AQUACULTURE COLLABORATIVE RESEARCH AND DEVELOPMENT PROGRAM

SUBMIT YOUR APPLICATION

The deadline date for project proposal submissions is **January 22, 2020**.

For 2020-2021, the ACRDP will be accepting proposals for only **one-year projects**. Proposals should aim to address research issues in such a way that an outcome can be achieved in a single year. Subsequent phases or additions to these one-year projects may be considered in future, separate program submissions.

Applications and budget forms should be submitted to the ACRDP National Co-ordinator at ACRDP-PCRDA@dfo-mpo.gc.ca .

NATIONAL PROGRAM OBJECTIVES

The **Aquaculture Collaborative Research and Development Program (ACRDP)** is a Fisheries and Oceans Canada (DFO) initiative that promotes collaborative research activities between the aquaculture industry and the department, teaming industry representatives with DFO researchers. The projects are primarily conducted within DFO research facilities, but field work may also take place at industry or other partner facilities. Potential projects are proposed by aquaculture producers and funded jointly through the ACRDP and the participating aquaculture producer collaborators.

The **key goals** of the program are to:

- Improve the sustainability of the Canadian aquaculture industry;
- Increase collaborative research between the department and industry;
- Facilitate the process of technology transfer and knowledge mobilization; and
- Increase scientific capacity of the Canadian aquaculture industry for essential aquaculture research.

The program has two broad **Research Objectives**:

Optimal Fish Health. The sustainability of the marine and freshwater aquaculture industry in Canada is dependent on the health and proper health management of the farmed aquatic animals (fish, shellfish, and seaweed). Funded research is intended to assist the aquaculture sector in improving fish health management practices and better understand pathogen and disease interactions.

Environmental Performance. This objective is aimed at supporting research that will enhance the overall environmental sustainability of aquaculture operations in Canada with the goal of enhancing environmental responsibility while ensuring economic viability and optimal product quality.

2020-2021 NATIONAL RESEARCH PRIORITIES

To ensure research efforts are focused where they are most needed, the research priorities for the ACRDP are developed with input from government management and science representatives, as well as industry and academia. The priorities are revised annually and approved by the ACRDP National Steering Committee prior to issuance of the Call for Proposals. By encouraging the submission of project proposals in the research areas which have been identified as up-to-date priorities, the ACRDP addresses the priorities identified by both the aquaculture industry and Fisheries and Oceans Canada.

These priorities apply to all aquaculture species including finfish, shellfish, and algae, in both freshwater and marine ecosystems.

The following list of priorities will be used as one of the grading criteria during the project review process for the upcoming round of funding. Although it is not a requirement to directly align with the goals listed, those project proposals that align with these goals may receive a higher ranking. The examples listed below are not prescriptive or exhaustive.

Priority 1: Pest and Pathogen Management for Cultured Stocks

Mitigation of Pest and Pathogen Impacts

Goal: Increasing knowledge, understanding and developing better management practices with respect to disease impacts on cultured species.

Examples:

- Pathogens and pests research
- Development of Bay Management strategies
- Understanding the biology of disease causing agents, including parasitic lifecycles

Management and Control of Pests and Pathogens

Goal: Increasing knowledge and understanding of how pests and pathogens can affect cultured species and the environment, and to manage their impact.

Examples:

- Avoidance strategies and husbandry methods to control fouling
- Non-chemical measures to manage sea lice (e.g., cleaner fish, warm water treatments)
- Invasive species research
- Research to support vaccine development and drug treatments

Priority 2: Ecosystem Interactions

Ecosystem Impacts

Goal: Increasing knowledge and understanding of how aquaculture operations impact the ecosystem, and developing the means to manage, mitigate, and control these impacts.

Examples:

- Impact of discharge of finfish waste to hard bottom substrates
- Remediation of agriculture nutrient loading through shellfish production
- Reducing environmental footprint
- Developing monitoring protocols to evaluate and manage impacts
- Impacts of organic release on biodiversity
- Carrying capacity studies
- Modeling and decreasing nutrient loading on the benthos
- Evaluating positive effects of aquaculture on ecosystems - diversity, habitat, nutrient sequestering, etc.

Goal: Increasing knowledge and understanding of how the productivity of cultured stocks might be impacted by the ecosystem in which they exist, and developing the means to adapt to, control or mitigate against, these impacts.

Examples:

- Harmful algal bloom impacts (algal monitoring)
- Developing monitoring protocols to manage impacts to support healthy marine ecosystems including healthy shellfish populations
- Effects of and adaptation strategies to ocean acidification and ocean warming on aquaculture
- Impact on water quality due to anthropogenic sources (e.g., nutrient or organic loading)

Wild-Farmed Interactions

Goal: Increasing understanding of the interactions between farmed species and wild species.

Examples:

- Developing mitigation strategies for marine mammal interactions and reducing predation on stocks
- Interaction between wild salmon and farmed salmon
- Influence of salmon farming operations on wild lobster
- Impacts of cultured fish escapees
- Avoidance strategies and husbandry methods to manage predators
- Understanding the relationships between cultured and wild species, as well as further understanding relationships between co-cultures species with respect to fish health and environmental performance issues

Priority 3: Sustainability

Note: This priority is <u>not</u> intended to support research for solely economic objectives.

Maintaining Healthy Populations

Goal: To be proactive in development of approaches to improve management of aquaculture species health issues.

Examples:

- Understanding the causes assessing how to manage the effects of stress on cultured organisms
- Introductions and transfers research
- Development of disease–resistant or –resilient strains/species for better finfish and/or shellfish health outcomes
- Novel feeds and improved nutrition for better fish health management
- Improved finfish nutrition and feed formulations to reduce reliance on fish meal and oils from unsustainable sources or reduce nutrient loading to the environment
- Identification of, and development of solutions addressing, linkages among mortality, environment and host

Goal: Develop and refine strategies to improve sustainability of husbandry, containment, isolation, and/or protection of cultured stocks.

Examples:

- Development of management and control measures to mitigate losses due to predation (i.e., birds, crabs, etc.)
- Development of warm water showers to remove sea lice from salmon
- Research to support the use of emerging technologies to identify or alleviate associated environmental concerns, and to create more environmentally sustainable operations
- Understanding biological requirements for alternate grow out systems (offshore, land-based, recirculation)
- Research related to climate change and climate change adaptation strategies

Development of Sustainable Approaches to New Cultured Species

Goal: Develop sustainable approaches to the advancement of alternate or under-exploited species.

Examples:

- Open culture techniques and harvesting of sea cucumbers and sea urchins to minimize impacts to the benthos
- Development of culture techniques for Pacific salmonids and Arctic Charr to minimize genetic interactions with wild fish
- Multi-trophic aquaculture
- Assess and evaluate diets to minimize nutrient loading

ELIGIBLE APPLICANTS

Eligible industry applicants that may apply as “Industry Collaborators” are:

- **Aquaculture producers** operating within Canada who are directly involved in producing aquatic species for pre-commercial or commercial purposes. Aquaculture production is defined as growing an aquatic species and further, that the aquaculture producer has ownership of the product or has an aquaculture license or lease to culture the product.

- Producers undertaking commercial or developmental production activities on existing or new aquaculture species.
- Aquaculture companies or associations involved with sea ranching mariculture operations.
- Industry producer **associations** or consortia of producers are also eligible to apply.

Eligible to participate as a "Partner" with an "Industry Collaborator" are:

- Other aquaculture sector stakeholders.

REVIEW PROCESS

Proposals are reviewed for completeness, followed by a scientific peer-review, and finally by the ACRDP Technical Review Committee. This committee is comprised of representatives from DFO, provinces, industry, and others. They will make recommendations for project approval based on the following criteria.

Comprehensive review for ACRDP requirements / rules:

- The project is consistent with the program objectives and research priorities.
- The project addresses a significant constraint to the Canadian aquaculture sector.
- The project contributes significantly to the sustainable development of aquaculture in Canada.
- The project has sufficient industry input to generate potential practical benefits. This can include input from other funding partners, which is desirable and encouraged.
- The project facilitates technology transfer and/or research commercialization through closer collaboration with the Canadian aquaculture industry.
- The project is cost effective.
- The overall project objective and methodology are described in a clear manner.

Project merit:

- The project is technically feasible.
- The project has scientific merit.
- The project is original.
- The problem and objectives are well defined.
- There is a clear and sufficient description of the experimental methodology.
- The scientific approach is valid.
- The project team is qualified to conduct the work in a thorough and professional manner.

It is the responsibility of the applicant to ensure that a completed application is submitted in advance of the deadline. Incomplete applications will not be considered and may or may not be returned to the applicant for completion, and / or reconsidered at the discretion of the National Program Co-ordinator.

INDUSTRY CONTRIBUTIONS

The minimum industry contribution is 30% of the ACRDP amount requested, at least 7.5% of which must be a cash contribution with the remainder as in-kind contributions. Industry cash contributions to a project will be managed through a DFO Specified Purpose Account (SPA).

COLLABORATIVE ARRANGEMENT

The collaborative arrangement will consist of a formal agreement between Fisheries and Oceans Canada (DFO) and the Industry Collaborator(s), and in some instances other funding partners. A schedule to the agreement will contain a detailed description of the Project (activities, deliverables, timeframes to be carried out by DFO and the industry partner under the agreement or by a third party under contract agreement to DFO and the industry partner), with estimated amounts to be expended on each activity. The agreement will set out the method and schedule of payment to DFO and reporting requirements. DFO will be authorized to transfer funding between budget items in consultation with the partner. A schedule listing categories of eligible expenses, including sources of funding from other than the program, will also be included as part of the agreement. If appropriate an Intellectual Property agreement will be negotiated.

ELIGIBLE PROJECT EXPENSES

Expenses eligible to be covered by ACRDP include:

- Wages and salaries plus associated required payroll benefits of project-specific personnel (scientific and technical) or post-doctoral or graduate student support;
- Equipment directly related to the work. (It is important to note that the equipment purchased using ACRDP funding remains the property of Fisheries and Oceans Canada);
- Laboratory and field supplies;
- Travel costs directly related to the goals of the project;
- Other expenses agreed to be necessary to the success of the project.

REPORTING

Industry and DFO partners will be required to provide progress reports at 6 months and annually, and a final report upon completion of the project.

OTHER CONSIDERATIONS

- All applications must conform to the application form and proposal guideline format.
- Budgets should be broken down into fiscal year increments and include details of budget line items: see Annex A – Budget Form (MS Excel).
- Applicants must declare other direct sources of funding for the project, whether in place, requested or anticipated to be requested, including sources from other government programs.
- The ACRDP will not support projects on transgenic aquatic organisms or projects related to improving fish production solely for economic objectives (i.e., does not fit with the priorities listed above).
- Although the validity and merit of an application will be the primary consideration in its review, the ACRDP Technical Review Committee may also consider amounts requested and the anticipated schedule of money available in any year of the project in order to ensure that accepted projects do not exceed available funds.
- The ACRDP Technical Review Committee will rank all applications according to research and development priorities and national program objectives.
- The ACRDP Technical Review Committee will categorize applications as fully recommended, recommended with changes or conditions, or not recommended.

CONTACT US

Applicants wanting information or assistance on the ACRDP should direct their inquiries to the ACRDP National Co-ordinator or to the DFO Regional Advisors.

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