issue starts with page 1.

Crawshaw, L. I., D. E. Lemons, M. Palmer, and J. M. Messing. 1982. Behavioral and metabolic aspects of low temperature dormancy in the brown bullhead, *Ictalurus nebulosus*. *Journal of Comparative Physiology B* 148:41-47.

Hochachka, P. W. 1990. Scope for survival: a conceptual "mirror" to Fry's scope for activity. *Transactions of the American Fisheries Society* 119:622-628.

Kennedy, V. S. 1990. Anticipated effects of climate change on estuarine and coastal fisheries. *Fisheries* 15(6):16-24.

Kent, M. L., G. S. Traxler, D. Kieser, J. Richard, S. C. Dawe, R. W. Shaw, G. Propseri-Portia, J. Ketcheson, and T. P. T. Evelyn. 1998. Survey of salmonid pathogens in ocean-caught fishes in British Columbia, Canada. *Journal of Aquatic Animal Health* 10:211-219.

(2) BOOK: author(s); year; title; edition (other than 1st) or volume (if part of a series); publisher; city; state, province, or country (only if needed to locate city). Omit the number of pages.

APHA (American Public Health Association), American Water Works Association, and Water Environment Federation. 1992. Standard methods for the examination of water and wastewater, 18th edition. APHA, Washington, D.C.

Hoar, W. S., and D. J. Randall, editors. 1988 *Fish physiology*, volume 11, part B. Academic Press, New York.

Rheinheimer, G. 1985. *Aquatic microbiology*, 3rd edition. Wiley, New York.

Waters, T. F. 1995. *Sediment in streams: sources, biological effects, and control*. American Fisheries Society, Monograph 7, Bethesda, Maryland.

(3) **ARTICLE IN A BOOK:** author(s); year; title; inclusive pages; editor(s); book title; publisher; series name (if appropriate); city; state, province or country (only if needed to locate city). Identify conference proceedings by year of publication, *not* by the year of the meeting, and give the publisher's name and location (i.e., where the proceedings may be obtained), *not* the location of the meeting.

Adams, S. M., and J. E. Breck. 1990. Bioenergetics. Pages 389-415 in C. B. Schreck and P. B. Moyle, editors. *Methods for fish biology*. American Fisheries Society, Bethesda, Maryland.

Campton, D. E. 1995. Genetic effects of hatchery fish on wild populations of Pacific salmon and steelhead: what do we really know? Pages 337-353 in H. L. Schramm, Jr., and R. G. Piper, editors. *Uses and effects of cultured fishes in aquatic ecosystems*. American Fisheries Society, Symposium 15, Bethesda, Maryland.

Livingstone, A. C., and C. F. Rabeni. 1991. Food-habitat relations of underyearling smallmouth bass in an Ozark stream. Pages 76-83 in D. C. Jackson, editor. *The first international smallmouth bass symposium*. Mississippi Agriculture and Forestry Experiment Station, Mississippi State University, Mississippi State.

(4) **DISSERTATION OR THESIS:** author; year; title; dissertation; university; city; state, province, or country (only if needed to locate city).

Chitwood, J. B. 1978. The effects of threadfin shad as a forage species for largemouth bass in combination with bluegill, redear, and other forage species. Master's thesis. Auburn University, Auburn, Alabama.

Hartman, K. J. 1993. Striped bass, bluefish, and weakfish in the Chesapeake Bay: energetic, trophic linkages, and bioenergetics model applications. Doctoral dissertation. University of Maryland, College Park.

(5) **GOVERNMENT PUBLICATION:** author(s) or agency; year; title; agency; type and number of publication; city; state, province, or country (only if needed to locate city).

EPA (U.S. Environmental Protection Agency). 1986. Quality criteria for water. EPA, Report 440/5-86-001, Washington, D.C.

Gimbarzevsky, P. 1988. Mass wasting on the Queen Charlotte Islands: a regional inventory. British Columbia Ministry of Forests and Lands, Land Management Report 29, Victoria.

(6) **CONTACT REPORT:** author(s); year; title; organizations that issued the report (if different from the author); organization that received the report; receiver's city; state, province, or country (only if needed to locate city).

Smith, A. B. 1986. Turbine-induced fish mortality at Highrise Dam, 1985. Report of Robertson Consultants to Prairie Utilities, Jonesville, Alberta.

(7) **INTERNET CITATIONS:** author(s) or agency; year; title; publisher; URL; month and year accessed.

Baldwin, N. A., R. W. Saalfield, M. R. Dochoda, H. J. Buettner, and R. L. Eshenroder. 2000. Commercial fish production in the Great Lakes 1867-1996. Great Lakes Fishery Commission. Available: www.glfc.org/databases/commercial/commerc.asp. (September 2000).

Checklist for Submission of Pre-Proposals

- Follow guidelines with the exception of the budget sheets
- Format manuscripts for 22 x 28 cm (8½ x 11 inch).
- Number *all* pages sequentially.
- Use 10 font; Times New Roman. Do not justify right margins.
- Format headings appropriately
- Leave at least a 2.5-cm (1-inch) margin on all sides.
- Use metric units of measurement with English units in parenthesis, e.g., 2.54 cm (1 inch).
- Define all abbreviations the first time they are used.
- Express ratios by using a slant line (e.g., mg/L).
- Scientific names should accompany common names in the title and when they are first mentioned in the abstract and in the text. Authority for scientific names need not accompany the genus and species unless needed for clarity.
- Spell out one to ten unless followed by a unit of measurement (e.g., four fish, 4 kg, 14 fish). Do not begin a sentence with a numeral. Use 1,000 instead of 1000; 0.13 instead of .13; and % instead of percent.
- Use the 24-hour clock for dial time: 0830, not 8:30 a.m. Calendar date should be day month year (7 August 1990).
- Assemble the manuscript in this order: Title Page, Project Summary, Objective(s), Approach, Facilities, Budget, and Curriculum Vitae for Principal Investigators (PIs).
- All identified co-PIs have been provided a final draft of the pre-proposal.
- Submit in Word format

If the NCRAC Administrative Office cannot verify inclusion of any element, the Pre-Proposal will not be accepted.

Principal Investigator Signature Date

Appendix C: Full Proposal Format

Project Title

Investigator(s):

Name:

Phone:

Affiliation:

Fax:

Street Address:

E-mail:

City, State, Zip Code

Project Summary

Text limited to 200 words (approximately half a page) that describes the project in everyday language without the use of scientific or technical jargon. State the problem, challenge or issue your project is addressing. Include dollar estimates if it's an economic issue (e.g., a potential decrease in feed costs). Briefly, tell how this project will address or solve the problem or challenge. Answer the "Who cares?" or "So what?" question: Why is this worth the attention of people? How does this impact the lives of real people? What difference will it make, and to whom? What is the benefit or potential benefit of a successful project?

Justification

Present a statement of the problem, its importance in aquaculture industry and/or consumer concerns. Describe the relevance of your project, who will benefit, and where it would most likely be applied. Describe potential collaborations and how your project is relevant to goals of the NCRAC program.

Related Current and Previous Work

Present a brief review of related research on the problem, how it falls short of meeting current and future requirements, existing knowledge gaps, and how the proposed work will contribute to the research needs of the industry. If this project outline is concerned with continuation of work previously funded by NCRAC, 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 this project will benefit the aquaculture industry. The logic model will provide short, medium and long - term goals and specific outcomes. Describe how results will be made available and the specific audience for the project.

Objective(s)

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 Full-proposal. Objectives should be related to a coordinated effort of individuals involved, and should relate to a problem of regional scope.

Deliverables(s)

Final products from the project may be described in this section.

Procedures

Procedures should correspond with each numbered objective and described in sufficient detail to clearly delineate the methodology to be followed. Descriptions should be adequate enough to allow a reviewer familiar with the subject to evaluate the approach. The responsibilities, work assignments, and budgets for each participating institution must be stated in the procedure for each objective.

Facilities

Describe the facilities available, the location of each facility and specific procedure(s) 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.

Outreach and Evaluation Plan

A well-considered and appropriate outreach component is an essential part of any NCRAC project. Increasing attention to the quality of outreach has been emphasized by USDA-NIFA, and has received considerable

North Central Regional Aquaculture Center

emphasis from NCRAC's Board of Directors. To ensure the necessary Extension/Outreach components are included in the full proposal investigators should review <http://www.ncrac.org/files/presentation/file/NCRAC%20Logic%20Model%20and%20Impact%20Statements.pdf> for needed details and include text that addresses program development and delivery. A complete Logic Model will be required for all full proposal submissions.

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 an annual budget for each year of the project and a summary budget for the project showing funding requested from NCRAC by completing CSREES -2004 (see Appendix E). From the way budgets are presented, it should be clear to a reviewer that they realistically reflect costs required to carry out proposed tasks and achieve goals. Also provide a separate summary budget for each year of the project for all participants (identifying each by their institution or company) [see table from Appendix D, page 17 from the Operations Manual].

Non-allowable costs include no monies to be spent on bring and mortar (i.e., equipment costs), indirect costs or tuition remission, and excessive travel. Investigators should review the following NCRAC policies at <https://www.ncrac.org/files/page/files/POLICIES%20MARCH%202016.pdf> for additional budget guidance.

Instructions for Completing Budget Form CSREES-2004

NOTE: Form CSREES-2004 of the USDA/NIFA 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/NIFA 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 PIs 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, Wages, and Fringe Benefits (A plus B)

D. Nonexpendable Equipment – Nonexpendable equipment is defined as an item of property which has an acquisition equal to or more 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 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 NIFA 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 NIFA Authorized Departmental Officer.

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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 2012 Work Group project outlines and all future funding cycles, the Board will require the travel budgets to include: (1) explanation on how it is related to the RAC mission; (2) a limitation to one person who can speak on behalf of the project to national conferences for reporting on project results to broaden potential impacts whenever feasible; and (3) a minimal amount of regional travel unless it is essential to completing project objectives or to deliver project findings to regional constituents. Computer and/or phone-based communication tools and technologies should be used whenever possible in lieu of travel.

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 H - 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. Student Assistance/Support – This line is not applicable on NCRAC funded projects.

J. 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.

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.

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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.

K. Total Direct Costs (C through J)

L. F&A/Indirect Costs – Indirect costs are not allowed on NCRAC funded projects.

M. Total Direct and F&A/Indirect Costs (J plus K)

N. Other – This line is not applicable on NCRAC funded projects.

O. Total Amount of This Request

North Central Regional Aquaculture Center

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

OMB Approved 0524-0039

Expires 03/31/2004

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 <input type="checkbox"/>						
B. Fringe Benefits (If charged as Direct Costs)						
C. Total Salaries, Wages, and Fringe Benefits (A plus B)..... <input type="checkbox"/>						
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 J)..... <input type="checkbox"/>						
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)..... <input type="checkbox"/>						
N. Other <input type="checkbox"/>						
O. Total Amount of This Request <input type="checkbox"/>						
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. Form CSREES (12/2000)

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 vita 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 B.

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 *BIOSIS Serial Sources* (BIOSIS, Philadelphia): author(s); year; title; serial; volume; issue (if needed); inclusive pages. Include the issue number only when each issue starts with page 1.

Crawshaw, L. I., D. E. Lemons, M. Palmer, and J. M. Messing. 1982. Behavioral and metabolic aspects of low temperature dormancy in the brown bullhead, *Ictalurus nebulosus*. *Journal of Comparative Physiology B* 148:41-47.

Hochachka, P. W. 1990. Scope for survival: a conceptual "mirror" to Fry's scope for activity. *Transactions of the American Fisheries Society* 119:622-628.

Kennedy, V. S. 1990. Anticipated effects of climate change on estuarine and coastal fisheries. *Fisheries* 15(6):16-24.

Kent, M. L., G. S. Traxler, D. Kieser, J. Richard, S. C. Dawe, R. W. Shaw, G. Propseri-Portia, J. Ketcheson, and T. P. T. Evelyn. 1998. Survey of salmonid pathogens in ocean-caught fishes in British Columbia, Canada. *Journal of Aquatic Animal Health* 10:211-219.

(2) BOOK: author(s); year; title; edition (other than 1st) or volume (if part of a series); publisher; city; state, province, or country (only if needed to locate city). Omit the number of pages.

APHA (American Public Health Association), American Water Works Association, and Water Environment Federation. 1992. *Standard methods for the examination of water and wastewater*, 18th edition. APHA, Washington, D.C.

Hoar, W. S., and D. J. Randall, editors. 1988 *Fish physiology*, volume 11, part B. Academic Press, New York.

Rheinheimer, G. 1985. *Aquatic microbiology*, 3rd edition. Wiley, New York.

(3) ARTICLE IN A BOOK: author(s); year; title; inclusive pages; editor(s); book title; publisher; series name (if appropriate); city; state, province or country (only if needed to locate city). Identify conference proceedings by year of publication, *not* by the year of the meeting, and give the publisher's name and location (i.e., where the proceedings may be obtained), *not* the location of the meeting.

Adams, S. M., and J. E. Breck. 1990. Bioenergetics. Pages 389-415 in C. B. Schreck and P. B. Moyle, editors. *Methods for fish biology*. American Fisheries Society, Bethesda, Maryland.

Campton, D. E. 1995. Genetic effects of hatchery fish on wild populations of Pacific salmon and steelhead: what do we really know? Pages 337-353 in H. L. Schramm, Jr., and R. G. Piper, editors. *Uses and effects of cultured fishes in aquatic ecosystems*. American Fisheries Society, Symposium 15, Bethesda, Maryland.

Livingstone, A. C., and C. F. Rabeni. 1991. Food-habitat relations of underyearling smallmouth bass in an Ozark stream. Pages 76-83 in D. C. Jackson, editor. *The first international smallmouth bass symposium*. Mississippi Agriculture and Forestry Experiment Station, Mississippi State University, Mississippi State.

(4) DISSERTATION OR THESIS: author; year; title; dissertation; university; city; state, province, or country (only if needed to locate city).

Chitwood, J. B. 1978. The effects of threadfin shad as a forage species for largemouth bass in combination with bluegill, redear, and other forage species. Master's thesis. Auburn University, Auburn, Alabama.

Hartman, K. J. 1993. Striped bass, bluefish, and weakfish in the Chesapeake Bay: energetic, trophic linkages, and bioenergetics model applications. Doctoral dissertation. University of Maryland, College Park.

(5) GOVERNMENT PUBLICATION: author(s) or agency; year; title; agency; type and number of publication; city; state, province, or country (only if needed to locate city).

EPA (U.S. Environmental Protection Agency). 1986. Quality criteria for water. EPA, Report 440/5-86-001, Washington, D.C.

Gimbarzevsky, P. 1988. Mass wasting on the Queen Charlotte Islands: a regional inventory. British Columbia Ministry of Forests and Lands, Land Management Report 29, Victoria.

(6) CONTACT REPORT: author(s); year; title; organizations that issued the report (if different from the author); organization that received the report; receiver's city; state, province, or country (only if needed to locate city).

Smith, A. B. 1986. Turbine-induced fish mortality at Highrise Dam, 1985. Report of Robertson Consultants to Prairie Utilities, Jonesville, Alberta.

(7) INTERNET CITATIONS: author(s) or agency; year; title; publisher; URL; month and year accessed.

Baldwin, N. A., R. W. Saalfeld, M. R. Dochoda, H. J. Buettner, and R. L. Eshenroder. 2000. Commercial fish production in the Great Lakes 1867-1996. Great Lakes Fishery Commission. Available: www.glfc.org/databases/commercial/commerc.asp. (September 2000).

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Checklist for Submission of Full Proposals

- ___ Follow guidelines with the exception of the budget sheets.
- ___ Format manuscripts for 22 x 28 cm (8½ x 11 inch).
- ___ Number *all* pages sequentially.
- ___ Use 10 font; Times New Roman. Do not justify right margins.
- ___ Format headings appropriately.
- ___ Leave at least a 2.5-cm (1-inch) margin on all sides.
- ___ Provide names of three possible reviewers who will not have a Conflict of Interest
- ___ Use metric units of measurement with English units in parenthesis, e.g., 2.54 cm (1 inch).
- ___ Define all abbreviations the first time they are used.
- ___ Express ratios by using a slant line (e.g., mg/L).
- ___ Scientific names should accompany common names in the title and when they are first mentioned in the abstract and in the text. Authority for scientific names need not accompany the genus and species unless needed for clarity.
- ___ Spell out one to ten unless followed by a unit of measurement (e.g., four fish, 4 kg, 14 fish). Do not begin a sentence with a numeral. Use 1,000 instead of 1000; 0.13 instead of .13; and % instead of percent.
- ___ Use the 24-hour clock for dial time: 0830, not 8:30 a.m. Calendar date should be day month year (7 August 1990).
- ___ Include signed Letters of Intent for identified Extension and Industry Liaisons.
- ___ Although not required at this time, Letters of Support from industry can be included to illustrate the importance of the project to the commercial aquaculture industry in the North Central Region.
- ___ Assemble the full proposal in this order: Title Page, Project Summary, Justification, Related Current and Previous Work, Anticipated Benefits, Objective(s), Deliverables, Procedures, Project Deliverables, Logic Model, Facilities, Project Leaders, Budget, Schedule for Completion of Objectives. Participating Institutions and Principal Investigators, Curriculum Vitae for Principal Investigators (PIs).
- ___ All identified co-PIs have been provided a final draft of the full proposal.
- ___ Submit in Word format.

If the NCRAC Administrative Office cannot verify inclusion of any element, the Full Proposal will not be accepted.

Principal Investigator Signature

Date

Appendix D: Full Proposal Example

Title

Targeted Research/Industry Development/Extension Area or Emerging Opportunities/Issues being addressed.

Chairperson: "Name"

Industry Advisory Council Liaison(s): "Name"

Extension Liaison(s): "Name"

Funding Request: \$amount

Duration: "0/00/00-0/00/00" "time" (i.e., 2 Years)

Objectives:

- 1.
- 2.

Deliverables:

- 1.
- 2.

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)

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General guidelines for all required sections (**Center and Bold**) include limiting subheadings within to two levels if used. **Level 1** is bold, left justified and *Level 2* is bold, italics, left justified.

Project Summary

Justification

Related Current and Previous Work

Anticipated Benefits

Objectives

- 1.
- 2.

Deliverables

- 1.
- 2.

Procedures

Statement of search and review of previously funded research to avoid duplicative work.

Logic Model

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Facilities

References

(1)

ARTICLES IN JOURNALS AND OTHER PERIODICALS listed in BIOSIS Serial Sources (BIOSIS, Philadelphia): author(s); year; title; serial; volume; issue (if needed); inclusive pages. Include the issue number only when each issue starts with page 1.

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Kennedy, V. S. 1990. Anticipated effects of climate change on estuarine and coastal fisheries. *Fisheries* 15(6):16–24.

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Hoar, W. S., and D. J. Randall, editors. 1988 *Fish physiology*, volume 11, part B. Academic Press, New York.

Rheinheimer, G. 1985. *Aquatic microbiology*, 3rd edition. Wiley, New York.

Waters, T. F. 1995. *Sediment in streams: sources, biological effects, and control*. American Fisheries Society, Monograph 7, Bethesda, Maryland.

(3)

ARTICLE IN A BOOK: author(s); year; title; inclusive pages; editor(s); book title; publisher; series name (if appropriate); city; state, province or country (only if needed to locate city). Identify conference proceedings by year of publication, not by the year of the meeting, and give the publisher’s name and location (i.e., where the proceedings may be obtained), not the location of the meeting.

Adams, S. M., and J. E. Breck. 1990. Bioenergetics. Pages 389–415 in C. B. Schreck and P. B. Moyle, editors. *Methods for fish biology*. American Fisheries Society, Bethesda, Maryland.

Campton, D. E. 1995. Genetic effects of hatchery fish on wild populations of Pacific salmon and steelhead: what do we really know? Pages 337–353 in H. L. Schramm, Jr., and R. G. Piper, editors. *Uses and effects of cultured fishes in aquatic ecosystems*.

American Fisheries Society, Symposium 15, Bethesda, Maryland.

Livingstone, A. C., and C. F. Rabeni. 1991. Food-habitat relations of underyearling smallmouth bass in an Ozark stream. Pages 76–83 in D. C. Jackson, editor. *The first international smallmouth bass symposium*. Mississippi Agriculture and Forestry Experiment Station, Mississippi State University, Mississippi State.

(4)

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Hartman, K. J. 1993. Striped bass, bluefish, and weakfish in the Chesapeake Bay: energetic, trophic linkages, and bioenergetics model applications. Doctoral dissertation. University of Maryland, College Park.

(5)

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Gimbarzevsky, P. 1988. *Mass wasting on the Queen Charlotte Islands: a regional inventory*. British Columbia Ministry of Forests and Lands, Land Management Report 29, Victoria.

(6)

CONTACT REPORT: author(s); year; title; organizations that issued the report (if different from the author); organization that received the report; receiver’s city; state, province, or country (only if needed to locate city).

Smith, A. B. 1986. Turbine-induced fish mortality at Highrise Dam, 1985. Report of Robertson Consultants to Prairie Utilities, Jonesville, Alberta.

(7)

INTERNET CITATIONS: author(s) or agency; year; title; publisher; URL; month and year accessed.

Baldwin, N. A., R. W. Saalfeld, M. R. Dochoda, H. J. Buettner, and R. L. Eshenroder. 2000. *Commercial fish production in the Great*

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Lakes 1867–1996. Great Lakes Fishery Commission. Available: www.glfsc.org/databases/commercial/commerc.asp. (September 2000).

Project Leaders

State	Name/Institution	Area of Specialization
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North Central Regional Aquaculture Center

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

OMB Approved 0524-0039
Expires 03/31/2004

ORGANIZATION AND ADDRESS University Address City, State, ZIP				USDA AWARD NO.	Year:	Objective:			
PROJECT DIRECTOR(S) PI Name				Duration Proposed Months: <u>12</u>	Duration Proposed Months: ____	Non-Federal Proposed Cost- Sharing/ Matching Funds (If required)	Non-federal Cost- Sharing/ Matching Funds Approved by CSREES (If Different)		
A. Salaries and Wages 1. No. of Senior Personnel				CSREES FUNDED WORK MONTHS					
				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 <input type="checkbox"/>									
B. Fringe Benefits (If charged as Direct Costs)									
C. Total Salaries, Wages, and Fringe Benefits (A plus B) <input type="checkbox"/>									
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 J) <input type="checkbox"/>									
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) <input type="checkbox"/>									
N. Other <input type="checkbox"/>									
O. Total Amount of This Request <input type="checkbox"/>									
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) <input type="checkbox"/> Non-Cash Contributions (both Applicant and Third Party) <input type="checkbox"/>						Leave Blank			
NAME AND TITLE (Type or print)				SIGNATURE (required for revised budget only)			DATE		
Project Director									
Authorized Organizational Representative									

North Central Regional Aquaculture Center

Budget Explanation for Institution

(PI Names)

Objectives 1-3

A. Salaries and Wages:

Year 1:

- Detailed Explanation

Year 2:

- Detailed Explanation

B. Fringe Benefits:

Details of who and how much.

E. Materials and Supplies:

Items	Year 1	Year 2	Total
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$5	\$
Total	\$	\$	\$

F. Travel (Domestic):

Year 1:

- Detailed explanation.

Year 2:

- Detailed explanation.

J. Other Indirect Costs:

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Budget Summary

YEAR 1

Institution Name			
Salaries & Wages			
Fringe Benefits			
Total Salaries, Wages, and Fringe Benefits			
Nonexpendable Equipment			
Materials and Supplies			
Travel			
All Other Direct Cost			
Totals	\$	\$	\$

YEAR 2

Institution Name			
Salaries, Wages, and Fringe Benefits			
Fringe Benefits			
Total Salaries, Wages, and Fringe Benefits			
Nonexpendable Equipment			
Materials and Supplies			
Travel			
All Other Direct Cost			
Totals	\$	\$	\$

North Central Regional Aquaculture Center

Schedule for Completion of Objectives

Start date:

Completion date:

Objectives and Tasks	Year 1						Year 2					
	S O	N D	J F	M A	M J	J A	S O	N D	J F	M A	M J	J A
<i>Objective 1</i>												
<i>Objective 2</i>												
<i>Objective 3</i>												
<i>Delivery</i>												

Participating Institutions and Co-Principal Investigators

Institution

PI Name

Institution

PI Name

North Central Regional Aquaculture Center

VITA

Name
Institution
Street
City, State ZIP

Phone:
E-mail:

EDUCATION

Ph.D.- Major, University, Year
B.A.- Major, University, Year

RESEARCH AND PROFESSIONAL EXPERIENCE

Year-Present
Year

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

RECENT PUBLICATIONS (PAST 5 YEARS)

(follow NCRAC format)

North Central Regional Aquaculture Center

Appendix E: Review Form

Confidential Peer Review –Project Outline

PLEASE return this form by *Month, Day, Year* (or sooner) to Joseph Morris, Director, North Central Regional Aquaculture Center, 339 Science II, Iowa State University, Ames, IA 50011-3221; ncrac@iastate.edu

Title: _____

Name of Reviewer (type or print): _____

Thank you for reviewing this Project Outline. The North Central Regional Aquaculture Center (NCRAC) is one of five Regional Aquaculture Centers administered by the U.S. Department of Agriculture. The purpose of NCRAC, as well as the other Centers, is to work together within the broader, integrated aquaculture program of USDA to promote a well-developed and sustainable aquaculture industry in the U.S.A. An Industry Advisory Council (IAC) sets priorities for NCRAC projects that are important to the regional aquaculture community.

Provide a numerical score for each of the following quality criteria.

<i>Criteria</i>	<i>Score</i>
1. Overall quality of the project outline. —Does the outline clearly address the stated objectives of the NCRAC call for proposals? Is the justification and literature properly documented? Are the procedures clearly stated per objective? (Maximum = 10 points)	
2. Benefits to the aquaculture industry including the deliverables. —NCRAC projects should provide significant (but realistic) benefits to commercial aquaculture. (Maximum = 20 points)	
3. Likelihood that the objectives of the project will be achieved during the proposed time frame. —Can the work be completed in the allotted time? (Maximum = 10 points)	
4. Quality and appropriateness of the approach. —Are the methods sound? Is the design statistically sound? Is the scale (laboratory, field, pond size, etc.) appropriate? Are studies conducted under conditions relevant to commercial aquaculture? Is there a high probability that the work can be successful? (Maximum = 30 points)	
5. Logic Model. —Can the planned results or objectives be accomplished given the inputs invested and the activities identified?	
6. Appropriateness of the budget for the proposed work. —Consider the requested funding in light of the overall goals of the project. Although not required, NCRAC prefers to fund projects that leverage existing funds, rather than funding projects in total. (Maximum = 10 points)	
7. Qualifications of investigator(s). —Considerations include the investigator's experience in the subject, and the quality and quantity of past work in the subject area. (Maximum = 10 points)	
Total (100 maximum)	

Comments and/or **constructive criticism** that the investigators may use in improving the overall quality of the project outline (use additional pages if necessary):

Appendix F: Out-of-Cycle Proposal

NCRAC Out-of-Cycle Proposal

*Description of Project Categories and
Body of Proposal (note to exceed 4 pages excluding budget and
vitas)*

Project Title

Project Summary

Text limited to 200 words (approximately half a page) that describes the project in everyday language without the use of scientific or technical jargon. State the problem, challenge or issue your project is addressing. Include dollar estimates if it's an economic issue (e.g., a potential decrease in feed costs). Briefly, tell how this project will address or solve the problem or challenge. Answer the "Who cares?" or "So what?" question: Why is this worth the attention of people? How does this impact the lives of real people? What difference will it make, and to whom? What is the benefit or potential benefit of a successful project?

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.

Approach

Procedures should correspond with each numbered objective and described in sufficient detail to clearly delineate the methodology to be followed. 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.

Facilities

Describe the facilities available, the location of each facility and specific procedure(s) 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.

Outreach and Evaluation Plan

A well-considered and appropriate outreach component is an essential part of any NCRAC project. Increasing attention to the quality of outreach has been emphasized by USDA-NIFA, and has received considerable emphasis from NCRAC's Board of Directors. To ensure the necessary Extension/Outreach components are included in the full proposal investigators should review <http://www.ncrac.org/files/presentation/file/NCRAC%20Logic%20Model%20and%20Impact%20Statements.pdf> for needed details and include text that addresses program development and delivery. A complete Logic Model will be required for all full proposal submissions.

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Budget

	NCRAC Funds				
	Objective #	Institution (PI Name)	Institution (PI Name)	Institution (PI Name)	Project Total
Salaries, Wages, and Fringe Benefits					
Nonexpendable Equipment					
Materials and Supplies					
Travel					
All Other Direct Costs					
Total					

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 B located in <http://www.ncrac.org/files/page/files/Manual%20October%202015.pdf>.

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Checklist for Submission of Full Proposals

- ___ Follow guidelines with the exception of the budget sheets.
- ___ Format manuscripts for 22 x 28 cm(8½ x 11 inch).
- ___ Number *all* pages sequentially.
- ___ Use 10 font; Times New Roman. Do not justify right margins.
- ___ Format headings appropriately.
- ___ Leave at least a 2.5-cm(1-inch) margin on all sides.
- ___ Provide names of three possible reviewers who will not have a Conflict of Interest
- ___ Use metric units of measurement with English units in parenthesis, e.g., 2.54 cm (1 inch).
- ___ Define all abbreviations the first time they are used.
- ___ Express ratios by using a slant line (e.g., mg/L).
 - ___ Scientific names should accompany common names in the title and when they are first mentioned in the abstract and in the text. Authority for scientific names need not accompany the genus and species unless needed for clarity.
 - ___ Spell out one to ten unless followed by a unit of measurement (e.g., four fish, 4 kg, 14 fish). Do not begin a sentence with a numeral. Use 1,000 instead of 1000; 0.13 instead of .13; and % instead of percent.
 - ___ Use the 24-hour clock for dial time: 0830, not 8:30 a.m. Calendar date should be day month year (7 August 1990).
- ___ Include signed Letters of Intent for identified Extension and Industry Liaisons.
 - ___ Although not required at this time, Letters of Support from industry can be included to illustrate the importance of the project to the commercial aquaculture industry in the North Central Region.
 - ___ Assemble the full proposal in this order: Title Page, Project Summary, Justification, Related Current and Previous Work, Anticipated Benefits, Objective(s), Deliverables, Procedures, Project Deliverables, Logic Model, Facilities, Project Leaders, Budget, Schedule for Completion of Objectives. Participating Institutions and Principal Investigators, Curriculum Vitae for Principal Investigators (PIs).
- ___ All identified co-PIs have been provided a final draft of the full proposal.
- ___ Submit in Word format.

If the NCRAC Administrative Office cannot verify inclusion of any element, the Full Proposal will not be accepted.

Principal Investigator Signature Date

Appendix G: Work Groups

Participants

Appointment/Selection

Work Group participants are those written into the original project proposal, or an approved project addendum.

Responsibilities

- Prepare the project outline (see Appendix B) and revisions thereof, including budgets (Form CSREES-2004).
- Submit Letters of Intent of each funded participant.
- Agree upon participant work assignments, assuring conformity with objectives and procedures.
- Meet at least annually to review progress of the project and coordinate and implement work plans to address project objectives.
- Evaluate and report yearly progress toward project objectives that contribute to an annual report for the project as a whole.
- Participate in meetings and activities, accept reasonable assignments, and meet agreed-upon deadlines.
- Contribute to the preparation and review of research and outreach publications.
- Prepare an annual progress report (see Appendix G) or a project termination report (see Appendix H).
- Communicate with the Extension Liaison to assure information is conveyed in a timely fashion to meet outreach objectives.

The Chair of the Work Group has additional responsibilities that include:

- Plan project efforts, oversee preparation of project outlines and revisions, and provide leadership to the Work Group as a whole.
- Convene all Work Group meetings.
- Distribute data summaries and project reports to all Work Group members.
- Coordinate the input of materials from all Work Group participants including IAC and Extension liaisons, and prepare all required annual (see Appendix G) and termination (see Appendix H) reports by the specified due dates.

Project Liaisons

IAC Liaison. — The IAC Liaison is selected by the NCRAC Director based upon his or her familiarity with the research and/or outreach area of the project. An Industry Advisor may be selected from the IAC or from any NCRAC state. Responsibilities include: collaborating with the Work Group members to help ensure that industry's needs are met through the research and outreach objectives of the project.

Extension Liaison. — The Extension Liaison is selected by the NCRAC Director based on their ability to support extension/outreach efforts and ultimately industry application of project results. Responsibilities include: being responsible for working with other members of the Work Group to develop a final comprehensive outreach plan for each project objective, ensure that adequate progress is being made toward that plan over the course of the project, and develop outreach outcomes as identified in the plan. Support within the project budget should be provided for this process.

A memorandum of understanding must be signed by both IAC and Extension Liaisons, and project chairs (see appendix H).

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Appendix H: Format for Letters of Intent

Liaison Letter of Intent

In accordance with the Guidelines for Extension Involvement in the North Central Regional Aquaculture Center (adopted in 1994), directives of the NCRAC Board of Directors and USDA-NIFA guidance, all NCRAC-funded projects must include an Extension Liaison that is funded to do extension and outreach activities associated with that project. NCRAC projects must also include an Industry Liaison who will serve as a contact between project PI(s) and the industry.

Name (Appointed Liaison): _____

Title of Project: _____

Project Duration: _____

The conditions and terms of the offer being made to you are outlined below:

Position (Extension or Industry): _____

Primary Duties/Activities of Liaison: _____

Appointment offered by:

Project Chair

Date

Offer approved by:

NCRAC Director

Date

I have read and I understand the offer and its terms and conditions, and I agree to these terms and accept this offer. The terms of this offer may be modified only by subsequent written agreement signed by both parties.

Liaison Signature: _____

Date

Please return this letter by: _____ to the Project Chair.

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Appendix I: Format for Institutional Participation

Date

Dr. Joseph E. Morris, Director
North Central Regional Aquaculture Center
Iowa State University
339 Science II
Ames, IA 50011-3221

SUBJECT: Project entitled “title”

Dear Dr. Morris:

As the Authorized Organizational Representative (AOR) I would like to inform you [name of institution/organization] (acronym for institution/organization) wishes to participate in the above referenced project as a subcontractor to Iowa State University. Dr.(Drs.)/Mr.(Messrs.)/Mrs.(Mmes.)/Ms.(Mses.) [name of PI(s)] will serve as the Principal Investigator(s) of the subcontract and he/she/they have access to all of the necessary equipment, laboratory, and office space to successfully undertake this project. I also approve the budget as submitted for Dr.(s.)/Mr.(Messrs.)/Mrs.(Mmes.)/Ms.(Mses.) [name of PI(s)] involvement in this project. Upon issuance of approval to the North Central Regional Aquaculture Center for this project, [name of institution/organization or acronym for institution/organization] will enter into a formal agreement with your institution.

Sincerely,

Name and title of the AOR

Appendix J: Format for Annual Progress Report

A: DIRECTIONS: Text from a word processing program, e.g., M.S. Word, can be pasted into the text boxes, but some are limited to a maximum number of characters; spell check should be done prior to and after pasting the text. In boxes where you do not have the needed information just indicate N.A./none/0, whichever is appropriate. If you have difficulty in completing the survey, please try a different browser. If you wish to add a table or a figure to better illustrate your project's results, instructions to do so are noted at the end of this report form.

1. Project Title
2. Author (Chair)
3. Extension Liaison
4. Key Words, choose the best single key word.
 - Aquaculture Drugs (1)
 - Baitfish (2)
 - Conferences/Workshops (3)
 - Crayfish (4)
 - Economics/Marketing (5)
 - Extension (6)
 - Hybrid Striped Bass (7)
 - Largemouth Bass (8)
 - National Coordinator for Aquaculture (9)
 - Nutrition/Diets (10)
 - Other (11)
 - Salmonids (12)
 - Sunfish (13)
 - Tilapia (14)
 - Viral Hemorrhagic Septicemia (15)
 - Walleye (16)
 - Wastes/Effluents (17)
 - White Papers (18)
5. Total Funds Committed
6. Initial Project Schedule (e.g., 9/1/13-8/31/15)
7. Current Project Year (e.g., 9/1/13-8/31/15), note the actual year of project including any no cost extension requests
8. Principal Investigator(s); List all funded participating personnel names and respective institutions/agency/business. Example: Morris, J.E., Iowa State University
9. Extension Liaison; List all participating personnel names and respective institutions/agency/business. Example: Morris, J.E., Iowa State University
10. Industry Liaison; List all participating personnel names and respective institutions/agency/business. Example: Smith, J. E., Flatland Aquaculture, Ames, Iowa
11. Actual FTEs for this reporting year. Example of FTE is one researcher who works 2 months, then FTE is

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calculated as 2/12 or 0.17 FTE. (Tab to go between cells, each must have a response even if it is zero.)

- Researchers (1)
- Extension (2)
- Professional (3)
- Technical (4)
- Administrative (5)
- Other (6)

12. Project Summary. State the problem, challenge or issue your project is addressing, and progress to date (similar to an abstract). Text limited to 1,250 characters that describes the project in everyday language without the use of scientific or technical jargon.

13. Anticipated Benefits. State briefly how the project will benefit the aquaculture industry-directly or indirectly.

B: Accomplishments

14. Project Progress. List project objectives and provide a concise summary of the cumulative progress to date made towards the objectives to date. This has a 5,000 character limit.

15. Targeted Audiences. Who are your targeted audience/users/stakeholders for which efforts and results of the project are intended to benefit?

16. Outreach Overview. Describe in general how your results have been extended to the intended users, or if results have not been made available, explain when and how this will occur.

17. Deliverables (outputs). Outputs are tangible, measurable products (workshops, services, delivered, training, counseling, work with media outlets and/or products [curricula, models, software, technology, methods, websites, patents, etc.] etc.). Describe project outputs to date but DO NOT include presentations or extension and research publications as they're listed separately below.

18. Outcomes-Impacts. Outcomes/impacts are defined as changes in Knowledge, Action, or Condition. Describe how findings, results, techniques, or other products that were developed or extended from the project generated or contributed to an outcome/impact. Measurable economic or behavioral impacts are good examples. They can be short, medium, or long term.

C: Impact Summary. Provide short statements (2-3 sentences) about each of the following: (pre-established fields for Researchers to complete short statement answers).

19. Impacts Summary #1. Relevance: Issue-what was the problem?

20. Impacts Summary #2. Response: What was done?

21. Impacts Summary #3. Results: How did your work make a difference (change in knowledge, actions, or conditions) to the target audiences?

22. Impacts Summary #4. Recap: One-sentence summary.

D: List publications using the NCRAC publication format in the following categories. If there is a web link to any publication, please provide that information.

23. Publications #1. Presentations - Oral

24. Publications #2. Presentations - Posters

25. Publications #3. Peer-reviewed-Print (journal, etc.)

26. Publications #4. Peer-reviewed-Digital (websites, videos, etc.)

27. Publications #5. Non-Peer-reviewed-Extension factsheets

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28. Publications #6. Non-Peer-reviewed-Popular articles

29. Students-Provide the following information for EVERY student that graduated and was funded by NCRAC to work on this project. Type student name, date of graduation, capstone/thesis title, product, institution, and a link to thesis/dissertation. Example: Wamboldt, J. 2013. Hybrid striped bass:culture and use in Midwestern waters. Master's thesis, Iowa State University, Ames, Iowa. Available: <http://lib.dr.iastate.edu/etd/13196/> . (September 16, 2104).

E: Technical Update. Provide a table or figure (no more than two pieces of information) that may help convey results of the project to date. Tables need to be provided as separate M.S. Word files. Graphs and figures should be provided as both M.S. Word and JPG files; colors can be used since the NCRAC report will be developed as a PDF file. Keep in mind that once the final NCRAC report is published, all information will become public knowledge. Tables – provided as an attachment to this report. Do not use all capital letters in table headings. Use a period at the end of table title. Table headings should be typed as bold, flush left. Use lowercase letters for superscripts in table footnotes 1.336a. Use solid underlining in tables; one under table heading, one separating table from footnotes. Table font should be 11 pt. Times New Roman. Figures/pictures – placed at end of article after tables. Figures and pictures can be used with your report. Do not use all capital letters with figure captions. Figures transfer best when inserted in document as a JPG. Figure and picture headings should appear under the graphic. Figure number and captions--bold, flush left. Use period at the end. Send all additional information being used for this section as separate files to ncrac@iastate.edu.

F: If you wish to review your answers at a later date, DO NOT click the forward button now. Your information should be automatically saved at this point.

Appendix K: Format for Project or Project Component(S) Termination Reports

INSTRUCTIONS: NCRAC has typically funded 2-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 electronically to the Director of NCRAC within ninety (90) days of the termination date. To accomplish this, all investigators will prepare and provide project results to the Work Group chair who will then compile a project or project component termination report to submit to the Director. This report will be more comprehensive and detailed than annual reports.

1. Project Title:
2. Key Word(s): Aquaculture Drugs, Baitfish, Conferences/Workshops, Crayfish, Economics/Marketing, Extension, Hybrid Striped Bass, Largemouth Bass, National Coordinator for Aquaculture, Nutrition/Diets, Other, Salmonids, Sunfish, Tilapia, Viral Hemorrhagic Septicemia, Walleye, Wastes/Effluents, White Papers.
3. Dates of Work:
4. NCRAC Funding Level: (Total NCRAC-USDA funding)
5. Participants: (Funded cooperating personnel and institutions, agencies, and business entities including Industry Advisory Council liaison(s), extension liaison(s), and non-funded collaborators.)
6. Extension Liaison: (name, organization, state)
7. Industry Liaison: (name, organization, state)
8. Reason for Termination: (Indicate objective(s) completed, funds terminated, or other specific reason for project termination.)
9. Project Objectives: (list)
10. Project Summary: (Text limited to 1,250 characters (approximately half a page) that describes the project and results in everyday language without the use of scientific or technical jargon. State the problem, challenge or issue your project addressed. Include dollar estimates if it's an economic issue (e.g., a potential decrease in feed costs). Briefly, tell how this project addressed or solved the problem or challenge. Answer the Who cares? or So what? question: Why is this worth the attention of people? How does this impact the lives of real people? What difference will it make, and to whom? What is the benefit or potential benefit of this project?)
11. 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. Keep in mind that once the final NCRAC report is published, all information will become public knowledge.)
12. 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.)
13. 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).)
14. Recommended Follow-Up Activities: (State concisely how future studies may be structured.)
15. 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). Please provide web addresses for any on-line publication(s) including theses and dissertations that were the result of this NCRAC-funded project. Format guidelines for publications and presentations are also

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noted in the NCRAC Proposal Submission Checklist posted on the NCRAC web site.)

Technical Update. Provide a table or figure (no more than two pieces of information) that may help convey results of the project to date. Tables need to be provided as separate M.S. Word files. Graphs and figures should be provided as both M.S. Word and JPG files; colors can be used since the NCRAC report will be developed as a PDF file. Keep in mind that once the final NCRAC report is published, all information will become public knowledge. Tables – provided as an attachment to this report. Do not use all capital letters in table headings. Use a period at the end of table title. Table headings should be typed as bold, flush left. Use lowercase letters for superscripts in table footnotes 1.336a . Use solid underlining in tables; one under table heading, one separating table from footnotes. Table font should be 11 pt. Times New Roman. Figures/pictures - placed at end of article after tables Figures and pictures can be used with your report. Do not use all capital letters with figure captions. Figures transfer best when inserted in document as a JPG. Figure and picture headings should appear under the graphic. Figure number and captions--bold, flush left. Use period at the end. Send all additional information being used for this section as separate files to ncrac@iastate.edu.

If you wish to review your answers at a later date, DO NOT click the forward button now. Your information should be automatically saved at this point. Clicking forward will submit your report.

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Appendix L: 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 Director of NCRAC is in charge of the Publications Office.

NCRAC Publications Office
Department of Natural Resources Ecology and Management
Iowa State University
339 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.

<p>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.</p>
--

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. 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
Iowa State University
339 Science II
Ames, IA 50011-3221

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.

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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 a 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 NCRAC Office to determine guidelines for appropriate style and format and an estimated production schedule.
3. Reviewers will consist of individuals from the NCRAC Technical Committee-Extension as well as outside reviewers for 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 NCRAC 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 high-resolution copies of any artwork, figures, or photographs to be included in the publication.
5. Distribution of publications will be done per requirements of the Publication Policy of the National Aquaculture Coordinating Council.

Publications and Videos Based on Perceived Regional Needs

Extension specialists are encouraged to submit publication and video ideas to the NCRAC 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. Submit materials for the NCRAC Newsletter to:

NCRAC Office
Iowa State University
339 Science II
Ames, IA 50011-3221
ncrac@iastate.edu

Mention of Participants and Programs

Please provide both the Office of the Director at ISU 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.

Photographs

Photos 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. Any photographs used will be properly credited.

Appendix M: 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.

North Central Regional Aquaculture Center

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.

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.