Directed Call for Proposals - February 8, 2005

FISH HEALTH

AquaNet is inviting proposals in the area of ***fish health for marine finfish culture***. This Call for Proposals responds to the need for knowledge in the health of marine finfish under culture conditions, which is essential in ensuring the long-term viability of culture operations in Canada.

The attached document describes the rationale and justification, suggested team members, partners, and deliverables.

Evaluation criteria for the proposal, the submission process and a description of AquaNet policies and procedures pertaining to the awarding and monitoring of research grants are posted in the research section of AquaNet's Website at www.aquanet.ca.

AquaNet invites applications from all eligible researchers in the fields described. A maximum of two year of funding will be available. To be eligible, research proposals must

- State the relevance of the proposed work to the Canadian aquaculture sector;
- have a partner who will commit a minimum of 50% of the funding required; and
- Commit to a rapid turn-around of results, i.e., within one year of project initiation.

Deadline for application: March 7, 2005.

Research Topic:
To develop and validate optimal approaches to assess fish health (in terms of accuracy, time requirements, cost-benefit, and fish welfare) for marine finfish culture, to ensure the sustainability of a diversified Canadian aquaculture sector.

Rationale and Justification:
Finfish aquaculture in Canada is diversifying to include non-salmonid marine species, such as Atlantic cod in the Atlantic Provinces and sablefish in BC. However, knowledge of the health of these species under culture conditions is necessary to ensure long-term viability of culture operations. For example, immunological and physiological responses, as well as host-pathogen interactions, vary greatly between fish species. While salmon-based biological knowledge provides a useful framework for assessing the health of marine fish, important gaps still exist in our understanding of the factors that affect marine fish health.

These knowledge gaps were discussed in a recently held AquaNet/Fiskeriforskning Fish Health Research Forum (Tromsø, Norway, January 2005), where participants identified the need to validate existing fish health approaches (for example those used in salmon aquaculture), and develop new approaches, for marine species such as cod and sablefish. Current approaches to assessing fish health, such as characterized and stable marine fish cell lines, standardized challenge models, markers for immune cells, and pathogen detection methods, are all required for a comprehensive and integrated marine fish health research program. It is also important to validate existing diagnostic methods used for the detection of economically important salmonid viruses, such as infectious hematopoietic necrosis (IHN) and infectious salmon anaemia (ISA) virus.

The development of optimal approaches to assess fish health are required to address important socio-economic issues such as the consequences of interaction between wild and farmed populations, risk assessment of new species introductions, standardisation and validation of diagnostic assays for surveillance, meeting international fish health standards to protect seafood trade, and regulation of the industry. In addition, broodstock breeding programs also would benefit since markers specific for heritable traits associated with disease resistance and immune response potentially could be identified using new fish health tools/approaches.

Members of the interdisciplinary team(s) should have expertise in:
- Fish diseases and microbiology
- Fish immunology and physiology
- Fish molecular biology
- Diagnostics of fish pathogens
- Fish vaccines and other forms of immunotherapy
- Cost-benefit analysis
- Risk analysis and risk communications

Partners:

- Aquaculture producers
- Fish feed companies
- Producers of fish vaccines or other forms of immunotherapy
- Fish feed companies
- Government regulators and managers
- First Nations, NGOs
- Biotechnology companies developing diagnostic tools

Deliverables:

- Increased knowledge on the susceptibility and physiological responses of marine aquaculture species such as Atlantic cod and sablefish to infectious diseases
- Validation of diagnostic methods for salmonid viral pathogens such as infectious hematopoietic necrosis (IHN) virus and infectious salmon anemia (ISA) virus
- Production of critical research tools necessary to develop aquatic animal health management products such as vaccines and immunostimulants
- Application of research tools to optimise fish health approaches in culture operations, such as the development of standard operating procedures (SOPs) for clinicians and diagnosticians to rapidly diagnose outbreaks of disease in aquatic animals
- Highly qualified personnel with skills required to assess fish health, and ability to conduct future research on optimising fish health strategies.
- Publication(s) in peer reviewed journals and conference proceedings