

*Ontario Aquaculture Research And Services
Coordinating Committee
(OARSCC)*

2003 ANNUAL REPORT

To the:

**Ontario Agricultural Services
Coordinating Committee**

October 30, 2003

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
MANDATE	3
INDUSTRY OVERVIEW	4
ONGOING RESEARCH RECOMMENDATIONS	5
Recommendation #1: Environmental Impact Research	5
Recommendation #2: Nutrition and Bioenergetics	6
Recommendation #3: Health Management and Disease	7
Recommendation #4: Food Products	8
Recommendation #5: Animal Welfare	9
Ongoing Priorities: Genetics and Economic Analysis	10
MAIN ISSUES AFFECTING FUTURE GROWTH	11
1. Profitability	11
2. Regulatory Framework	11
3. Environmental Issues	12
4. Competitiveness	12
5. Public Perception	13
SERVICE PRIORITIES	14
1. Clinical Veterinary Services	14
2. Image Enhancement	14
3. Licensing	14
4. Extension Services	15
5. Provincial Research Infrastructure	15
6. Subsidy Programs	15
7. Financial Services	16
8. Dead-stock And Offal Disposal	16
TECHNOLOGY TRANSFER REQUIREMENTS	17
CONCLUSION.....	18
APPENDIX 1 – AQUACULTURE COMMITTEE MEMBERSHIP-2002/03	19
APPENDIX 2 – OARSCC TERMS OF REFERENCE	20

EXECUTIVE SUMMARY

Ontario's aquaculture industry remains at an important crossroad in its developmental progress. The province possesses all of the infrastructure and expertise necessary to support a significantly larger fish-farming sector than currently exists. Slow progress in addressing the conflicts and impediments inherent in the confused regulatory framework surrounding aquaculture continues to stifle growth of the industry. The issue of First Nations' land claims remains unresolved and still stands in the way of new cage culture site approvals. While market demand for Ontario aquaculture products is strong and increasing, fish farmers remain frustrated by the lack of progress in resolving government impediments to the growth of their industry. Creating an environment conducive to expansion of the industry will require an acknowledgement by all levels of government that a successful aquaculture sector is desirable and beneficial for Ontario.

The main issues facing the industry remain unchanged from the previous year. The committee endorses the continuance of all research recommendations detailed in our 2002 Annual Report.

MANDATE

The Ontario Aquaculture Research and Services Coordinating Committee (OARSCC) was established in 1985. OARSCC provides a forum for the exchange of ideas between the industry and those government agencies that administer relevant legislation, or which provide services to fish farmers. The committee also serves as one of twelve species subcommittees of the Ontario Animal Research and Services Committee, which is part of the umbrella Ontario Agricultural Services Coordinating Committee. This structure is a component of a well-established system of committees that coordinate agricultural research and service priorities at both the federal and provincial levels.

OARSCC strives to identify and establish, on an annual basis, high priority requirements for aquaculture research and service programs in Ontario, with the goal of encouraging the orderly expansion of the industry. The committee also endeavours to ensure liaison and communication between those agencies and groups that have a primary interest in the long-term development of aquaculture in Ontario.

INDUSTRY OVERVIEW

For the past seven years, Ontario's aquaculture industry has operated under an 'unofficial' moratorium on significant expansion, resulting from an overly constraining regulatory environment. Total production for human consumption has remained effectively stalled within a range of approximately 4,000 metric tonnes, plus or minus 10%, since 1996. No new cage culture sites have been approved during the past year and likely will not be approved in the near future. As well, confusion arising from the co-management of public waters by the Ministry of Natural Resources and First Nations groups exercising land claims, is adding to the difficulty of establishing new sites. The pace of the joint industry-government working group on issues regarding cage culture operations remains glacial.

Canada's federal Department of Fisheries and Oceans has moved ahead with its initiatives to recognize and support aquaculture. A federally sponsored and collaborative, industry-government research and development program (Aquaculture Collaborative Research & Development Program – ACRDP) is successfully underway and a number of research projects directly addressing priorities identified by OARSCC have commenced.

Demand for Ontario aquaculture products is strong and growing, yet industry participants are increasingly frustrated by the provincial government's constraint of fish farming. Aquaculture is a form of primary production that has the potential to contribute much more to Ontario's economy than currently exists (\$50–60 million in 2002, Aquastats 2002, University of Guelph). If the industry is not permitted to grow, the "multiplier" benefits from this primary production will not be realized and consumer dollars will increasingly be spent on imported fish products. The experience and expertise that has developed in Ontario's aquaculture sector over the past thirty years will not be retained if potential new entrants, as well as existing farmers, do not see reasonable access to these expanding opportunities. Ontario possesses the natural resources, experience, expertise, infrastructure and market opportunities to sustain a significantly larger, yet still sustainable aquaculture industry than currently exists. The missing component is a more enabling and stable legislative and regulatory environment in which to do business.

**ONGOING RESEARCH RECOMMENDATIONS
FROM
ONTARIO AQUACULTURE STRATEGIC REPORT 2001 – 2005
November 2000,
(see- http://www.aps.uoguelph.ca/~aquacentre/omafra_research/Priorities.html)**

RECOMMENDATION # 1

Issues Addressed: Environmental Issues, Profitability, Regulatory Framework

Target Agencies: Ontario Ministry of the Environment, Ontario Ministry of Natural Resources, Environment Canada, Fisheries and Oceans Canada, Ontario Ministry of Agriculture and Food, University of Guelph

Recommendation: Increase activity in environmental impact research.

Details: Investigate various approaches to quantify environmental impacts of fish farming activities specifically to develop techniques to estimate the impacts on assimilative capacity of various receiving water systems. Assimilative capacity assessments should take into account expected regenerative capabilities of sites, where applicable, using data from actual investigations of decommissioned facilities.

Background: In Ontario, current guidelines governing water quality impacts from aquaculture operations do not address mass loading of nutrients discharged from a production facility in relation to the assimilative capacity of receiving waters. Given the variability existing both in types of production facilities (inland, cage, recirculation) and their receiving waters (cold, warm, streams, lakes), use of the mass nutrient loading approach to regulate fish farming appears to be the optimal method for protection of the environment while allowing for orderly development of aquaculture. For inland operations, such an approach would end the discrimination currently inherent in the regulation of point source nutrient inputs on watersheds, while much greater non-point source inputs are overlooked. For cage farms, regulation through nutrient loading would offer operational flexibility and the opportunity to progress towards a management model involving site rotation, which would benefit both the environment and production. The need to move forward with an improved regulatory approach is especially urgent for the cage sector, the segment of the industry with the most growth potential. Governments must, however, recognize that the cost of developing such a regulatory approach is well beyond the resources of the industry at its present size. The decision to undertake the necessary research involved would require an acknowledgement by all government agencies that the development of a successful aquaculture sector is desirable and beneficial for Ontario.

RECOMMENDATION # 2

Issues Addressed: Profitability, Environmental Issues, Competitiveness

Target Agencies: Ontario Ministry of Agriculture and Food, University of Guelph, Ontario Ministry of Natural Resources

Recommendation: Increase activity in nutrition and bioenergetics research.

Details: Investigate alternative protein sources for salmonid feeds to reduce dependency on expensive fish and soybean meals. Simultaneously, waste production implications of alternate protein sources must be taken into account, considering the potential to decrease phosphorus and nitrogen outputs while avoiding the creation of new problems.

Background: Feed costs in aquaculture constitute up to 60 % of the unit cost of production for raising carnivorous fishes of the salmonid family. Therefore this is the variable that holds the most promise for significantly improving profitability of large, commercial scale rainbow trout farms in Ontario. Lower feed costs per unit of production would raise the relative significance of transportation costs, thus providing a competitive advantage over imports. Additionally, diet reformulation provides an opportunity to reduce nutrient outputs and alleviate environmental concerns.

RECOMMENDATION # 3

Issues Addressed: Profitability, Competitiveness, Public Perception

Target Agencies: Ontario Ministry of Agriculture and Food, University of Guelph, Fisheries and Oceans Canada, Environment Canada, National Research Council Canada, Ontario Ministry of Natural Resources

Recommendation: Increase activity in health management and disease research

Details: Determine the pathobiology and effective management of diseases which are of economic significance to fish farming in Ontario, including newly emerging diseases in species which may become commercially important to the industry, as well as the common gill and skin diseases of salmonids. Investigate the efficacy of commonly utilized chemo-therapeutants, the biological dynamics of these compounds in the environment, and their persistence and clearing rates from fish when used prior to harvest. Determine whether alternatives to chemo-therapeutant treatment, such as vaccines and modifications in husbandry practices, may represent more effective means of disease control. Develop new detection and epidemiological techniques for on farm use.

Background: More effective control and detection of economically significant diseases is essential to lowering costs of production. Public awareness of the use of antibiotics and other therapeutants in livestock production is increasing and fish farmers need to demonstrate the safety of their disease management practices to end consumers. The lack of registered therapeutants is a problem for the industry that may not be readily overcome due to the small market potential that aquaculture presently offers for a therapeutant relative to the large expense involved in obtaining registration approvals. This necessitates the exploration of alternate means of disease treatment and prevention.

RECOMMENDATION # 4

Issues Addressed: Competitiveness, Public Perception

Target Agencies: Ontario Ministry of Agriculture and Food, University of Guelph, Fisheries and Oceans Canada

Recommendation: Increase activity in food products and processing technology research

Details: Develop and refine advanced processing and packaging techniques to add value, assure food safety and quality, and extend shelf life in order to increase the marketability of trout products. Utilize consumer testing and sensory evaluation studies to improve our understanding of consumer preferences.

Background: Ontario aquaculture does not offer the variety or refinement of retail products that other red and white meat industries have. Final product forms have been dictated as much by processing machinery availability as by consumer or market preferences. As the industry grows, product diversification will be required to appeal to a broader consumer base.

RECOMMENDATION # 5

Issues Addressed: Public Perception

Target Agencies: University of Guelph, Ontario Ministry of Natural Resources, Ontario Ministry of Agriculture and Food

Recommendation: Increase activity in improving welfare of farmed fish

Details: Develop objective methods for assessing the general welfare of farmed fish through quantitative evaluation of their physiological responses to various management practices. Establish husbandry protocols that maximize the health and welfare of farmed fish without sacrificing production performance or profitability for the farm operation.

Background: Objective methods of measuring animal response are needed for evaluation of the effect that current and alternative husbandry practices have on behaviour and stress in aquatic animals. This information will allow fish farmers to develop and adopt optimum culture practices and respond effectively to ethical concerns regarding the holding and husbandry of fish.

ONGOING PRIORITIES

The Aquaculture Research and Services Coordinating Committee would like to emphasize the importance of maintaining the current level of ongoing activity in the following areas:

GENETICS, BREEDING, AND REPRODUCTIVE CONTROL RESEARCH

Very little is known about the genetic make-up and potential for improvement of performance of the rainbow trout stocks cultured in Ontario, and we are therefore not fully exploiting the genetic potential of our domestic stocks of fish. We need to determine genetic variability, specific parameters, and gene-environment interactions affecting growth performance and disease resistance in rainbow trout, with the aim of improving those stocks. We need to enhance reproductive cycle control and reproductive performance, and work on gene mapping of desirable production traits in existing rainbow trout, Arctic charr, and other salmonid stocks.

NUTRITION AND BIOENERGETICS RESEARCH

Research to reduce the present cost of feeding salmonids through diet optimization, improved feed processing techniques, and feeding strategies must continue, as well as the development of production diets and feeding regimes for alternate species with commercial potential in Ontario.

ECONOMIC ANALYSES, INDUSTRY PROFILE AND MARKETING RESEARCH

The collection of the “Aquastats” database is vital for production management and forecasting of Ontario aquaculture. Successful extension work includes ongoing identification of those management factors that contribute to farm profitability and evaluation of the best methods for enhancing them.

MAIN ISSUES AFFECTING AQUACULTURE SUSTAINABILITY IN ONTARIO

1) PROFITABILITY

Production of food grade fish on a commercial scale must demonstrate improved and sustainable profitability if aquaculture hopes to become a significant industry in Ontario. Although a number of fish farms enjoy financial success by addressing specific market niches, such as live fish sales for various purposes, the history of larger-scale production has not been encouraging. The fundamental reason behind this problem is the fact that wholesale prices for rainbow trout at the farm level have not moved much for two decades, while input costs have risen substantially. Other farm sectors have also faced the same problem, but have had greater success in bringing down costs of production. Aquaculture is also gaining significant additional costs through added regulatory burdens.

Much of the ongoing research and service activity at the University of Guelph relates to the issue of profitability, particularly in the areas of health management, nutrition and bio-energetics, and genetics, breeding, and reproductive control. This work must continue, with an intensified focus on projects having the most potential to directly lower the unit cost of production.

Increasingly, profitability is being negatively affected by the interplay between environmental issues and the constraining regulatory framework surrounding aquaculture in this province.

2) REGULATORY FRAMEWORK

Aquaculture does not readily fit into Ontario's existing legislative or regulatory framework. At present, neither the Ontario Environment nor Natural Resources Ministries have been prepared to acknowledge that the growing of fish for human consumption is essentially an agricultural activity. Until that recognition is achieved, it is doubtful that any coherent provincial policy governing fish farming can emerge. In the meantime, aquaculture development is burdened or thwarted by uncertainty and uneven application of regulations, as well as the application of regulations written for other activities. The cost in time, effort, and direct financial outlay to the industry from this situation has had a considerable negative impact on profitability.

The Ontario Ministry of Agriculture and Food needs to continue its strong advocacy of aquaculture and promote acceptance of fish farming as an agricultural activity.

Examples of two key regulatory points that give rise to numerous related problems are the categorization of fish manure as an industrial, rather than agricultural, waste product and the failure to accept domestically raised fish as private rather than public property.

3) ENVIRONMENTAL ISSUES

Public scrutiny of all aspects of water use is increasing, concurrent with continued vocal criticism of aquaculture by environmental organizations across the country. Regulatory agencies require data on the industry's environmental footprint within Ontario, to evaluate the negative impact claims of aquaculture opponents. Although controversial regulatory issues are often decided based on political, rather than on a scientific basis, sound scientific evidence is essential in today's public environmental arena. As an industry, aquaculture in Ontario has neither the size nor the profitability to contend with this opposition on its own.

Work aimed at developing site assimilative capacity models is presently underway at the University of Guelph and by a multi-agency/stakeholder committee led by the Ministry of the Environment.

For the cage sector, much of the concern surrounding perceived vs. actual environmental impacts could be alleviated if investigation of decommissioned or fallowed sites indicated that these areas returned to a "natural state" relatively quickly. Regulation based on a mass nutrient loading approach, combined with information on required regenerative periods of over-exploited sites, would also allow the cage sector of the industry to work towards an operational model involving site rotation, analogous to the practice of field rotation in land-based agriculture. For inland sites, regulation based on the annual nutrient loading from a facility as well as the assimilative capacity of the watershed, would permit evaluation of the impact of a particular fish farm relative to other nutrient sources.

4) COMPETITIVENESS

Ontario fish farmers must compete with food products coming from traditional capture fisheries, from other aquaculture industries, especially those of Canada's east coast, and perhaps most importantly, from other red or white meat industries such as beef, pork and poultry. Key to this issue is the need to continually strive to lower production costs and to market products that readily gain consumer acceptance.

Fresh rainbow trout, primarily in boneless, filleted form, constitutes Ontario's main aquaculture product. To effectively compete with other red and white meats, diversification and refinement of consumer products is necessary and desirable. With regard to lowering production costs, the most potential gain would come from development of less expensive feeds.

5) PUBLIC PERCEPTION

In spite of the vocal criticism of aquaculture by environmental activists, there remains a strong perception that aquaculture is an industry of the future. While this perception is largely based on the sad realization that the law of the commons will inevitably lead to the end of the global capture fisheries, it is nonetheless a strong positive force for the industry and should be emphasized with respect to the future potential of fish farming in Ontario. Additional opportunities to win support for the industry stem from increasing public awareness of the health benefits of fish consumption, which are significant. Since Ontario fish farmers lack the resources to directly counteract the negative media campaigns of large, non-governmental organizations opposed to aquaculture, efforts should be made to gain public support through communicating those beneficial aspects of the industry which are generally accepted and difficult to dispute.

The University of Guelph/OMAF Aquaculture Centre currently handles much of the public and media advocacy for the industry. The Ontario Aquaculture Association lacks the size and resources to be effective in that area. Public perception will play a significant role in determining the future of Ontario fish farming. The Aquaculture Centre has the capability to take a more active role in public media advocacy for the industry and should extend its activities in that direction. This is unlikely to occur however, since recent restructuring of the OMAF-UG agreement has led to the termination of many of the extension activities previously undertaken by the Aquaculture Centre.

SERVICE PRIORITIES

1) CLINICAL VETERINARY SERVICES

The University of Guelph's extension veterinary services have been essential to the development of Ontario's aquaculture industry. Fish health management is less advanced, and arguably more demanding, than conventional livestock health care. As genetic and nutritional advances speed fish growth, access to immediate and reliable veterinary help will become increasingly important. The laboratory infrastructure and advanced expertise at the University will remain essential, in addition to the private sector veterinary services for fish health which are available in Ontario. The maintenance and enhancement of the clinical veterinary services offered at the University of Guelph is critical to the ongoing development of our aquaculture sector.

2) IMAGE ENHANCEMENT

Image enhancement presents a particularly significant opportunity for Ontario aquaculture, since the public is becoming increasingly aware of the health benefits of omega-3 fatty acids and the potential contaminant problems in seafoods obtained through the traditional capture fisheries.

Advertising agencies are used by major commodity groups to build favourable images for their products in the public eye. This type of promotion may be the only way producers can counter the negative campaigns many environmental organizations are conducting against commercial agriculture and livestock production. Smaller commodity groups like aquaculture, do not have the financial resources to develop effective generic, promotional advertising campaigns. To support the development of newer agricultural industries, assistance in public image enhancement should be recognized as a priority for the public sector agencies.

3) LICENSING

The present system of licensing aquaculture operations in Ontario constitutes a challenging barrier and constraint to the development of the industry as a whole, as well as to individual producers who wish to expand. Aquaculture licenses are issued by the Ministry of Natural Resources and may be conditional upon a variety of factors. Examples are production quotas, water testing requirements, and species limitations. While the rationale behind such conditions is sound, the application practices are inconsistent and frequently unjustified from a risk/benefit point of view. For instance, water-testing requirements may be imposed that cost several thousands of dollars annually but yield little or no useful data for safeguarding the environment. For cage operations, the process involved in obtaining a new licence has become unreasonable; the application procedure can take years to complete and demands a large financial commitment with no assurance that the rules governing approval won't change arbitrarily.

New licences for inland aquaculture facilities normally require the proponent to obtain a “Certificate of Approval” and a “Permit to Take Water” from the Ministry of the Environment. During 1998, a new fee schedule was introduced for the Certificate of Approval application process. Previously, fees were charged according to the capital cost of the subject works, and ranged between a minimum of \$50 to a maximum of \$100,000. That system allowed for the obvious difference involved in reviewing an application from a farm or small business pertaining to a proposed water treatment facility that might consist simply of an earthen settling pond with construction costs of just hundreds or perhaps a few thousand dollars, as opposed to reviewing an application from a major manufacturing facility that might involve sophisticated treatment processes to lower toxic contaminant levels in effluents and cost millions of dollars. The new fee schedule does not distinguish between these situations. The application fee is a minimum \$6,200 to a maximum of \$33,200 and depending on circumstances, the maximum could conceivably be applied to the earthen settling pond while the multimillion-dollar industrial process wastewater treatment plant could pay the minimum. This can be prohibitive to the farm or small business, while inconsequential to the major manufacturer.

4) EXTENSION SERVICES

The Ontario Ministry of Agriculture and Food has acquired additional aquaculture expertise in the food safety area, significantly strengthening the industry’s ability to cope with problems and obstacles arising from our regulatory framework. In addition, the University of Guelph's Aquaculture Centre has done an exemplary job of facilitating the transfer of knowledge from research results and technical information to the industry.

5) PROVINCIAL RESEARCH INFRASTRUCTURE

The existence of the Alma Aquaculture Research Station has facilitated the development of a provincial research infrastructure that is responsive to the needs of Ontario’s aquaculture industry. Alma is open to both proprietary and non-proprietary projects funded by the private sector, constituting a genuine service delivery to the industry. The atmosphere fostered through such close collaboration with producers carries-over to aid the focus of related research at the main campus of the University of Guelph. Consequently, our provincial research infrastructure and Alma’s role therein, provides a real and important competitive advantage for Ontario aquaculture. This service function needs to be maintained in order for Ontario to stay competitive in the rapidly changing, technology-driven industry that is modern day aquaculture.

6) SUBSIDY PROGRAMS

Fish farmers face many of the same financial problems and hazards that conventional livestock producers do, but frequently are not eligible for “safety net” or other support programs, either through simple oversight or through a lack of flexibility in program structure that could often easily accommodate “non-conventional” producers. Additionally, conventional 'terrestrial' livestock operations are frequently subsidized for expenses incurred for environmentally driven requirements, while such expenses normally comprise an ongoing operational cost for aquaculturists.

7) FINANCIAL SERVICES

Access to debt financing and operating capital is available to Ontario aquaculture producers through the same channels and providers that conventional livestock operations use. Loan guarantee programs, when available, facilitate access to financing, especially for beginning farmers. While the situation within the province is reasonably equitable, Ontario producers have historically been, and continue to be, significantly disadvantaged relative to Atlantic Canada producers who benefit from comparatively generous financial assistance programs designed to stimulate regional economic development. In particular, public and private sector groups interested in promoting aquaculture development in Northern Ontario must be prepared to address the competitive threats arising from these circumstances.

8) DEAD-STOCK AND OFFAL DISPOSAL

Removal services are as necessary for the aquaculture industry as they are for other animal industries. The province may be required to support this service if private sector operators withdraw or curtail their businesses for economic reasons.

TECHNOLOGY TRANSFER REQUIREMENTS

Through a variety of publications and workshops, the University of Guelph/OMAF Aquacentre has been the primary facilitator of technology transfer from the research sector to the aquaculture industry. The Aquacentre is making effective use of the internet to augment its traditional routes for information dissemination, and that will gain in significance as broadband becomes available beyond our major urban areas. The Ontario Ministry of Agriculture and Food is also expanding its aquaculture expertise, particularly in the food safety discipline, and may become an important contributor to technology transfer in future.

The present small size of Ontario's aquaculture sector facilitates successful technology transfer, and therefore OARSCC considers existing initiatives in this area sufficient, provided that cutbacks do not impinge on the current infrastructure.

Martin Mills Incorporated, an Ontario based supplier of aquaculture feeds, deserves special mention and commendation for instituting, organizing, and sponsoring an annual technology transfer workshop specifically aimed at the province's cage culture operators and their suppliers. By bringing together the people directly involved with the overwhelming majority of Ontario's commercial rainbow trout production, Martin Mills has established an excellent venue for delivering practical and relevant information to the industry's key production segment.

CONCLUSION

Significant future expansion of the aquaculture industry in Ontario can still occur, although the window of opportunity for the aquafarming sector will not stay open indefinitely. Ontario possesses ALL of the infrastructure requirements to enable this expansion and follow the global trends in aquaculture growth which have averaged 11% per annum increases on average over the last decade. Unlike many other meat commodity industries which predict, at best, only steady-state demands for their production, there are a plethora of credible reasons why aquaculture can, and will, expand dramatically over the next few decades. Both land-based and near-shore cage culture operations in Ontario are viable, however, Ontario's regulatory and economic climate will continue to be the largest factors influencing the growth of aquaculture here.

Notwithstanding these constraints, it is of the opinion of many experts that aquaculture has a dramatic potential for growth over the next 2 decades. The province must seize the opportunity to expand, diversify and stabilize its agricultural sector through the production of aquatic food products.

APPENDIX 1

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DFO Fisheries and Oceans Canada
OAA Ontario Aquaculture Association
OMAF Ont. Min of Agriculture and Food
OME Ontario Ministry of Environment
OMNR Ontario Ministry of Natural Resources
UG University of Guelph

APPENDIX 2

OARSCC TERMS OF REFERENCE

NAME

The Ontario Aquaculture Research and Services Co-ordinating Committee (OARSCC)

PURPOSE

1. To identify and prioritize requirements for aquaculture research and service programs in Ontario on an annual basis, with the goal of encouraging orderly industry development.
2. To ensure liaison and communication among those agencies or groups which have a primary interest in aquaculture development in Ontario.

SPECIFIC ACTIVITIES

1. Develop and update a four-year forecast of major issues influencing development of the industry.
2. Present reports and recommendations through the co-chairs of the committee directly to the Ontario Agriculture Services Co-ordinating Committee.
3. Distribute recommendations outlining the needs for aquaculture research and services to other agencies, both government and private.
4. Advise educational institutions, when requested, on curriculum development and training programs relevant to aquaculture.

COMMITTEE MEMBERSHIP

Representatives from the following groups or agencies shall constitute the voting membership:

Government Agencies (one representative each)

Fisheries and Oceans Canada
Ontario Ministry of Natural Resources
Ontario Ministry of Agriculture and Food
Ontario Ministry of Energy and the Environment

Industry (six representatives)

Ontario Aquaculture Association (three representatives)

Feed, processing, or other associated industries, at the committee's discretion (up to three representatives).

University (one representative each)

Extension Co-ordinator (University of Guelph)

Research (University of Guelph or other Institution)

Additional non-voting members:

As determined by the committee (e.g. from either the service, marketing, promotion, consumer, food safety and quality, or other private or public sectors)

Participation of Miscellaneous Agencies or Groups:

From time to time, agencies or groups other than those listed above may bring an issue to the attention of the committee. In such cases, a representative of that group may be invited to attend and participate in a committee meeting on a non-voting basis.

Terms of Service

The duration of a committee member's term shall be at the discretion of the nominating organization.

OPERATIONAL GUIDELINES

Representatives to the committee should have sufficient authority to speak for and make decisions on behalf of their organization on a majority of matters arising at committee meetings. Representatives are expected to designate a proxy member from their organization if they are unable to attend a meeting.

The committee will, as far as possible, operate by achieving a consensus. It is assumed that most matters arising at committee meetings can be dealt with in this manner. In the event that a decision must be put to a vote, a simple majority will be used provided that a quorum of two-thirds of the voting membership (or their proxies) is in attendance.

COMMITTEE CHAIRS

The committee will elect co-chairs from its voting membership for four-year terms. One co-chair will be elected every two years, providing overlapping terms to ensure continuity. Consecutive terms cannot be served. At all times, one co-chair will be from industry, and the

other from non-industry membership. The co-chairs will be responsible for providing a secretary for meetings, preparing agendas and meeting minutes, and for preparing and presenting annual reports.

MEETINGS SCHEDULE

The committee will normally meet at least three times a year. Additional meetings will be called by the co-chairs as required.

REVIEW OF THIRD PARTY PROPOSALS

The committee may be asked to assist in the review of private sector proposals that seek government funding or extraordinary approvals. In such reviews, the proponent, the receiving agency, or both may require varying degrees of confidentiality.