



THE COLD HARVESTER

NEWFOUNDLAND AQUACULTURE

SPRING 2005

- **What is ISO 65?**
- **Commercial Cod Aquaculture**
- **GFA's Molluscan Shellfish Workshop**
- **NAIA to Co-host National Aquaculture Conference, St. John's, July 3-6, 2005**
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Sustainable
AQUACULTURE

this issue

Cod strategy review

Under the leadership of Tom Clift, NAIA is conducting a review of commercial development of the cod aquaculture industry.

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NAIA Executive Director

MIKE ROSE

Just one word ... 'Plastics'

'Plastics.' That was the one-word career advice given to Dustin Hoffman, as Ben, in *The Graduate*.

Mr. McGuire: I just want to say one word to you – just one word.

Ben: Yes, sir.

Mr. McGuire: Are you listening?

Ben: Yes, I am.

Mr. McGuire: 'Plastics.'

Ben: Exactly how do you mean?

Mr. McGuire: There's a great future in plastics. Think about it. Will you think about it?

Ben: Yes, I will.

Mr. McGuire: Shh! Enough said. That's a deal.

Do you think Mr. McGuire's targeted advice might be "Aquaculture" if the movie was shot in 2005? Think about it. Will you think about it?

According to the Food & Agriculture Organization (FAO), world demand for seafood products will increase by 40 per cent to 180 million tonnes by 2030, representing a 40 per cent increase on the combined 130 million tonnes available in 2001 from aquaculture and capture fisheries.

The FAO predicts that output from wild capture fisheries will remain static at about 100 million tonnes. Adding to the pressure, traditional, wild fisheries all over the world are being rapidly depleted. Facts are, the world's traditional fisheries have peaked and, as the FAO points out, cannot be expected to meet the growing demand for seafood. Aquaculture already produces well over 30 per cent of the global supply.

Consequently, aquaculture production will have to increase dramatically in order to bridge the gulf between demand and supply. That deficit is now commonly referred to as the 'FAO Gap.' Looking at the math from an aquaculture perspective, recent production levels of about 37 million tonnes in 2001 must increase to approximately 90 million tonnes by 2030. That, of course, will represent 50 per cent of world supply.

The FAO, and Economics 101, also predicts increasing values for many seafood products.

Shh! Enough said. That's a deal.

Newfoundland aquaculture products will be part of the aquaculture deal. Our seafood is grown in the purest of cold North Atlantic environments. Whether you are a seafood buyer, investor, or lover, Newfoundland poses a quality opportunity. And we intend on building a quality industry from the ground, or should I say, water up.

As you will read in this edition, NAIA is investing heavily in the development of internationally recognized quality assurance programs for its members. Our producing members are the key to our future, and if you are a seafood buyer or investor, they can play a key role in your future too. We also provide an examination of the short and long-term cost-benefits of adopting quality assurance programs in this edition. That review shows definitive advantages of adopting ISO 65 Quality Standards.

NAIA has a clear vision that well before 2030, our producers will be unequivocally recognized as world leaders in the provision of quality aquaculture products. And, by 2030, we will have established strong market share in premium markets for mussels, salmon, trout, and cod. As you will see in this edition of *The Cold Harvester*, NAIA has already commenced implementation of ISO 65 Quality Standards for its unique blue mussel sector. Make no mistake about it, as sophisticated buyers already know, Newfoundland blue mussels are superior.

NAIA has taken the advice ... just one word ... Aquaculture. It is, of course, not as simple as that. As *The Graduate* begins, Ben tells his father that he's worried about his future, that he wants it to be "different." But as his wish comes true, Ben discovers an unfortunate side effect: his life becomes much more complicated. One word. Aquaculture. Complicated and challenging, yes, but NAIA is keeping its eyes on the big picture.



Tom Clift, MUN Faculty of Business, leads discussion at the February 8, 2005 focus group on commercial cod aquaculture development as ACOA's Paul Strickland listens.

COD STRATEGY REVIEW

Business expert to lead NAIA's business case analysis of commercial cod aquaculture development

• THE COLD HARVESTER STAFF •

OVERVIEW

Under the leadership of Tom Clift, Associate Dean, Faculty of Business, NAIA is conducting a review and planning process to identify most appropriate paths toward commercial development of the cod aquaculture industry. The project, directly supported by Minister Trevor Taylor and other agencies, will be finalized by the end of April 2005.

Feedback from industry, government and others will be vital for the review. One of the vehicles for soliciting this critical information will be small, cross-sectional, expert-based focus groups. Different groups will be assembled based upon the subject matter to be covered.

Planning has been in the works since late 2004, but the first focus group did not meet until February 8,



Minister of Fisheries and Aquaculture, Trevor Taylor, has provided significant support to allow NAIA to complete this strategic review.

2005. The purpose of that meeting was to assess the current state of the industry locally and abroad. It was well attended and very successfully set the stage for the planned subsequent activities.

The review process is divided into five distinct phases and will include a final written report. The project phases are:

- **Phase I - Industry Analysis – Present State**
- **Phase II - Preliminary Business Case Development**
- **Phase III - Second Generation Business Case**
- **Phase IV - Industry Overview**
- **Phase V - Final Report**

This process is not intended to write the 'last word' on cod because NAIA believes the development of this industry will take place over a period of many years. At this stage, however, there is an opportunity to assess our current state of affairs and generate new directions and support for commercial development.

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Commercial cod aquaculture development

From page 3

Prior to launching the project, a key group of government and agency officials were consulted as an informal steering committee. They were asked to critique the proposed process and to nominate local, national, and international experts who may be best able to participate and contribute to the process. This informal steering committee is comprised of experienced senior officials from: DFA; DFO; ACOA; NRC; CCFI; and the Ocean Sciences Centre.

Each of the five project phases is described in greater detail below. Some of the phases may run consecutively, but it is expected aspects of the various phases will run concurrently. Future sessions will evolve as feedback is

received and planning continues.

PHASE I - INDUSTRY ANALYSIS - PRESENT STATE

In order to determine the present state of the industry and at the same time create a forum to gather fundamental input from key industry and government players, the initial focus group met on February 8, 2005 to assess the present state of the cod aquaculture industry in NL and beyond.

The session began with an introduction to national and international developments in cod aquaculture. It was designed to provide an overview of current developments in the Newfoundland's cod aquaculture industry and to include references to

the current situation in other countries where cod aquaculture is developing. This initial session began the process of building a consensus as to the current state of the cod aquaculture industry in the province.

PHASE II - PRELIMINARY BUSINESS CASE DEVELOPMENT

Note: This Phase is divided into three separate parts.

SESSION A - PRELIMINARY BUSINESS CASE GROUP

Once the current state of the cod aquaculture industry in Newfoundland has been established, the first session of Phase II will be held to build the preliminary business case for commercial cod aquaculture operations in Newfoundland.

The Preliminary Business Case Group will provide critical focus for the project. To begin debate and discussion for the focus group, a detailed opening presentation will be prepared outlining the operational costs of running a cod farm. The general purpose is to establish the basic framework for analyzing the 'economics' of cod aquaculture.

The bulk of the opening presentation will involve a straightforward assessment of the operational costs, and associated issues, of running a cod farm. While such models can become highly involved, as sensitivity and intricate financial analyses are employed, it is not the intention at this stage to produce such a detailed product.

It will also help set the stage for determining optimal farm size(s).

SESSION B - SCIENTIFIC REVIEW / RESEARCH GAPS

Scientific research will be critically important as the cod aquaculture industry evolves and at this stage it is important to isolate and prioritize areas of concern. A distinct process will be established to deal with the identification of research gaps and future industry needs.

A highly focused, one-day workshop will be held on March 17, 2005 in St. John's. Project managers will



Alastair O'Rielly makes a point at the February 8, 2005 focus group session.

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DFA's Brian Meaney, flanked by Jonathan Moir, Northern Cod Ventures and Frank Powell, Cooke Aquaculture, joins in the debate at the initial cod aquaculture focus group session.

Industry overview slated for St. John's in April

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ensure relevant presentations are developed for delivery and discussion at the workshop. The workshop will help identify Scientific Review and Research Gaps, as well as prioritize those that have an important role to play in the commercialization of cod aquaculture.

SESSION C - REVIEW OF EXTERNAL BUSINESS & MARKET FACTORS

A separate process will be employed to gather expert analysis of external business, market factors and development initiatives, i.e., programs, taxation, etc., currently available through both levels of government. The process will consider whether new models may be advisable or warranted to assist further development. The objectives of this session are to work

with industry experts (regional, national and international) to examine the current market, financing and regulatory issues that might serve to influence the successful development of the Newfoundland aquaculture industry.

PHASE III - SECOND GENERATION BUSINESS CASE

Consistent with contemporary new product development practice, this session will be designed to review and test the assumptions of the preliminary business case for future cod aquaculture initiatives. Changes will be made based on the feedback that has been received from Phase II of the review process, particularly from the Preliminary Business Case Group.

PHASE IV - INDUSTRY OVERVIEW

Industry Roundtable

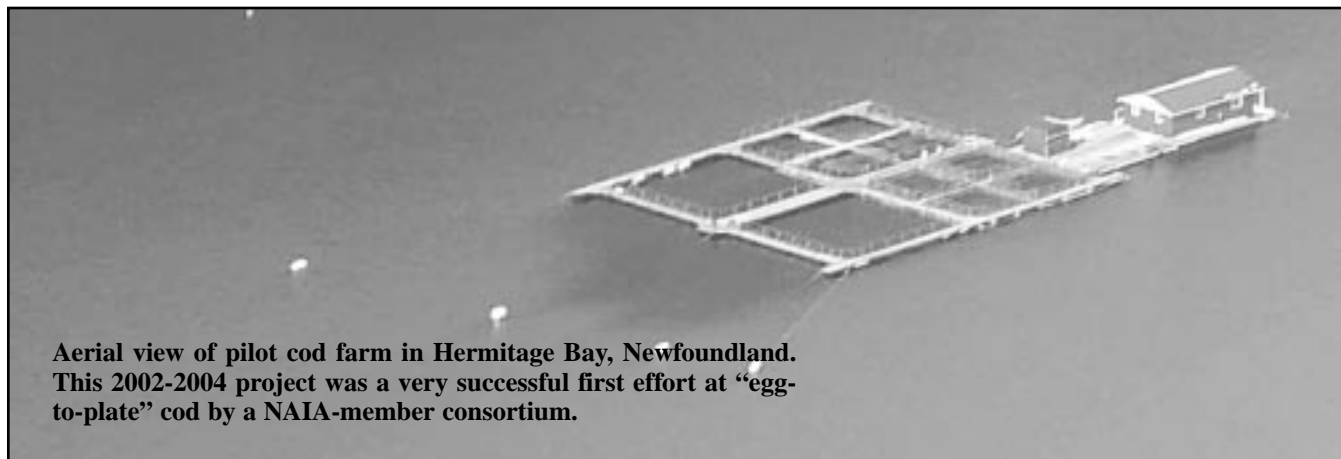
A final industry workshop will be

held in St. John's in April 2005 to present and discuss the final report and recommendations as outlined. This will be an opportunity for open and frank discussion about future commercial development opportunities.

PHASE IV - FINAL REPORT

A final written report will also be provided at the conclusion of the process.

NAIA firmly believes that aquaculture hold tremendous potential for rural Newfoundland and Labrador, especially the commercial development of cod culture. There is a 20-year history of leading-edge cod aquaculture research and commercial practice in this province, and NAIA and its partners in this process are determined to build the most effective business case for the next stage of commercial development.



Aerial view of pilot cod farm in Hermitage Bay, Newfoundland. This 2002-2004 project was a very successful first effort at "egg-to-plate" cod by a NAIA-member consortium.



Minister of Fisheries and Aquaculture

Minister Responsible for Labrador Affairs

HON. TREVOR TAYLOR

Establishing Newfoundland and Labrador as premiere location for aquaculture investment, development

Worldwide, the aquaculture industry continues to show that it can produce raw material for markets that are hungry for quality seafood.

In Newfoundland and Labrador, the provincial government is helping to establish the area as a premiere location for aquaculture investment and development. Our abundance of good, clean sites is supported by the provincial government's proactive and welcoming approach towards aquaculture investment, site development, and industry growth.

In November, we unveiled the Aquaculture Working Capital Loan Guarantee Initiative, which will improve access to financing for qualified salmonid aquaculture companies who need working capital. This assistance will help address the needs of operators who face up-front costs and risks associated with establishing an aquaculture business. Since that unveiling, we've commissioned an assessment of freshwater resources for salmonid aquaculture, which will support hatchery development.

Behind the scenes, we've been strengthening our aquaculture programming. In 2005, I anticipate that amendments to the *Aquaculture Act and Regulations* will be introduced for debate in the

House of Assembly. The proposed amendments would provide for a range of legislative improvements. Changes would range from allowing staff to set alternate licence expiry dates, to providing improved regulatory tools that will enable the government to better address issues such as shore fastened moorings.

Other service improvements have been initiated, such as adjusting our site inspections. Last year, we assigned a fulltime, dedicated site inspector who is responsible for aquaculture inspections from May to December (snow and ice impede inspections from January to April). We are also working with complementary federal agencies to better document inspection activities.

The worldwide demand for aquaculture products is rapidly increasing and we are committed to providing strong economic conditions for our province's rural economies. As part of our rural development strategy, this includes the expansion of profitable and sustainable aquaculture enterprises. While the provincial government cannot control aquaculture production performance, we can take positive steps to further encourage industry growth. Whether these are big steps such as providing access to working capital, or small steps such as adjusting licensing processes, we are moving forward in growing aquaculture in Newfoundland and Labrador.

ACCREDITED QUALITY ASSURANCE PROGRAMS FOR THE SEAFOOD SECTOR

What is ISO 65?

Newfoundland mussels to meet ISO 65 Quality Certification Program Standards

BY MIKE ROSE

Executive Director, NAIA,
Newfoundland, Canada
PETER MARSHALL
IFQC Inc., Ireland

This article provides background and reasoning for quality assurance programs in the aquaculture and fisheries sector, as well as NAIA's ISO 65 Cold Harvest™ Quality Certification Program.

THE NEED FOR QUALITY ASSURANCE IN THE FISH SECTOR

Consumer confidence that Canadian fish is "Quality," "Nutritious," "Safe," "Hygienic" and "Green" is vital to the well-being of the fish industry, the tens of thousands of jobs it supports, and the regional communities that depend on its income.

Food safety and food quality have long been identified as strategic issues within industry and government, and many significant initiatives have been undertaken on national and provincial levels over the past five years. Increasingly, food safety initiatives get intertwined with other issues such as quality, traceability, animal husbandry, and prevention of human disease.

Recent events such as BSE and 9/11 have placed new emphasis and urgency to various aspects of mandatory requirements, tested consumer confidence in North America's food supply system, and resulted in increased border scrutiny and issues. In addition to adding new dynamics, these factors often act to blur the distinction between basic, mandatory regulatory requirements and 'voluntary' (or subtly forced) market objectives. This puts additional pressure on producer groups to implement food safety programs because it may not be clear to their



members what the drivers are for the programs and what the long-term economic impact might be for having a program or not.

Some sectors believe that Canada must invest in quality programs to protect consumers and maintain this quality perception in order to protect itself from false accusation and technical trade barriers.

Europe has been dealing with these issues for many years now. Considerable progress has been made

in responding to rising consumer concerns through the adoption of appropriate food safety and quality assurance programs. As consumer demand has increasingly responded to these programs in Europe, the consumer and retailers have upped the ante to the point where many programs must be now be recognized as being operated competently, reliably and in a manner which reflects the consumer's best

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International standards for food quality

While the pure waters of Newfoundland will increasingly give a major marketing advantage, in terms of product excellence, that alone will not be enough to assure market leadership as competition and other forces demand end-to-end third party verification of quality processes.

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interests, and not unduly influenced by the producers of the product to which the program applies. As a result, an internationally recognized standard for food quality assurance programs has emerged known as ISO

65 (internationally), or EN45011 (in Europe).

While there are a number of sensibilities that differentiate North American and European markets, there is much to be learned from the European experience. The North American marketplace seems to be finally catching on to the consumer trends that have taken root in Europe. The emergence of a class of consumers and retailers that takes food safety/quality issues quite seriously is starting to take hold in the U.S. and Canada. This growing market segment seems quite willing to pay premiums for food that meets certain quality attributes, over and above basic (and expected) food safety. The emergence of organic sections in many retail chains, for example, is evidence that these principles are spilling over into mainstream consumer attitudes.

The Government of Canada, provincial/territorial governments, and Canadian seafood and terrestrial farmers have been devising plans to ensure Canada is the world leader in food safety and quality, environmentally responsible production and innovation. Industry is expected to play a lead role in the implementation of this plan.

Quality Program development by industry demonstrates to consumers, commercial buyers, and governments that the industry has the willingness and ability to take on more responsibility for itself and to transparently regulate its own good aquaculture and fisheries standards ... as NAIA indicates, beyond food safety legislation.

THE NEED FOR ACCREDITED QUALITY ASSURANCE IN THE FISH SECTOR

In order to be of real value to the industry, consumers and governments, a quality assurance program must be recognized, especially by the consumer, as being operated competently, reliably and in a manner that reflects the public interest. There must be no perception that the quality program is unduly influenced by the producers of the product to which the program applies.

The EU adopted a system in Europe (EN45011) in 1998 that enabled those operating Product Certification Schemes to prove that they meet such requirements, and therefore achieve international recognition. Internationally, this standard is referred to as ISO 65.

EN45011, or ISO Guide 65, is now internationally recognized by food buyers as the appropriate accreditation for Food Product Certification Programs. One such influential group — the Global Food Safety Initiative (GFSI) — was launched in May 2000, after international retailer CEOs identified the need to enhance food safety; to ensure consumer protection; to strengthen consumer confidence; to set requirements for food safety schemes; and, to improve cost efficiency throughout the food supply chain. The Initiative is facilitated by CIES – The Food Business Forum. It is based on the principle that food safety is a non-competitive issue, as any potential

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Task force

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problem arising may cause repercussions in the whole sector.

An international Task Force was formed after the launch of the GFSI to work on priorities. It has since doubled in size and is now comprised of over 50 retailer quality managers whose companies represent 65 per cent of food retail revenue world-wide. The key priorities of the GFSI are:

- To implement a scheme to benchmark food safety standards world-wide
- To build and implement an international early warning system
- To encourage co-operation between the world-wide food sector and national and pan-national governments and authorities
- To communicate the Initiative to all concerned parties and promote consumer education
- To coordinate Good Retailing Practices

BENCHMARKING FOOD SAFETY STANDARDS

In the light of the plethora of food safety standards, the GFSI Task Force decided not to write a new standard. Instead, they compiled a set of 'Key Elements' to serve as the requirements against which existing food safety standards will be benchmarked.

The 'Key Elements' as defined by the GFSI Task Force are:

- Food Safety Management Systems
- Good Practices for Agriculture, Manufacturing and Distribution
- HACCP (Hazard Analysis and Critical Control Points)

To make this set of requirements, based on Codex Alimentarius and legislative requirements, a study was made of ISO standards and related Codes of Practice, taking into account a background of recent consumer health and safety concerns.

ISO 65 has been agreed to be the key requirement of certification programs.

A significant number of ISO 65 Fish Quality Certification Programs are



Growers Juan Roberts and Terry Mills (facing) review harvesting standards during a TAC meeting for the ISO 65 quality program.

already in existence in international markets:

- Label Rouge Certified Salmon (France / Ireland / Scotland / Norway)
- Label Rouge Certified Turbot (France)
- Irish Quality Salmon (Ireland)
- Irish Quality Trout (Ireland)
- Irish Quality Mussels (Ireland)
- Irish Quality Wild Fish (Ireland)
- Certified Quality Salmon (N. Ireland / Scotland)
- Certified Quality Mussels (N. Ireland / Scotland)
- Scottish Quality Salmon (Scotland)
- Scottish Quality Trout (Scotland)
- Quality Trout UK (United Kingdom)

A number of other Fish Quality Programs have been developed and are

pending accreditation:

- Australian Seafood Standard (Australia)
- Salmon of the Americas (Chile / Canada / USA)
- Organic (EU / North America / South America / Asia / Australia / New Zealand)

ISO 65 BACKGROUND AND REQUIREMENTS

ISO Guide 65 [EN45011]: 1998 is the standard for Certification Bodies issuing certificates for product conformity. The product technical standard is tied to the accreditation and, therefore, the certification deals with product and systems certification.

CERTIFICATION BODIES

Certification bodies are accredited

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What is ISO 65?

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by an Accreditation Body. Certification bodies must be independent and impartial. Certificates can be issued internationally and are recognized in over forty (40) countries through the International Accreditation Forum.

PRODUCT STANDARDS

Criteria against which products are evaluated must be outlined in special specific standards, formulated by relevant and impartial technical committees having the necessary technical competence. The standards are published by the certification body.

THE CERTIFICATION PROCESS

Certification bodies must have a structure to foster confidence in its certifications. In particular the certification body shall:

- A) Be impartial;
- B) Identify the management (committee, group or person) responsible for:
 - a. Formulation of policy,
 - b. Decisions on certification,
 - c. Delegation of authority to committees/individuals,
 - d. Supervision of finances,
 - e. Technical basis for granting certification;
- C) Ensure decisions on certification taken by persons different from those carrying out evaluation;
- D) Have sufficient number of personnel with the necessary competence for performing certification functions;
- E) Have a quality system in place;
- F) Have rules for the appointment



NAIA's Cold Harvest marketing showcase reinforces and builds upon the profile of our member companies as producers of high quality, nutritious seafood. ISO 65 quality assurance programming with built-in traceability will assure market access.

of committees involved in the certification process [such committees shall be free from commercial, financial or other pressures which may influence decisions, and provide a balance of interests where no single interest predominates];

- G) Have procedures for the resolution of the complaints received about the handling of certification matters.

ASSOCIATED QUALITY MARKS

Approved Producers holding a valid Certificate of Approval from the Certification Body are authorized to use a Mark of Conformity.

Such Marks may be used only in the form approved by the Boards and only in relation to products, which are subject to the Certificate of Approval issued to the Producer concerned.

There are a number of examples of such certification marks:

THE STEPS IN SETTING UP AN ISO 65 QUALITY STANDARD AND CERTIFICATION PROGRAM

Set-Up

- 1) Formation of a Technical

Advisory Committee to formulate Standard;

- 2) Engagement of an independent certification management and administration service;
- 3) Development of certification controls and procedures by Certification Body;
- 4) Training and approval of competent auditors by Certification Body;
- 5) Establishment and approval of a Certification Committee;
- 6) Pilot Program launch;

Implementation

- 7) Pilot Program management and administration;
- 8) Applicant Appraisal Audit;
- 9) Certification Committee Appraisal of Audit Report;
- 10) Certification / Deferral of Applicants;

Review

- 11) Internal audits;
- 12) External Accreditation Audits;
- 13) Annual Management / Standard review.

What are the cost benefits of ISO 65 Quality Assurance Programs?

• THE COLD HARVESTER STAFF •

International food retailers identify ISO 65 as the key requirement of certification programs.

The Newfoundland Aquaculture Industry Association (NAIA) has entered a five-year strategic partnership with IFQC Ltd. (Ireland) to develop a quality program for the Newfoundland mussel sector that will meet the most vigorous of international standards.

The Cold Harvester recently caught up with Peter Marshall, Managing Director, IFQC Ltd. for an in-depth interview. Here are excerpts from that interview related to Marshall's views on the cost benefits of quality assurance programs.

■ **Q: *The Cold Harvester***

Why do you feel NAIA's decision to move toward an ISO 65 quality mussel program is a good one?

■ **A: *Peter Marshall, IFQC Ltd.***

IFQC believes that if Newfoundland, or any other province or country for that matter, is to be recognized and compete as a quality seafood-producing region, then industry must move from a culture of mere compliance with regulations and law to one of visible commitment to the highest standards of food safety and quality.

■ **Q: *The Cold Harvester***

Does this mean things are not up to par there now?

■ **A: *Peter Marshall, IFQC Ltd.***

Of course not. Absolutely not. It seems to me the industry there has built a name for itself around the globe as a supplier of top-quality seafood. A quality program will stand solidly behind that reputation. It will help them solidify their image with independently verified guarantees of safety and quality with a clear and uniform set of practices and standards.

■ **Q: *The Cold Harvester***

What are some fundamental benefits for



Peter Marshall and Ian Burford of DFA discuss quality programs at a recent industry event.

developing ISO 65 quality assurance programs?

■ **A: *Peter Marshall, IFQC Ltd.***

People usually don't realize that aquaculture or wild fishery standards development can be very effectively used by the industry as a tangible road map and benchmark towards best aquaculture practice and food safety. Topics covered in such standards typically include: general management; health and safety; environmental management; HACCP; fish health management; feed and feeding; rearing practices; harvesting practices; preservation; and, complete traceability. Some sectors have also used the standards to produce industry-training materials.

The effort to establish programs also facilitates industry co-operation and collaboration through collective industry involvement and the establishment of highly representative technical advisory committees. This can be a very significant cost benefit for industry and governments.

■ **Q: *The Cold Harvester***

Beyond immediate local benefits, are there broader benefits for adapting best practices?

■ **A: *Peter Marshall, IFQC Ltd.***

First and foremost, applicants who meet the sector standard have a tangible, accredited and internationally recognized standard as their benchmark. The standards and supporting documents can be, and are, used to pull together training, marketing and development initiatives. The third party certification gives transparency to the achievement. ISO 65 standards also form an integral part of the CIES Global Food Safety Initiative benchmark, the Organic Certification Bench Mark, and the Label Rouge Bench Mark. Putting ISO 65 standards in place can be used as the framework toward further goals such as achieving Label Rouge and Organic certification.

■ **Q: *The Cold Harvester***

Facilitation of trade seems to be an important aspect of quality programs. Can you explain where the benefits accrue?

■ **A: *Peter Marshall, IFQC Ltd.***

Retail organizations, such as the Global Food Safety Initiative, food standards authorities, and consumer bodies have welcomed the adoption of quality assurance programs. They see the stan-

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dards as a means to transparently show which products are produced using best industry practice. There is also enhanced protection of export trade. As export markets seek more reassurance regarding fish safety and quality, quality assured standards can be used to clearly and credibly demonstrate this. We have also seen where accredited third party certification of the standards can be used to prevent unjustifiable technical trade barriers to entry. ISO 65, or EN45011 in Europe, is being used by Europe as the benchmark against product quality certification.

■ **Q: *The Cold Harvester***

Producers are usually preoccupied with immediate bottom line concerns. What can you say to them about cost benefits?

■ **A: *Peter Marshall, IFQC Ltd.***

Excellent question and a critical one. Producers need to consider the cost benefits with the big picture in mind. You'll see we've been talking generally about



One major advantage of ISO 65 program development is the opportunity to bring together a highly representative expert industry group. Here is a recent meeting of NAIA's Technical Advisory Committee for the quality mussel program.

important benefits for about fifteen minutes now!

By adopting the basic and good aquaculture practices defined in the standards the costs of 'getting it wrong' normally decrease. Moreover, it is routinely reported that the adoption of best prac-

tices leads to decreased costs of production, especially as it helps uncover previously hidden costs. It is very hard to quantify other benefits such as enhanced fish health or environmental safety as standards incorporate and monitor such issues.

There is also evidence of both product preference and premium being offered to member companies whose product meets established standards. Quality buyers are out there, and they usually want to be known for supplying quality products.

■ **Q: *The Cold Harvester***

Any final thoughts on the cost benefits of going the ISO 65 route?

■ **A: *Peter Marshall, IFQC Ltd.***

It is important to remember there is a range of benefits for individual producers and entire producing sectors and regions. Companies that have joined the quality programs say that third party certification has enhanced their unique selling points, enabling them to maintain and achieve new sales. In broader terms, the introduction of tangible and attainable benchmarks has resulted in an enhanced investment climate in some sectors from the perception of added protection on investment. Those kinds of benefits can accrue across whole sectors and regions as they build industry reputation and enable individual companies to use that leverage for their own brand development efforts.

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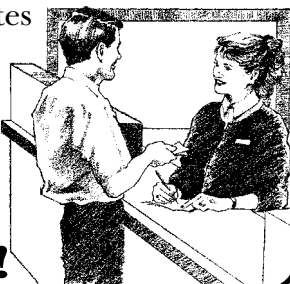
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NAIA's decision to develop *Cold Harvest*TM Quality Mussel Program

• THE COLD HARVESTER STAFF •

In March 2002, NAIA introduced the Cold Harvest logo. It was, however, uncertain what the logo stood for. At the time, however, there was evidence that food safety and quality programs were an emerging trend; it was possible that the logo could represent those critical factors.

In July 2002, Agriculture and Agri-Food Canada, opened its Canadian Agriculture and Food International (CAFI) food marketing program to the Canadian seafood industry. NAIA applied for CAFI assistance to study existing quality control programs around the world. NAIA's study was to be part of a larger plan to establish accredited standards that industry would voluntarily comply with and use the ISO 65 quality designation for market advantages.

In July 2003, Canada's Agriculture and Agri-Food Minister Lyle Vanclief announced CAFI funding which allowed NAIA to conduct its initial study. As well, NAIA had the benefit of financial support from the provincial



NAIA is investing heavily to support its mussel farmer. There is a major future for Newfoundland mussel production and NAIA intends to support its member growers 100 per cent.

Department of Fisheries and Aquaculture. An independent contractor provided a report to NAIA in January 2004, entitled, *Cold Harvest ... Beyond Food Safety*. The report was sent to all NAIA voting members and further consultations were carried through the winter of 2004.

In April 2004, NAIA's Board of Directors unanimously agreed to proceed with the development and imple-

mentation of quality programming. They viewed it as a forward-thinking, industry-building investment. It was recognized that, even though competing 'standards' may emerge over time, the independence associated with the ISO 65 model would be a consistent, fundamental future requirement for all credible programs.

In June 2004, NAIA entered a strategic partnership with IFQC Ltd. (Ireland) to develop a quality program for mussels. IFQC was chosen because they led the creation of the world's first fully integrated shellfish ISO 65 quality assurance program in Ireland.

Since July 2004, IFQC has guided NAIA's Technical Advisory Committee in the development of the mussel standard. The Technical Advisory Committee is comprised of professional representatives from industry, government and academia. Once the mussel standard is approved and registered internationally in the summer of 2005, NAIA member companies can apply to

← Please see page 14



NAIA Board of Director, and well-known mussel grower, Job Halfyard will be assessing opportunities to take advantage of NAIA's quality programs.



Juan Roberts, seen here at the Boston Seafood Show in 2003, is a mussel grower and marketer facing diverse market demands. He will have to keep his options open for the future as well.

ISO 65 Cold Harvest Quality Program

From page 13

be audited against the standard to become part of the program.

The reasoning behind NAIA's decision to implement the ISO 65 Cold Harvest Quality Program for mussels can be determined through consideration of the various Cost Benefits expressed in the previous section. Each of those cost benefit factors will contribute, at various times and in varying degrees, to the justification for the program. As the leading industry association for the province, and in partnership with central government departments and agencies, NAIA has played a key role in the identification of cost-reduction strategies to aid and promote industrial development. It is believed that short-term, upfront costs will be more than offset by securing market access and reputation in the future.

A major reason for NAIA's adoption



Veteran mussel grower Terry Mills (right) has one of his employees show off some quality mussels. *Cyr Couturier photo*

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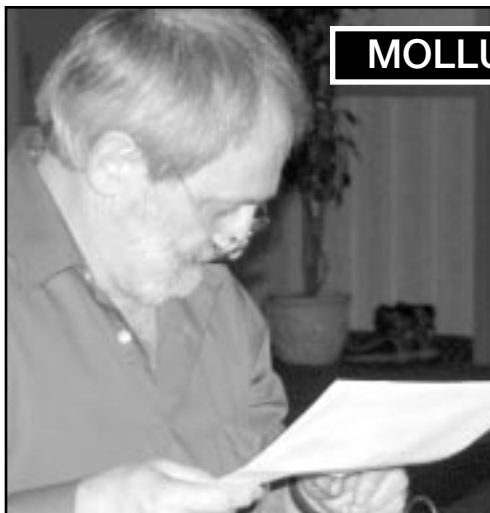
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MOLLUSCAN SHELLFISH WORKSHOP

CFIA's Molluscan Shellfish Conference was made possible by the strong commitment, leadership and attention to detail of the chief organizer Gerry Dawe.



Stephen Stephen, CFIA, Ottawa, imparts some of his knowledge at the Gander workshop.

Canadian Food Inspection Agency delivers comprehensive overview

• BY SUSAN COURAGE •

The Canadian Food Inspection Agency, commonly known as CFIA, held their first Newfoundland Region molluscan shellfish workshop at Hotel Gander on January 25, 2005. The three-day conference, organized and led by CFIA's Gerry Dawe, was a huge success. There were approximately 80 delegates from various parts of Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario, as well as an international guest speaker from Ireland. Representatives from CFIA, Department of Fisheries and Aquaculture, Department of Fisheries and Oceans, Environment Canada, NAIA, Marine Institute, and a number of independent growers/companies presented on related topics pertinent to the theme of the workshop, molluscan shellfish. In addition to very high quality professional presentations, the conference established a great networking opportunity for members from each organization to meet and discuss their unique roles in the field.

Despite snowstorms and cancelled and delayed flights, the conference got off to a fresh start on Wednesday with a

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Gerry Dawe, conference organizer, introduces the banquet guest speaker Mr. Peter Marshall, IFQC Ltd. (Ireland).



CFIA's Fred Lee, far left, heads up a table of dignitaries at CFIA's Molluscan Shellfish Conference in Gander.

Wide range of topics discussed at conference

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series of speakers. Presentations widely ranged in content from speaker to speaker with lectures covering subjects related to shellfish aquaculture, food safety, quality assurance, shellfish health, licensing and many other topics. One common subject presented from numerous organizations is the Canadian Shellfish Sanitation Program (CSSP). The main objective of the CSSP is to ensure bivalve molluscs are taken from federally approved areas that meet water quality criteria and are harvested, transported and processed in a system that reduces the risk of contamination.

Environment Canada (EC) essentially classifies shellfish growing areas while monitoring water quality of those areas. They then discern whether the sites are approved, conditionally approved, or closed for harvesting or aquaculture activity.

Dave Curtis from EC began the session with an introduction to the CSSP including growing area classifications, shoreline and water quality surveys.

Department of Fisheries and Oceans (DFO) are involved in controlling the harvesting of shellfish areas that are classified as contaminated and also in relaying, transplanting, replanting, and fisheries/aquaculture licences. Ray Walsh from DFO introduced the administrative and enforcement issues of the CSSP including openings and closures of shellfish growing areas. Cynthia McKenzie, also of DFO, discussed the effects of shellfish biotoxins



Well-known NAIA member Terry Mills explains the intricacies of mussel farming in Newfoundland.

in these classified areas in her presentation on harmful algae. She presented the results of various environmental monitoring projects of harmful phytoplankton in Newfoundland. DFO's Geoff Perry continued discussions with his thoughts on the potential risk factors of spreading these toxins or diseases when transferring fish/shellfish and outlined these various diseases and toxins. Finally, Laura Park of DFO gave a presentation of coastal zone management in Newfoundland, particularly the Bay of Islands region. She outlined areas of concern, threats and monitoring in a summary of marine environmental quality projects.

The conference also included pre-

sentations by members of independent shellfish growers and companies in Newfoundland. Terry Mills, president of Black Gold Inc., discussed the methods of growing blue mussels from seed to harvesting mature mussels at his aquaculture operations in Point Leamington, Newfoundland. Jason Nichols from the Marine Institute provided an overview of the logistics and advantages of a wet/live holding for mussels being deployed by Allen's Fisheries, a local seafood company in Benoit's Cove. Michelle Griffin-Noel of Clearwater Seafoods in Grand Bank outlined clam production processes of the company, including product details, processing and marketing approaches, and biotoxin sampling. Garry Hartle, Newfoundland Clam Farms, outlined specific projects/initiatives for softshell clam production in Barasway Bay, Newfoundland, as well as the enhancement and processing of this species.

Mike Rose, Executive Director of NAIA, gave a historical perspective of the Newfoundland aquaculture industry and the province's strategic plan for future species development. The presentation mainly focused on NAIA's evolving project to establish an ISO 65 quality assurance program for mussels.

The keynote speaker of the conference was Peter Marshall, Managing Director, IFQC Ltd. (Ireland). Mr. Marshall reiterated the importance of quality assurance and traceability with respects to the European seafood industry and the demand for quality

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Marshall provides international perspective

From page 16

products. The core of his presentation focused on the position of the mussel industry in Ireland with regards to marketing trends and evaluations as well as buyer profiles. This presentation was essential in providing the conference delegates with an international perspective on the growing mussel industry.

The Marine Institute's Cyr Couturier outlined the steps involved in blue mussel culture, from seed collection to harvesting methods. He also provided an overview of the current status of mussel aquaculture in Newfoundland. Issues addressed included quality assurance, food safety, and shelf life/spoilage factors related to blue mussels.

Several representatives from the Department of Fisheries and Aquaculture (DFA) were in attendance throughout the conference. Their presenters included Ian Burford who gave

a thorough overview of DFA's licensing, policy and legislation related to bivalves, particularly in the context of quality assurance, inspection and new initiatives for 2005. Todd Budgell, DFA licensing manager, gave insight on aquaculture licensing including the types of licences available, transfer approvals and the methods for obtaining and processing fish transfer permits. Provincial veterinarian Daryl Whelan discussed shellfish disease and surveillance, as well as related risk factors and methods of disease control. Finally, Derek Moulard summarized the Shellfish Environmental Monitoring Program (EMP) and discussed various subtleties involved in growing shellfish in Newfoundland.

The role of the Canadian Food Inspection Agency (CFIA), related to the subject of this workshop, is to regulate the import/export, packaging, labelling, shipping, certification and storage of shellfish. In addition, the

CFIA is also responsible for performing shellfish analysis and identifying the presence of marine biotoxins. CFIA representatives from the Atlantic Area and National office presented topics in their areas of molluscan shellfish expertise. Karen Kennedy from the St. John's Regional Laboratory discussed the effect of shellfish toxins in Newfoundland, and she outlined the nature and importance of various laboratory tests and analysis. Brenda Daly-Wheeler, also from the microbiology lab in St. John's, discussed the nature of bacterial analysis for faecal coliforms, *E. Coli* and *Salmonella*. Jeff Van de Riet from CFIA's Dartmouth, Nova Scotia lab concluded the laboratory component of the workshop with an overview of all toxins in Canada with special emphasis on DSP. A portion of his presentation was related to an in-depth look at heavy metals.

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Three-day event covered entire spectrum of topics related to molluscan shellfish

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Dan MacNeil, Process Control Specialist from Dartmouth Nova Scotia, presented information on shellfish relaying, thermal processing, shellfish pathogen vectors, as well as, QMP process controls and water intakes from unclassified areas related to wet holding systems. Stephen Stephen from Ottawa reviewed the standards of the CSSP including various audit outcomes in Canada and also reviewed the threat of biotoxins.

Edmund Arsenault, CFIA Moncton, ably concluded the conference with a look at the history of the CSSP. This was a comprehensive finish that included an overview of shellfish production, biotoxins, microbial sampling and site closure information.

The three-day event was, to say the least, comprehensive. It delivered a diverse, well-structured gathering of specialized individuals and covered the entire spectrum of topics related to molluscan shellfish. Commenting on behalf of industry, NAIA's Mike Rose

said, "CFIA is to be highly commended for their leadership in establishing this kind of event. Not only was it professionally delivered, it was a uniquely focused workshop that even offered insights for industry veterans. Above all, it was a tremendous communications and networking forum. I would strongly recommend that CFIA and other lead agencies consider the focused, professional format in the future. Finally, congratulations from NAIA to Gerry Dawe on a job very well done."



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Aquaculture Canada Conference^{OM} 2005

& NAIAs Cold HarvestTM Trade Show

HIGHLIGHT
AQUACULTURE
EVENT OF 2005

**City of legends
to come alive
July 3-6, 2005**

• THE COLD HARVESTER STAFF •

The City of Legends — St. John's, Newfoundland and Labrador — comes alive from July 3 to 6, 2005. That is when Aquaculture Association of Canada (AAC) is holding its 2005 Conference in partnership with NAIAs Cold HarvestTM Trade Show. It takes place at the Delta St. John's Hotel and Conference Centre. This promises to be the highlight event of the year for the Canadian aquaculture industry.

The Aquaculture Association of Canada (AAC) is an international organization of producers, suppliers, students, scientists, educators and government representatives which promotes aquaculture knowledge. The AAC primarily carries out its objectives through its annual Aquaculture Canada^{OM} conference (AAC Conference). This is the third time in its 22-year history that the AAC will hold its annual meeting in St. John's.

The theme of this year's AAC conference is "Navigating Forward: New Directions for Food Safety, Quality, and Social Diversification."

The keynote address will be given by Dr. Patrick Moore, founder and president



NAIAs trade shows are always active and entertaining.

of Greenspirit, a leader in the international environmental field for over 30 years. Dr. Moore is a founding member of Greenpeace and was a driving force shaping policy and direction while Greenpeace became the world's largest environmental activist organization. In recent years, Dr. Moore has been focused on the promotion of sustainability and consensus building among competing concerns.

Coinciding with the program are two multi-session special symposia. The first will be the *Second International Mussel Forum*, which aims to review global markets and trends for mussels, discuss technology transfer to and from major producing countries, investigate potential market access for local and Canadian companies, promote Canadian mussel production companies and suppliers, and generate economic benefits for the Newfoundland economy, both direct and indirect. The second special symposium will be an *International Atlantic Cod Symposium*, which will stem from the current efforts underway by NAIAs to develop a strategic plan for cod aquaculture in the province.

AAC Conference 2005 will attract finfish, shellfish and seaweed growers from Atlantic Canada, across Canada, as well as internationally. The program will address a wide variety of topics, including:

- *Aquaculture Public Awareness and Education*
- *Current Topics in Aquatic Animal Health*
- *Traceability, Food Safety and Food Quality*
- *Highlighting the NL Aquaculture Licensing Process*
- *Green Sea Urchin Culture in North America*
- *Socioeconomics of Aquaculture*,
- *Coastal Management*,
- *Funding Opportunities for Aquaculture*,
- *Harmful Algae*,
- *Advances in Salmonid and Shellfish Culture*,
- *Advances in Aquaculture Physiology and Nutrition*,
- *Offshore Aquaculture*,
- *Alternate Species Aquaculture*,

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Event expected to attract 500-plus delegates

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• *Methods of Commercialization in Food Production Industries.*

• *A cod aquaculture workshop and mussel aquaculture workshop*

The event is anticipated to attract 500-plus delegates, including suppliers, growers, producers, government individuals, researchers, educators, and students. The event represents an important opportunity for suppliers or service providers to establish or renew contacts with growers, academics, and regulators in the industry, and promote their product lines and/or services to a national audience.

A comprehensive social program has also been arranged for this conference. This will start with the President's Welcome Reception on Sunday evening, July 3, 2005. Monday evening (July 4) will host the AAC Student BBQ, an event taking place on historic George Street at O'Reilly's Pub.

For conference details please contact Chris Hendry, Program Chair and AAC

President-Elect, at chendry@gov.nl.ca
(Tel: 709-292-4117).

COST-EFFECTIVE INDUSTRY MARKETING OPPORTUNITY

Exhibiting at AAC Conference 2005 is a cost-effective way to meet with the aquaculture industry and its support personnel. The trade show will be located adjacent to the conference rooms, with the President's Reception, to be held on Sunday July 3 from 7:00 p.m. – 10:00 p.m., and health breaks placed strategically in the trade show areas, allowing delegates ample opportunity to visit exhibitor booths. The occasion is ideal for exhibitors to present their product or introduce their services to potentially new target markets for a full two-day period.

Make plans to attend and exhibit at NAIA's Cold Harvest™ Trade Show soon because booth spaces are limited and are going quickly!

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brief 'elevator pitch' of their products and services to all conference delegates during the 'Exhibitors Showcase.' All Exhibitors are allotted two minutes to promote themselves at the podium and attract potential business.

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- the President's welcome reception; coffee/health breaks;

For further information regarding exhibition at the Trade Show, please contact Brian Power: (Telephone) 709.754.2854, (Fax) 709.754-2981, (Email) brian@naia.ca

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A detailed conference agenda will be available on the conference website (www.aquacultureassociation.ca/ac05/).



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NAIA's Research and Development

2004 Review

BY CHRIS BRIDGER

NAIA's Research and Environmental
Manager (2004)

It's been nearly a year since I moved back to Newfoundland and Labrador to serve as the NAIA Research & Environmental Manager. As I look back through the Progress Reports prepared for the NRC-IRAP project which funds this position, I have realized that this year represents a reasonably active year within NAIA from an R&D perspective. I will outline some of the highlights in this column to keep NAIA members informed of these R&D activities.

PROJECTS

The cod grow-out project in Hermitage Bay was concluding when I began with NAIA last December. This project was very exciting, given its objective to raise cod from egg-to-plate for the first time in the province. While such a first-time project had expected growing pains, I would consider this project to have concluded on a very positive note. Teams of growers and researchers successfully raised cod from egg-to-plate, the primary project goal.

A spin-off project from the cod egg-to-plate initiative evaluated the harvest flesh quality of cultured cod. Researchers at the Marine Institute conducted this research and determined that cultured cod had comparable texture, gaping, colour, odour and pH to wild caught cod. The most striking difference, and potentially most positive difference, was that our cultured cod had 2-4 per cent greater fillet yield than its wild counterparts. Sensory analysis demonstrated that cultured and wild cod could not be differentiated when viewing or tasting cooked product.

NAIA employed a youth intern last February to review Integrated Coastal Zone Management methodology, theory and experience related to aquaculture and specifically within the province. This report will assist NAIA when asked to comment on and be a part of coastal zone planning initiatives



NAIA's Atlantic Aquaculture Network REM, Chris Bridger, doing field work —ice damage survey – for NAIA in 2004.

that could also affect the industry's prospects for future development and expansion.

NAIA is the lead proponent on a BRIDGES Partnerships project in collaboration with six Centres of Excellence (CASD, CSAR, OSC, C-CORE, OERC and IOT) that have expertise and infrastructure directly useful to develop high-energy aquaculture sites within NL, the Atlantic

region, and throughout the world. At the request of the BRIDGES Board of Directors, we are presently conducting a market evaluation study of the global potential for open ocean aquaculture site development. We are also planning a workshop with NAIA members in November 2004 to determine specific technical issues that presently constrain

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Research and development

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industry development in exposed, high-energy sites in this province (including ice exposure, waves, currents, logistics, equipment failure, etc.).

With direction from NAIA, researchers at the Marine Institute are presently conducting a review of existing technical requirements, policies and guidelines pertaining to the large-scale disposal of aquaculture waste products in the province. Such wastes might include fish biomass resulting from sudden or unexpected large-scale mortalities, diseased or contaminated fish biomass, processing wastes especially as our industry expands, and waste products resultant from cleaning aquaculture nets and other equipment.

The final report from these aquaculture projects, and most other research reports conducted in the province over the years, will soon be available through a NAIA online searchable database. Considerable discussion of this database – AquaBase – was presented in the last *Cold Harvester* and I will not repeat those details here. NAIA is presently compiling necessary details from approximately 450 reports collected from various researchers, institutions, and agencies. We anticipate having this database available to NAIA members by the end of January 2005.

NAIA initiated development of an ISO65 certification standard for Newfoundland mussels in May 2004. Sufficient detail has been provided to NAIA members regarding this initiative through numerous press releases and individual discussions. Standard development continues and its completion is expected early in 2005. Coupled with the ISO65 standard development is a DFO ACRDP project to monitor phytoplankton in the vicinity of selected mussel farms. Results of this project will greatly assist the outcome of our standard and the necessary phytoplank-



Chris Bridger (seated) and NAIA's Brian Power assessing the look and feel of a research database they created during 2004.

ton monitoring necessary in the future.

To provide an exhaustive list of meetings attended during the past year would be pointless. Instead, I will provide a list of those conferences/meetings that have had, or may have in the future, the most impact on our aquaculture industry.

- **Canadian Climate Impacts and Adaptation Research Network Fisheries Sector Workshop, St. John's, NL, January 2004.** Climate change is expected to impact upon many economic sectors within Canada in the decades to come. This meeting discussed the approaches taken by climate change researchers to predict these impacts followed by a general discussion of the likely scenarios as they relate to fisheries and aquaculture.

- **NAIA Annual Conference and General Meeting, St. John's NL, February 2004.** Most of you will have your own experiences and perspective of our previous meeting, however, I would be somewhat remiss to not at least place it in this list.

- **AquaNet-DFO Marine Finfish Commercialization Forum, St. John's, NL, February 2004.** This meeting was intended to provide a review of the status of alternate species development in Canada and provide potential solutions for the issues that impede alternate species development. Early into this meeting a major issue identified was the lack of sufficient development funds in the nation for commercial scale demonstration project, which is not the case for research funds related to aquaculture.

- **DFO National Science Advice for Finfish Cage Aquaculture in the Marine Environment Preparatory Meeting, St. Andrews, NB, October 2004.** This meeting was conducted to provide Habitat Managers with scientifically defensible explanations as to why each region within Canada sites aquaculture facilities and sets production limits using different approaches. The outcome of this meeting will be

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Major NAIA initiative coincides with major international conference ‘Farming the Deep Blue’

• THE COLD HARVESTER STAFF •

“Farming the Deep Blue,” the first conference devoted exclusively to open ocean aquaculture was held in Limerick, Ireland in early October 2004. The two-day conference was sponsored by BIM (Bord Iascaigh Mhara) or the Irish Sea Fisheries Board, which is the Irish State agency with responsibility for developing the Irish Sea Fishing and Aquaculture industries. (This State agency is a wonderful model for many other countries, including Canada, to emulate for developing and promoting their respective aquaculture industries, but that is the subject of another article.)

The central purpose of the conference was to gather the best and the brightest involved in the relatively new sector of open ocean aquaculture with the goal of obtaining a realistic assessment of the current state-of-the-art, the potential for the sector and the challenges facing the sector going forward. Delegates from Newfoundland and Labrador joined over 240 delegates from around the world, including many practicing offshore fish farmers, equipment manufacturers, senior government policy makers, regulators and developers, researchers and environmentalists.

The timing of the conference coincided with the commencement of a major new initiative undertaken by NAIA in association with Bridges, the Marine Technology Alliance Building and Marketing Initiative for Newfoundland and Labrador. NAIA and Bridges wanted to evaluate whether there was a role to play for six of the Bridges Centres of Excellence in St. John’s in the further development of the provincial, national and international open ocean aquaculture sector and if there was, how best to organize and market that effort. Bruce Colbourne of IOT, Nigel Allen of C-ASD and Chris Bridger of NAIA participated in the



In late 2004, NAIA hired Andrew Story to conduct a marketing study on behalf of the Bridge’s group. The report will be delivered in March 2005.

conference to gain first-hand knowledge of the opportunities and potential size of the market.

The conference was considered by all to be a success and a significant milestone in the further development of open ocean aquaculture. Through interactive voting software, there was widespread agreement that there was a market opportunity to fulfill future seafood requirements with offshore aquaculture and that “the industry will be truly sustainable from both an economic and environmental point of view,” according to Donal Maguire, Aquaculture Development Manager at BIM.

Key issues such as species and technology choice, markets, finance and economics, risk management, policy and regulation were all explored in

depth through interactive workshops and expert lectures. Amongst the delegates it was concluded that, with proper development, the finfish output from the offshore sector could reach some 3.5 million tonnes by 2030, which is as much as the current Atlantic Salmon and Tilapia output combined.

One of the key outcomes was the overwhelming support of the formation of a new body called the International Council for Offshore Aquaculture Development (ICOAD) following the conference which would help the industry move forward and seize the opportunity. ICOAD, as a virtual community, would serve as a global focal point for the development of offshore aquaculture in order to accelerate and galvanize the process through coordination and the provision of financial and knowledge capital. A steering committee has been struck to guide the formation of ICOAD over the next several months.

The conclusions reached by the NL delegates was that, taken together, the Bridges Centres have the necessary expertise and world-class facilities to address various technological and biological issues and constraints facing this new aquaculture sector (many of which are applicable to existing aquaculture industries, of course) and that there does seem to be the emergence of a discrete sector to market to. Two of the Centres, the Centre for Aquaculture and Seafood Development and the Ocean Sciences Centre are already intimately involved in aquaculture development and The Institute of Ocean Technology, C-CORE, The Centre for Sustainable Aquatic Resources and The Ocean Engineering Research Centre, all have had some limited exposure to the aquaculture industry. A report associated with this initial NAIA initiative, due in March, will help to detail these opportunities.



COUTURIER ON CULTURE

BY CYR COUTURIER.
MARINE INSTITUTE OF MEMORIAL
UNIVERSITY

NAIA initiates space project: Satellite tools in aquaculture production

INTRODUCTION

Satellites are being deployed more frequently into space, not only to break down the frontiers of space but to enhance our everyday knowledge about the earth. Much of the current satellite observations on earth relate to large-scale patterns such as current drifts, atmospheric pattern, and changes in vegetation coverage. However, with the advent of different and more sensitive sensors, there is increasing interest in alternate, more commercial applications of remote sensing satellite information. For example, satellite imagery might be used to evaluate aquaculture sites for environmental characteristics such as winter minimum temperatures or maximum summer temperatures before a site is chosen, thereby providing additional information to prospective investors / growers prior to establishing sites. Satellite information might be employed to examine long-term changes in environmental patterns such as the timing of the spring bloom or the amount of food, or the amount of ice cover, all of which may affect mussel or cod aquaculture production, for example.

The European Space Agency in the context of its Earth Observation (EO) Program has begun to examine some of these questions via pilot studies around the globe. One such study was initiated

by NAIA and completed recently by CORE in St. John's using their remote sensing (RS) expertise to try and groundtruth satellite information with field information at or near farm sites.

PILOT STUDY NL

The objective of the pilot study in Newfoundland was to compare RS satellite sea surface temperature (SST) recordings with field temperature data collected during environmental monitoring programs undertaken at farm sites by the NAIA under various environmental and biological programs (EBMPs) during the 1990s and early 2000s. It was decided to focus on winter minimum temperatures in coastal areas around NL during the coldest parts of the year (February to April) and summer maximum temperatures in the same areas during the warmest periods of the year (July to September). The concept was that if SST data from satellites was closely related to near surface temperatures recorded by EBMPs, then it might be possible to predict minimum winter or maximum temperatures at remote sites or sites not yet evaluated for culture of finfish or shellfish, simply by reviewing satellite images collected regularly since the mid 1990s around NL. If it works, it could provide a useful site selection tool to allow growers to select potentially productive areas for salmon,

cod or even shellfish such as mussels, without the necessity of conducting long-term environmental validation prior to farm development. Satellite RS information is available at relatively little cost and with minimal manipulation could provide very useful information to producers. Moreover, if fairly predictable, the information might be used to explain variations in production outputs from farms, particularly shellfish farms with high stocking densities or in areas of differing annual productivity.

The project was undertaken by obtaining 1,800 satellite images of sea surface temperatures (SST) over a 5-year period from 1998 to 2002. Two images are collected daily by satellites around the island of NL so that it was necessary to focus on more interesting periods of the year for the pilot project, namely the cold winter months and warm summer months. Images were collected, validated against temperature data collected by NAIA with the aid of the Marine Institute using CTD or thermograph data from farm sites on the north, northeast, south, and east coasts of the island.

In order to process the information, daily satellite images were integrated over 15-day periods (up to 30 images) to give 15-day composites. The RS images and field data were evaluated

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Satellites as an aquaculture tool ... science or science fiction?

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for daily minimum temperatures during the winter months and daily maximum temperatures during the summer months.

In total, relatively complete information was available for six farm sites around the island over a four-year period (1998-2001).

A temporary Web site has been created to attempt to show the findings of the pilot project in a user-friendly format for fish farmers. The site is located at the following URL:

<http://www.geoview.dynalias.com/sapa/>.

Interested parties are asked to review the site and contents and provide comments or suggestions to Cyr Couturier at NAIA (cyr@mi.mun.ca) regarding the usefulness of the site.

CONCLUSIONS

The results are still being analyzed, but remote sensing technology appears to offer some promise in site assessment and ongoing field monitoring of aquaculture sites. Additional applications that might be considered for the relatively easily obtained satellite data include: 1) assessment of food supply (as determined by satellite chlorophyll, a data combined with surface current data from RS), 2) local ice coverage and movement patterns, 3) long-term trends in nearshore temperatures combined with plankton or some other food assessment, just to name a few. The long-term benefits of such RS technol-



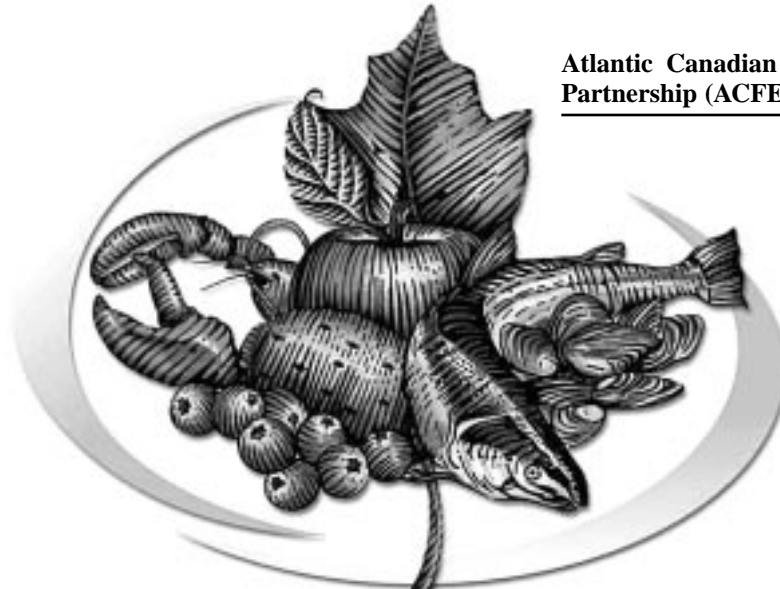
ogy will only become apparent if the information is useful for the industry.

ACKNOWLEDGEMENTS

The contributions of shellfish and finfish farm operations in NL are gratefully acknowledged; their encouragement and support is crucial. Please note that space does not allow inclusion of study results in this edition, but NAIA's consent to allow the use of environmental data in the pilot project is acknowledged.

Cyr Couturier is an aquaculture scientist and faculty member at the Marine Institute of Memorial University. He has nearly 25 years experience in research, development, education and training in aquaculture and related fields in Canada and abroad. He participates actively on the boards of various industry associations, including the Aquaculture Association of Canada, the Canadian Aquaculture Industry Alliance, and the Newfoundland Aquaculture Industry Association.

Atlantic Canadian Food Export
Partnership (ACFEP)



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Intensive one-day seafood conference slated for Halifax

• **Wednesday,
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Westin Hotel,
Halifax, Nova Scotia** •

The Seafood Industry represents \$3.2 Billion in annual export sales and 120,000 full time and seasonal jobs in Atlantic Canada. It is a vital component of the economy of Atlantic Canada and remains the primary employer and economic generator in many rural communities throughout the region.

However, the Industry is under intense pressure caused by sweeping changes, most well beyond industry's control. Important factors weighing on the future include:



The Atlantic Canadian seafood industry offers a wide selection of seafood delicacies.

- **1 Customer and Industry Consolidation**
- **2 Growing Labour Shortages**
- **3 Intense international competition from low cost producers, particularly China**
- **4 Raw materials in short supply**
- **5 The rapidly declining US dollar**

Fresh insights, new approaches, and innovative ideas

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To address these issues, the Atlantic Canada Food Export Partnership presents **Seafood 2010: The Future of the Seafood Industry in Atlantic Canada**. This will be an intensive one-day Conference for Executives, Senior Managers, Policy Makers, and others with a vested interest in the Seafood Industry in Atlantic Canada. It is an opportunity to come together to focus on the state of the Industry and to assess our preparations for the future.

The Conference will offer fresh insights, new approaches, and innovative ideas through a series of highly focused industry presentations and concurrent workshops. A series of event "tie-ins," including media coverage of the Conference, industry meetings, and the launch of a Canadian Seafood Traceability pilot, are under development.

At least three high profile keynote speakers, and approximately 10 workshop leaders, are being recruited for the program. The Conference will bring together participants, presenters, and key players from Canada, the U.S.A., Norway, Ireland, the U.K., the Netherlands, and Chile.

Seafood 2010: The Future of the Seafood Industry in Atlantic Canada is scheduled for Wednesday, April 6, with pre-Conference events on Tuesday, April 5, 2005. The Conference will be held at the Westin Hotel in Halifax, Nova Scotia, Canada.

For further information, please contact Berni Wood at 1-902-566-1767 or e-mail: bwood@islandtelecom.com



Affordable and safer than ever to eat salmon!

National seafood sector council holds 9th annual general meeting

By **BRIAN HICKS**
NSSC Regional
Coordinator



The National Seafood Sector Council (NSSC) held its 9th annual general meeting and first annual awards night in St. John's on September 26th, 2004.

The AGM and Awards Dinner was a huge success! Everyone who attended had a great time listening to the musical entertainers Celtic Fiddlers and enjoying the various types of seafood. Special thanks to the local members who donated their products for the reception: National Sea Products, The Barry Group, FPI, and Deep Sea Products.

Natasha Greene, who is currently working with FPI in Marystown, and a participant in the Career Focus Program, spoke at the AGM. Her speech was a highlight to all who attended the event. It was a pleasure to hear a young person talk of the challenges and advantages of working in the seafood processing industry.

The awards were handed out during a banquet at the Capital Hotel. Alastair O'Rielly emceed the event. Congratulations to the award winners:

- Rookie Plant of the Year – **Harbour Grace Shrimp Co. Ltd.** – Bev Sheppard accepted the award.
- Educational Trainer of the Year – **Marine Institute** – Ron Hyde and Dave Bonnell accepted the award.
- Processor Plant Trainer of the Year – **Fogo Island Co-Op Society Limited** – I accepted the award on their behalf.
- Regional Representative of the Year – **Cyndy Duncan**, Nova Scotia.
- Board Member of the Year – **Marg Werseen**, British Columbia.
- Processing Plant of the Year – **FPI** – John Hollohan and Allan Moulton accepted the award.

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Processing Plant of the Year: (L-R) Allan Moulton (FPI Burin), John Hollohan (FPI St. John's) and Greg Pretty (NSSC Board Member).



Educational Trainer of the Year – Marine Institute: (L-R) David Bonnell (Marine Institute), Ron Hyde (Marine Institute) and Marg Werseen (NSSC Board Member).

Active year for the NSSC in province

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I would also like to congratulate all the other Newfoundland and Labrador members who were nominated for awards, especially NAIA who was nominated for “Rookie of the Year.”

2005 is becoming a very active year for the NSSC in Newfoundland and Labrador. In March we are offering three courses (Introduction to HACCP, Introduction to Sanitation and Hygiene, and Seafood Safety and Spoilage) in Clarenville and Corner Brook. The Career Focus Program is once again getting a lot of attention from NL members. Last year, seven of the twelve spots went to NL members.

I would also like to thank Fabian Organ of North Atlantic Sea Farms for taking the time to give me a great tour of their facility this past summer. It has been a couple of years since I was at in St. Alban’s and glad to get back in the area. One of the highlights of my job is to travel around the province and met with members and tour their sites. Starting in April I will be visiting NSSC members and non-members once again. If you have the time, I would love to

meet with NAIA members also. Please contact me so we can arrange a time when I will be in your area.

If you would like more information

concerning the NSSC or any of our products or services, please feel free to contact me by phone at 709-747-1968 or by email at nssc.nl@nl.rogers.com.



Natasha Greene, FPI Marystown, and a participant in the Career Focus Program, spoke at the AGM. (L-R) Jeneffer Griffith (NSSC Staff), Natasha Greene, and Allan Moulton (NSSC Board Member).



I N T R O D U C I N G

President, Newfoundland Aquaculture Industry Association (NAIA)

JOAN STRICKLAND

NAIA's new president delivers strong provincial message

I start my first term as President of NAIA with enthusiasm coupled with my long-term commitment to the industry. Spring, a season of new beginnings, is fast approaching and we must collectively ready ourselves for the future.

The past week has been a busy one with board and industry meetings. As I listened to my peers seated around the room there was no doubt in my mind of their passion and strong will to take this industry to the next step.

We are currently experiencing an industry crisis, the Canadian dollar is up and some fish prices are at an all-time low. In spite of that, we have proven that we can grow excellent, low cost, aquaculture products, and if given the proper influx of capital we can continue to compete. We have proven that we can produce a quality product in an efficient, environmentally friendly manner.

In order to move the industry forward at this time we need strong support from the hands that rule our province. We need the ability to access bank loans to finance our operations at reasonable rates. We will never flourish if we continue to do the wrong thing in our quest for survival. Bare survival, as we have seen in the past, with ineffective capital support, will not result in the growth necessary to maximize our potential.

We need new technology and infrastructure for the mussel industry to make it more cost-efficient and add to the inherent quality of our cold-water mussels. We do a great job growing the mussels, but we need the equipment to drive industry growth. Wharf infrastructure must also be put in place along



Atlantic salmon farm in Fortune Bay. There is much room to increase production of safe, high quality aquaculture products for international markets.

Photo credit: Cyr Couturier

with a strong marketing program to complement the excellent harvest practices.

We are at a critical juncture in the salmon and trout industry. The industry is approaching a standstill, where we are tied to high debt loads that have been incurred through feed financing at extremely high rates. In the past there has been no willingness on the part of the banks to loan money for aquaculture. Our new government has indicated their commitment to the industry by recently announcing the aquaculture working capital loan guarantee initiative. The Industry has long awaited such a program. I urge the Williams government to work closely

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President's message

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with industry to ensure that this program can be effectively and immediately used. This is essential if we are to pull through this crisis.

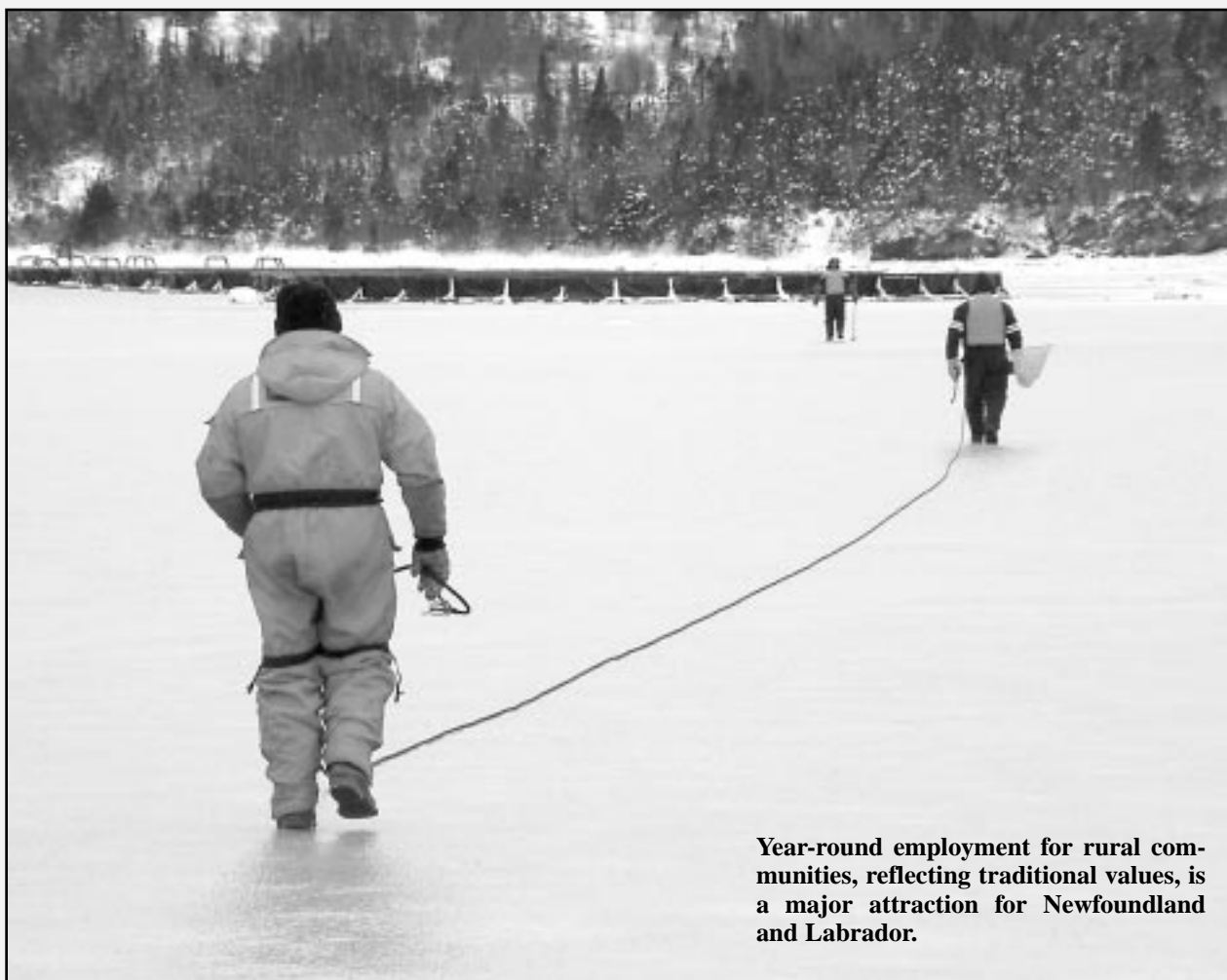
In recent salmonid industry discussions with DFA officials, root causes of challenges continuously pointed back to lack of financing. I am a firm believer that in taking care of the big things, the little things tend to take care of themselves. We have all necessary support programs in place for fish health, biosecurity, site inspections, etc., and while we appreciate these services, they will be of no value if we do not have an industry to avail of them.

This government must make capital investment their number one priority. If the industry cannot

access capital it will likely collapse and, once again, it will be an opportunity lost. We must enable people in rural Newfoundland to continue to contribute in a meaningful way to the prosperity of this province.

We have in Newfoundland and Labrador a wealth of natural and human resources that make aquaculture a perfect fit for some of our coastal communities. If we have corresponding financial resources we will emerge as leading producers of the finest farmed seafood in the world.

The NAIA board is strongly committed to working with the industry players to see them through these difficult times. Remember how far we have brought the industry, in spite of challenges, and together we will successfully face all challenges.



Year-round employment for rural communities, reflecting traditional values, is a major attraction for Newfoundland and Labrador.

Accountability assures high-quality, safe seafood

From page 14

of the quality program is to ensure access for Newfoundland aquaculture products in established, alternative and profitable international markets. Market access and flexibility is not assured due to innumerable industry, regulatory and societal challenges associated with food safety/quality, traceability, environmental management, acts and threats of bioterrorism, plus an assortment of other factors. NAIA firmly concludes this is a global trend likely to continue.

Unequivocal, rapid demonstration of production accountability through internationally recognized ISO 65 programming allows industry to provide assur-

ances of high-quality, safe and traceable seafood.

A distinct advantage that aquaculture has over its wild fishery counterpart is the ability to illustrate accountability throughout the entire production cycle. Accountability in aquaculture can be measured in terms of stocking numbers and densities, control of the growing environment, knowing what the product is consuming, and control over production planning including making conscious decisions of when to move product to the market in a superior form that is unmatched from wild fishery activities. In all, this accountability affords us the potential to provide a high-quality traceable fisheries' product for human consumption.

In the Canadian and world context, Newfoundland is a small, but growing, supplier of blue mussels. The Cold Harvest program will operate to highlight the unique production characteristics of the Newfoundland and Labrador (its official name) environment. It is Canada's easterly-most province with distinctive geographic and oceanographic characteristics, particularly related to its location in the North Atlantic and the cold Arctic currents that directly influence mussel-growing regions. As the Cold Harvest program develops, NAIA and NAIA members will draw on these unique characteristics for industry (investment) and product (NAIA member brands) promotion.

2004 Review

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several review chapters outlining the present state of knowledge related to aquaculture-environment interactions. These chapters will be finalized and peer-reviewed in February 2005.

This article is my last contribution to *The Cold Harvester* as the NAIA Research & Environmental Manager. Lynette Carey will return from her maternity leave to this position in January. I am off to another adventure on the left coast of North America. I have decided to take a faculty level position with Oregon State University within the USAID-funded Aquaculture Collaborative Research Support Program (CRSP) as their Research Projects Manager. This position will present me with new challenges in project management while affording an excellent opportunity for extensive international travel. This position will also give me a new perspective on the importance of aquaculture for food security within rural communities in less developed countries. And give me an opportunity to live next to the Pacific Ocean for awhile!

Best of luck to all NAIA members in their future endeavours. I definitely sense that the near future looks much more prosperous for all sectors in the Newfoundland and Labrador aquaculture industry.



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The Newfoundland Aquaculture Industry Association (NAIA) offers a constructive and personalized approach to help you develop positive relationships with experienced, reputable local partners. Please contact NAIA to learn how we can help.

For more information contact: Mike Rose, *Executive Director*
Newfoundland Aquaculture Industry Association, P.O. Box 23176, St. John's, NL A1B 4J9
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