



Professional Shellfish Growers  
Association of New Brunswick



**Final Report**

**WORKSHOP**

INDUSTRY FUNDING

INTERPROFESSIONAL ORGANIZATION AND ASSOCIATION'S FUNDING

RESEARCH AND MONITORING REQUIREMENTS IN SHELLFISH  
AQUACULTURE IN NB

December 2nd and 3rd 2003  
Rodd's Miramichi, Miramichi, N.-B.

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Business NB

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Annex 10: Draft Funding Strategy for the Professional Shellfish Growers Association of New Brunswick - Mr. Léon Lanteigne, President, Professional Shellfish Growers Association of New Brunswick (*Please contact association directly for this presentation*)

Annex 11: Monitoring in Shellfish Aquaculture – Mr. Henri Grizel, IFREMER, France

Annex 12: Aquaculture Sciences Division (biology, predators, competitors, invasive species, benthic ecology, productivity) – Thomas Landry, Marc Ouellette, Fisheries and Oceans and Fish Health Unit – Mary Stephenson, Fisheries and Oceans

Annex 13: Toxic phytoplankton monitoring - Dr. Stephen Bates, DFO

Annex 14: Shellfish Growth Monitoring Network for the Southern Gulf of St. Lawrence – Luc Comeau, Fisheries and Oceans

Annex 15: Canadian Shellfish Sanitation Program - Bernard Richard, Environment Canada and Edmond Arsenault, Canadian Food Inspection Agency

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## **INTRODUCTION**

The mission of the Professional Shellfish Growers Association of New Brunswick (PSGANB) created in 1997 is to develop the shellfish aquaculture industry and to defend the interests of the shellfish growers of New Brunswick. The PSGANB is comprised of 47 members, mostly oyster and mussel growers along the coastal waters of the Province.

Recently, a socio-economic study on our Industry demonstrated the interesting potential and promising growth of our Industry in rural and coastal areas of New Brunswick. The shellfish industry contributes to maintain and develop local economy and allows for more and more important job creation in these communities where other resources are subject to important decline.

The workshop follows the priorities, including Industry funding, Association funding, monitoring network and environmental considerations identified as activities in the action plan following the Association's strategic planning exercise.

The workshop held over two days was divided in three major events:

1. Information workshop – Industry funding
2. Interprofessional organization for shellfish aquaculture and Association funding
3. Workshop on Research and Monitoring requirements to optimize shellfish production in N.B.

## **2. WORKSHOP OBJECTIVES**

1. To promote funding programs available to Industry and facilitate its development. To promote new comers, favor expansion of existing businesses, increase socio economic impact of rural and coastal communities and assure marketing of shellfish aquaculture products.
2. To insure the Association's funding by using the French model of leases' user fees.
3. To discuss implementation of a monitoring network ready to face different situations such as phytotoxins, fecal coliform, invasive species and diseases. The objective is to secure important investments already engaged by businesses and to be equipped with an efficient monitoring network that will help manage unexpected situations and assure safety of the product on the markets.



- recognize the need of an integrated monitoring network to assure water quality and the safety of NB shellfish products
- identify issues/constraints
- identify research priorities
- establish an action plan
- engage responsible departments and agencies in the implementation of an integrated monitoring network.

### **3. PROGRAM**

December 2<sup>nd</sup>, 2003

#### **Information Workshop – Industry Funding**

##### **Presentation of funding programs to Industry**

- Shellfish Development Program, Commercial loans, Business Plan (Péninsule), Seed Program– Bruno Holmes, Community Business Development Corporation
- ACOA programs – Claude Lapointe, Atlantic Canada Opportunity Agency
- Business New Brunswick – Yves Nazaire
- Innovation Fund- Yves Gagnon, NB Innovation Foundation
- Economic Development Fund – Guy Légère, Entreprise Kent
- Training and employment development programs– Maurice Vautour, Training and employment development
- Industrial Research Assistance Program (IRAP) - Bernard Albert, National Research Council

Marketing study presentation – Jean-Paul Richard, Unic Marketing

Professional organization and Association’s funding – Mr. Martial Monnier, secrétaire général du Comité National de la Conchyliculture

Presentation on the Funding Strategy Draft for the Professional Shellfish Growers Association of NB – Léon Lanteigne

Monitoring networks –Mr. Henri Grizel, IFREMER

December 3rd, 2003

**Workshop : Professional organization and Association's funding**

Presentation : The French Model - Mr. Martial Monnier

Presentation : Draft Funding Strategy for the Professional Shellfish Growers Association of NB – Mr. Léon Lanteigne

December 3rd, 2003

**Workshop : Research and Monitoring Requirements to Optimize Shellfish Production in NB**

Presentation: French model – Mr. Henri Grizel

Presentation: Current initiatives – research and monitoring – DFO  
(Thomas Landry, Marc Ouellette, Mary Stephenson, Stephen Bates)

Presentation: Shellfish Monitoring Network in the Southern Gulf of St. Lawrence – Luc Comeau, DFO

Presentation : Brief overview of the CSSP – Bernard Richard, Environment Canada and Edmond Arsenault, Canadian Food Inspection Agency

Presentation: DAFA initiatives – Sylvio Doiron

Presentation: Shellfish Monitoring Project – Claire Carver

**4. INFORMATION WORKSHOP – INDUSTRY FUNDING**

The workshop intended for the members of the Associations and invitees will address the funding programs for growers and the presentation of the shellfish industry marketing study.

**Presentations**

4.1: Shellfish Development Program, Commercial loan program, Business Plan (Péninsule), Connection Program– Bruno Holmes, Community Business Development Corporation (annex 1)

4.2 ACOA Programs – Claude Lapointe, Atlantic Canada Opportunity

Agency (annex 2)

- 4.3 Business New Brunswick – Yves Nazaire (annex 3)
- 4.4 Innovation Fund – Yves Gagnon, NB Innovation Fund (annex 4)
- 4.5 Kent Region Community Economic Development Fund –  
Guy Légère, Entreprise Kent (annex 5)
- 4.6 Training and Employment Development Programs –  
Maurice Vautour, Training and Employment Development (annex 6)
- 4.7 Industrial Research Assistance Program (IRAP) –  
Bernard Albert, National Research Council of Canada (annex 7)
- 4.8 Oyster Market Study – Jean-Paul Richard, Unic Marketing (annex 8)
- 4.9 Interprofessional organization for shellfish aquaculture in France-  
Mr. Martial Monnier, secrétaire général du Comité National de la  
Conchyliculture, France (annex 9)
- 4.10 Draft Funding Strategy for the Professional Shellfish Growers  
Association of New Brunswick - Mr. Léon Lanteigne, president PSGANB  
(annex10)
- 4.11 Monitoring Network – M. Henri Grizel, IFREMER, France (annex 11)

## **5. WORKSHOP : PROFESSIONAL ORGANIZATION AND ASSOCIATION'S FUNDING**

The Professional Shellfish Growers Association of New Brunswick was created in 1997 and benefits from funding from the Atlantic Canada Opportunity Agency and the Department of Agriculture, Fisheries and Aquaculture. The Association is in the last of three years of government contributions. As of October 2004, the Association must be financially independent.

The interest of aquaculture, particularly for the suspended technique in oyster production on the eastern coast of New-Brunswick has grown over the few years. The shellfish industry contributes to maintain and develop local economy and allows for job creation in rural communities. Promotion of our Industry aims to attract new entrepreneurs, promote the expansion of existing enterprises, increase the socio-economic impact of rural and coastal communities and to ensure the

marketing of our shellfish. The financial survival of the Association is therefore essential to pursue these objectives.

The workshop will focus on the professional organization and funding of the Association and provide the N.B. shellfish aquaculture Industry with important tools to secure the survival of the Association.

## **Presentations**

5.1 Interprofessional organization for shellfish aquaculture in France-  
Mr. Martial Monnier, secrétaire général du Comité National de la  
Conchyliculture, France (annex 9)

5.2 Draft Funding Strategy for the Professional Shellfish Growers  
Association of New Brunswick - Mr. Léon Lanteigne, president PSGANB  
(annex10)

## **6. WORKSHOP - RESEARCH AND MONITORING REQUIREMENTS TO OPTIMIZE SHELLFISH PRODUCTION IN NB**

In Canada, both the recreational and commercial harvesting of shellfish is regulated by the Canadian Shellfish Sanitation Program (CSSP), a program that is jointly administered by the Department of Fisheries and Oceans Canada, Environment Canada, and the Canadian Food Inspection Agency. Its main objective is to protect the public from the consumption of contaminated shellfish. Over the past decade, there has been a growing consensus amongst the aquaculture stakeholders that the CSSP unnecessarily curtails the Canadian production of certain shellfish species. In Atlantic Canada, this view was reinforced recently following a harmful bloom of phytoplankton. In the spring of 2002, the presence of domoic acid in the southern Gulf of St. Lawrence resulted in unacceptable levels of the toxic domoic acid in the blue mussel. The continued monitoring of this sentinel species was the basis for a full and lengthy harvest closure directed at all shellfish species. Yet, there were indications that domoic acid in oysters remained undetectable during the spring bloom event. These differences led oyster growers to question why they were not allowed to harvest their uncontaminated product.

European countries, characterized by a long historical background in shellfish aquaculture, have faced similar challenges in the past. France, in particular, has developed several monitoring networks to address both optimum production issues and public safety concerns. Also, some monitoring approaches are fundamentally

different than those found in Canada (e.g. the monitoring of bacterial counts in the shellfish product instead of in the surrounding waters). French monitoring networks include the:

- Réseau de Surveillance Microbiologique (REMI)
- Réseau de Surveillance du Phytoplancton et des Phycotoxines (REPHY)
- Réseau sur la Pathologie des Mollusques (REPAMO)
- Réseau Mollusques des Rendements Aquacoles (REMORA)
- Réseau National d'Observation (RNO)

In keeping with the above information, the Professional Shellfish Growers Association of New Brunswick (PSGANB) believes that the time has come to reconsider a number of specific elements in the Canadian monitoring programs. These elements fall into three categories: (1) toxic algae blooms [management by species], (2) bacterial contamination [tissue analysis *vs.* water analysis], and (3) farm/bay productivity [carrying capacity]. The workshop will gather national and international experts, who will focus on identifying the research requirements for (a) optimizing current monitoring programs in Canada and (b) developing new monitoring networks where required.

## **Presentations**

- 6.1** French Network – Mr. Henri Grizel, IFREMER, France (annex 11)
- 6.2** Current Initiatives: research, monitoring programs – Thomas Landry, Marc Ouellette, Mary Stephenson, Stephen Bates, DFO (annexes 12 and 13)
- 6.3** Shellfish Growth Monitoring Network for the Southern Gulf of St. Lawrence – Luc Comeau, Fisheries and Oceans (annex 14)
- 6.3** CSSP Overview – Bernard Richard, Environment Canada and Edmond Arsenault, Canadian Food Inspection Agency (annex 15)
- 6.4** Agriculture, Fisheries and Aquaculture Initiatives – Sylvio Doiron, DAFA (annex16)
- 6.5** Shellfish Monitoring Project – Claire Carver (annex 17)

## 7. DISCUSSIONS

### Presentation on the Draft Funding Strategy

- Shellfish aquaculture creates job, generates economic spin offs, allows investments in communities and subsequently becomes a benefit for governments in terms of revenues and taxes.
- The Association must look into a marketing strategy. To that effect, it is recommended New Brunswick markets its product. The Association has a provincial mandate but is also participating into national initiatives.
- The voluntary professional fee structure of France seems to be contradictory. It is explained that the growers establish the voluntary fee and then it becomes mandatory.
- Q : Will the user fees be over and above mandatory DAFA fees?
- A : It will have to be determine in the final draft .
- Q : How will the growers be advised of the strategy implementation and the collection of fees by the provincial government?
- A : members will be invited to vote on the strategy at the annual meeting.
- Q : In the elaboration of the strategy, have other provincial associations methods of funding be examined?
- A : Yes and like NB, other associations have benefited from a start up program with ACOA. However, other associations represent not only shellfish growers but also finfish growers which generate more revenues from membership. Also, each Province has a different level of development.
- We must find innovative ways to fund the Association. Would commercial species quota be possible? Would project delivery constitutes a funding strategy?
- ACOA must support the Association for another 3 to 5 years. Funding collaboration from DAFA is also necessary.
- User fees will increase proportionally with the percentage of abandonment. However, new comers and existing businesses will benefit from the abandoned sites.
- There seems to be no problem with the draft strategy as long as essential services such as site allocation or amendment to licenses are maintained.

## **Funding and Professional Organization**

Q : How is the self governance implemented?

A : The CNC and the public authorities make decisions and put in place suggested measures. The CNC (Comité National de la Conchyliculture) and the SRC (Sociétés régionales de la Conchyliculture) are responsible to manage density control. Growers submit their recommendations, it is evaluated by IFREMER and measures are imposed. The implementation is made by the growers and when problems arises, public authorities intervene. This system resembles a code of practice.

Q : What is the difference between the CPO (Mandatory Professional Dues) and CPV (Voluntary Professional Dues)?

A: The CPO is mandatory by law and is voluntary for the CPV.

Q : How are the CNC and the SRC financially supported by the State?

A : The CNC and SRC have each a fee system. A grower must pay 2 CPO (one to the CNC and one to the SRC). The State financially support the SRC but not the CNC.

Q : What is the amount of the fine when a right/title is withdrawn?

A : The State determines the fines through an established scale which is depending on the gravity.

Q : Who has authority on fines?

A : Public authorities. Property taxes are perceived but are not returned to Industry.

Q : What are the fees for a typical or average business?

A : The CNC's CPO is based on a fixed set fee, a fee by acre (surface) or a fee by meter for mussels, a fee by acre for water consumption at processing facilities. This represents approximatively 50€ or 70\$. Bigger businesses pay about 210\$. The growers must also pay the CPO of the SRC which often represent more than the CNC's CPO.

There are 6000 businesses in France which generate approximatively 700 000€ for an average of 117€

Q : Which organism is responsible to collect dues for the CNC?

A : It is sub contracted for invoices mail-out and collection. The SRC manages the collection of fees but it is costly and constitutes a burden.

Q : What is the renewal period for sites?

A : The 1983 decree establishes the maximum period at 25 years. The reasons behind this period is that in order to build an Industry, the renewal period must be sufficiently long. France does not support the sale of sites like in NB. Another decree relates to an evaluation commission that allows the holder to choose his successor under certain conditions. The indemnity is recognized as a revenue. If no successor is chosen, an offer is published and the applicants are evaluated under certain conditions.

Q : Is the business value recognized by funding?

A : Yes, it can be listed in the balance sheet.

Q : Since when does the CNC and SRC structures been created?

A : The first decree was imposed in 1957. The CNC and SRC were developed at the same time.

Q : How was the CNC funded in the beginning?

A : It all started with restaurant owners from Paris growing and marketing their own product. Later, the Bretons organized themselves at their own expenses. But with the arrival of issues threatening the Industry, growers decided to form an Association. From 1957 to 1995, the Industry was funded by parafiscal taxes. At the beginning, sanitation tags were sold to exporters and growers did not have to pay. This system was generating from 2 to 3 times more revenues than the CPO and CPV.

### **Draft Funding Strategy**

Q : There is progressive costs share.

A : The strategy will have to be revised after 5 years of application.

Q : It is necessary to maintain the Association's activities because DFO is at a cross road regarding its position towards the aquaculture. The Association's priorities will determine the Industry's future. DFO will manage requests for site allocation and the Navigable Water Protection Act. The Association will have to coordinate the activities. DFO will create the necessary link to support the Association's initiatives.

Q : How did the CNC started in terms of its funding structure?

A : At the beginning, it was considered an activity to complement retirements or to compensate fishers. The property tax to the State was symbolic therefore low. Even today, the dues are still low. Individual initiatives such as the sales of the sanitation tag helped the development of the CNC. Following, the shuckers created a new trade. Until 1950, contamination, competition and issues related to



sanitation were not considered. Collective services play an important role for all and require few financial resources. At that time, there was a parafiscal tax, it was the golden age of aquaculture. In waiting for laws and regulations, growers made a fortune. In 1970, a secretary was hired to take minutes of meetings. Since then, a new structure was put in place as it exists today.

Shellfish aquaculture in France constitutes important socio economic activities. They are non pollutant for water quality. Economic impacts, annual job creation, direct and indirect impacts and related activities are very important.

Q : The Assistant Deputy Minister of DAFA, Mr. Roland Cormier indicated his interest to aquaculture and his curiosity following a visit he made in Arcachon in 1977. He indicated the PSGANB will not need to reiterate a request for its proposal as it has been heard by his department's representatives. It will be evaluated in consultation with ACOA and DFO. He will pursue the request to assure stable funding for the Association. The timing is excellent but it must be recognized that the Association is not the only client needing funding assistance.

Mr. Cormier assures the Minister and Deputy Minister's recognize the need to maintain the existence of the Association and wish that together, long term funding is identified.

Our proposal will require amendment to the Aquaculture Act and in the best of times, it will not be possible before Spring 2005. Those amendments will require public consultations not only with the growers but with the public in general. The Industry is subject to other legislation than the Aquaculture Act (i.e. Crown Lands). Objectives have to be clearly identified and it must be realized the difficulty to have exceptions for a particular sector such as aquaculture.

Q : In ideal conditions, amendments to the Act would happen only in Spring 2005 and the Association's funding will end in October 2004. It is requested that ACOA and DAFA continue to support the Association until then.

A committee will be formed to examine the needs and insure the continuity of the Association's activities.

Mr. Roland Cormier does not wish to entertain any engagements but indicates that DAFA is very much interested in the Association advancement and will support it as long as necessary. However, he warns that it will cost. There is a need to discuss the percentages on cost shared contributions and the public opinion. He indicated that the Industry' impact on job creation and the importance of the socio economic impacts are arguments too often used by all. It would rather benefit to demonstrate additional opportunities of development and positive impacts. The

Association should not always rely on governments support. Provincial government policy is not to support operation budgets for Associations. Special funds have to be identified for startup monies for organization.

Q : There is a need for the Association because of the heavy bureaucracy in government.

Q : There are other funding models such as the coastal fishers representation (MFU) or agriculture funding in Prince Edward Island.

Q : All lease holders are not all members of the Association, they will need to be represented.

Q : To favor such an approach has the principle of « no tax without representation ».

### **Monitoring network**

Q : In France, what is done to products removed from the market?

R : It is returned to growers to be marketed after the closure.

Q : Why does the Étang de Thau have a high productivity level?

A : Because of the currents (winds), by its productivity (organic matter ie. nitrate), by the water temperature and the filtration rate. Oysters are always in the water column and filter at all times.

Q : What is the correlation between water and meat tests?

A : We eat the meat.

## Annex 18 - List of participants

### Industry Funding December 2<sup>nd</sup>, 2003

<b>NB Agriculture, Fisheries and Aquaculture Department</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Gérin Girouard	Fredericton
Pierre Rioux	Fredericton
Jacques Mallet	Shippagan
Sylvio Doiron	Shippagan
Hélène Lacroix	Shippagan
Céline Godin	Shippagan
Abel Noël	Bouctouche
Marcel Léger	Bouctouche
<b>Fisheries and Oceans</b>	
Maurice Mallet	Moncton
Kevin LeBlanc	Moncton
Michel Albert	Tracadie-Sheila
Denise Methé	Moncton
Stephen Bates	Moncton
Claude Léger	Moncton
Mary Stephenson	Moncton
Thomas Landry	Moncton
Marc Ouellette	Moncton
Luc Comeau	Moncton
Rémi Sonier	Moncton
Angéline LeBlanc	Moncton
Kim Thériault	Tracadie-Sheila
Moniques Niles	Moncton
<b>Atlantic Canada Opportunity Agency</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
Denise Lang	Moncton
Raymond Arsenault	Miramichi
Alvin Robichaud	Tracadie-Sheila
Michel Lavigne	Miramichi
Chantal Thériault	Moncton
<b>Community Business Development Corporation</b>	

Paulette Robert	Tracadie-Sheila
Bruno Holmes	Tracadie-Sheila
<b>Business New Brunswick</b>	
Michel Albert	Fredericton
Yves Nazaire	Dalhousie
<b>Business Network</b>	
Guy Léger	Bouctouche
Suzanne Gagnon	Bouctouche
Karine Larssen	Tracadie-Sheila
<b>National Research Council of Canada</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Coastal Zones Research Institute</b>	
Sylvain Poirier	Shippagan
Lise Ouellette	Shippagan
<b>Université de Moncton</b>	
Victorin Mallet	Moncton
<b>Training and Job Development</b>	
Gaétanne Savoie	Caraquet
Réjean Talbot	Tracadie-Sheila
Calvin Stewart	Miramichi
Maurice Vautour	Miramichi
<b>PEI Aquaculture Alliance</b>	
Greg McCullum	Charlottetown
<b>Invitees</b>	
Henri Grizel	France
Martial Monnier	France
<b>Collège communautaire de la Péninsule Acadienne</b>	
Albertin Albert	Caraquet
Monique Haché	Caraquet
Tina LeBouthillier	Caraquet
Annie Robichaud	Caraquet
Robert Mallet	Caraquet
Rémi Thériault	Caraquet
Rodney Salvane	Caraquet
<b>Adel Kent</b>	
Gilles Babineau	Bouctouche
Gérard LeBlanc	Bouctouche
<b>Société de développement régional</b>	
Luc Thériault	Fredericton
<b>Others</b>	
Gaetan Dugas	Caraquet

<b>Professional Shellfish Growers Association of NB</b>	
Léon Lanteigne	Tracadie-Sheila
Maurice Daigle	Dieppe
Mario Noël	Shippagan
Serge Gaudet	Richibouctou
Ovila Daigle	Richibouctou
Émile Basque	Néguac
Victorin Mallet	Shédiac
Émile Basque	Néguac
Joseph Caissie	Grande Digue
Gerald Beck	Rexton
Roger Benoit	Brantville
Annette Comeau	Néguac
Terrance Comeau	Oak Point
Ola Daigle	Richibouctou
Stephen Doucet	Baie Ste. Anne
Jean-Pierre Haché	Shippagan
Thomas Kenny	Canobie
Ernest McGraw	Losier Settlement
Paul-Émile Thibodeau	Tracadie-Sheila
Léonide Roussel	Le Goulet
Marcel Poirier	Caraquet
Laurent Savoie	Néguac
Yan Roussel	Shippagan
Paul Breault	Néguac
Donald Caissie	Grande Digue
Yvon Duclos	St. Isidore
Zénon Chiasson	Chiasson Office
Yrois Robichaud	Richibouctou
Elizabeth Comeau	Oak Point
Denis Thibodeau	Tracadie-Sheila
Armand King	Richibouctou Village
Jean-Claude Larocque	Pointe Alexandre
Jean-Guy Robichaud	Inkerman
Donat Robichaud	Shippagan
Marc André Robichaud	Shippagan
Rhéal Haché	Le Goulet
Ludger Savoie	Néguac
Paul Vienneau	Le Goulet

**Interprofessional organization for shellfish aquaculture and  
Association funding  
December 3rd 2003 (08h00 – 11h30)**

<b>NB Agriculture, Fisheries and Aquaculture Department</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Gérin Girouard	Fredericton
<b>Fisheries and Oceans</b>	
Maurice Mallet	Moncton
Kevin LeBlanc	Moncton
Michel Albert	Tracadie-Sheila
<b>Atlantic Canada Opportunity Agency</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
<b>National Research Council of Canada</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Entreprise Kent</b>	
Guy Léger	Bouctouche
Suzanne Gagnon	Bouctouche
<b>Invitees</b>	
Henri Grizel	France
Martial Monnier	France
<b>Professional Shellfish Growers Association of NB</b>	
Léon Lanteigne	
Maurice Daigle	
Mario Noël	
Serge Gaudet	
Ovila Daigle	
Émile Basque	
Victorin Mallet	

**Monitoring**  
**December 3rd 2003 (12h30 – 17h00)**

<b>NB Agriculture, Fisheries and Aquaculture</b>	
<b>Department</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Pierre Rioux	Fredericton
Gérin Girouard	Fredericton
Pierre Rioux	Fredericton
<b>Fisheries and Oceans Canada</b>	
Maurice Mallet	Moncton
Gilles Olivier	Moncton
Denise Méthé	Moncton
Stephen Bates	Moncton
Mary Stephenson	Moncton
Thomas Landry	Moncton
Marc Ouellette	Moncton
Claude Léger	Moncton
Luc Comeau	Moncton
Kevin LeBlanc	Moncton
Rémi Sonier	Moncton
Michel Albert	Tracadie-Sheila
Simon Courtney	Moncton
<b>Canadian Food Inspection Agency</b>	
Jean Gauvin	Shédiac
Dick Whalen	Moncton
Francine Albert	Shippagan
Edmond Arsenault	Moncton
<b>Environment Canada</b>	
George Lindsey	Fredericton
Bernard Richard	Moncton
<b>Atlantic Canada Opportunity Agency</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
<b>Coastal Zones Research Institute</b>	
Lise Ouellette	Shippagan
Sylvain Poirier	
<b>Université de Moncton</b>	
Jean-Paul Vanderlinden	Moncton
Allison	Moncton

Victorin Mallet	Moncton
<b>PEI Aquaculture Alliance</b>	
Greg McCullum	Charlottetown
<b>National Research Council of Canada</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Invitees</b>	
Henri Grizel	France
Martial Monnier	France
Claie Carver	Halifax
<b>Professionnal Shellfish Growers Assocation of NB</b>	
Léon Lanteigne	
Serge Gaudet	
Ovila Daigle	
Émile Basque	
Mario Noël	



**Annex 19 : Financial Partners**

**THANGK YOU TO OUR FINANCIAL  
PARTNERES**

**Entreprise Kent  
Entreprise Péninsule  
Entreprise Miramichi  
Entreprise Sud-est**

**Aquaculture Collaborative Research and  
Development Program (ACRDP)  
Fisheries and Oceans Canada**

**Institut de recherche sur les zones  
côtières Inc.**



Association des conchyliculteurs  
professionnels du Nouveau-Brunswick



## **Rapport final**

### **ATELIER**

FINANCEMENT DE L'INDUSTRIE

ORGANISATION PROFESSIONNELLE ET FINANCEMENT DE  
L'ASSOCIATION

RECHERCHE ET EXIGENCES DE MONITORING AFIN D'OPTIMISER LA  
PRODUCTION DES MOLLUSQUES AU N.-B

Les 2 et 3 décembre 2003  
Rodd's Miramichi, Miramichi, N.-B.

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## **1. INTRODUCTION**

L'Association des conchyliculteurs professionnels du Nouveau-Brunswick (ACPNB) fondée en 1997 a comme mandat la promotion des intérêts des producteurs et de favoriser le développement ordonné et durable de l'industrie conchylicole au Nouveau-Brunswick. L'Association regroupe 47 membres, principalement des producteurs d'huîtres et de moules qui exploitent les eaux côtières de la province.

Récemment, une étude socio-économique sur notre Industrie démontre le potentiel intéressant et la croissance prometteuse de notre industrie dans les régions rurales et côtières du Nouveau-Brunswick. Notre industrie contribue au maintien et à l'épanouissement de l'économie locale et permet une création d'emploi de plus en plus importante au moment où d'autres secteurs utilisant les ressources halieutiques publiques subissent un certain déclin.

Dans le cadre des activités prévues au plan d'action découlant de la planification stratégique de l'Association, notons les priorités portant sur le financement de l'Industrie, le financement de l'Association et l'établissement d'un réseau de monitoring ainsi que les considérations environnementales s'y rapportant.

L'atelier, d'une durée de deux jours a été divisé en trois événements :

1. Atelier d'information – Financement de l'Industrie
2. Forum portant sur l'organisation professionnelle et de financement de l'Association
3. Forum portant sur la recherche et les exigences de monitoring afin d'optimiser la production des mollusques au N.-B.

## **2. OBJECTIFS DE L'ATELIER**

1. Faire la promotion des programmes de financement à l'Industrie afin de faciliter le développement de l'Industrie. Encourager la venue de nouveaux entrepreneurs, favoriser l'expansion des entreprises existantes, accroître l'impact socio-économique des communautés rurales et côtières et assurer la mise en marché des produits aquacoles.
2. Assurer le financement de l'Association par le modèle français de frais d'utilisation des baux aquacoles.

3. Discuter de l'établissement d'un réseau de monitoring pour faire face aux différentes situations telles que les phytotoxines, les coliformes fécaux, les espèces envahissantes et les maladies. L'objectif est de sécuriser les investissements importants déjà engagés par les entreprises et de se doter d'un réseau de monitoring efficace afin de gérer les situations imprévues et d'assurer la salubrité du produit sur les marchés.

- faire reconnaître le besoin d'un réseau de monitoring intégré pour assurer la qualité et la salubrité des produits conchyliques au NB
- identifier les enjeux/contraintes
- identifier les priorités de recherche
- élaborer un plan d'action
- engager les ministères et agences responsables dans la création d'un réseau de monitoring intégré

### **3. PROGRAMME**

Le 2 décembre 2003

#### **Atelier d'information – Financement de l'Industrie**

Présentation des programmes d'aide à l'Industrie

- Programme de développement des mollusques, Prêts commerciaux, Plan d'affaire (Péninsule), Programme Connexion - Corporation de développement communautaire
- Programmes de l'APÉCA - Agence de promotion économique du Canada atlantique
- Entreprise Nouveau-Brunswick
- Fond de l'Innovation - Fondation de l'innovation du N.B.
- Programme du Fond de développement économique –Entreprise Kent
- Programmes de Formation et développement de l'emploi – Formation et développement de l'emploi
- Programme d'aide à la recherche industrielle (PARI) - Conseil National de Recherche Canada

Présentation de l'étude de marché – huîtres

Organisation professionnelle et financement de l'Association - M. Martial Monnier, secrétaire général du Comité National de la Conchyliculture, France

Présentation de l'ébauche de la stratégie de financement proposée pour l'Association des conchyliculteurs professionnels – M. Léon Lanteigne

Réseaux de monitoring –M. Henri Grizel, IFREMER

le 3 décembre 2003

**Atelier : Organisation professionnelle et financement de l'Association**

Présentation: Modèle français – M. Martial Monnier

Présentation: Ébauche de la stratégie pour l'ACPNB – M. Léon Lanteigne

le 3 décembre 2003

**Atelier : recherche et les exigences de monitoring afin d'optimiser la production des mollusques au N.-B.**

Présentation: Réseaux français – Mr. Henri Grizel

Présentation: initiatives courantes: recherche, programmes de suivi– MPO  
(Thomas Landry, Marc Ouellette, Mary Stephenson,  
Stephen Bates)

Présentation: Réseau de monitoring des mollusques dans le sud du Golfe  
St. Laurent – Luc Comeau, MPO

Présentation : Survol du PCSM – Bernard Richard, Environnement  
Canada et Edmond Arsenault, Agence canadienne d'inspection  
des aliments

Présentation : Initiatives du ministère d'agriculture, pêches et aquaculture –  
Sylvio Doiron

Présentation: Projet de Monitoring des mollusques – Claire Carver

**4. ATELIER D'INFORMATION – FINANCEMENT DE L'INDUSTRIE**

Cet atelier destinée aux membres de l'Association et aux invité(e)s a porté sur les programmes de financement pour les conchyliculteurs ainsi qu'une présentation de l'étude de marché pour l'industrie conchylicole.

**Présentations**

4.1 Programme de développement des mollusques, Prêts commerciaux, Plan d'affaire (Péninsule), Programme Connexion – Bruno Holmes, Corporation de développement communautaire (annexe 1)

- 4.2 Programmes de l'APÉCA – Claude Lapointe, Agence de promotion économique du Canada atlantique (annexe 2)
- 4.3 Entreprise Nouveau-Brunswick – Yves Nazaire (annexe 3)
- 4.4 Fond de l'Innovation – Yves Gagnon, Fondation de l'innovation du N.B. (annexe 4)
- 4.5 Programme du Fond de développement économique – Guy Légère, Entreprise Kent (annexe 5)
- 4.6 Programmes de Formation et développement de l'emploi. Maurice Vautour, Formation et développement de l'emploi (annexe 6)
- 4.7 Programme d'aide à la recherche industrielle (PARI) – Bernard Albert, Conseil National de Recherche Canada (annexe 7)
- 4.8 Présentation de l'étude de marché – Jean-Paul Richard, Unic Marketing (annexe 8)
- 4.9 Organisation professionnelle et financement de l'Association – M. Martial Monnier, secrétaire général du Comité National de la Conchyliculture, France (annexe 9)
- 4.10 Présentation de l'ébauche de la stratégie de financement proposée pour l'Association des conchyliculteurs professionnels – M. Léon Lanteigne, président ACPNB (annexe 10)
- 4.11 Réseaux de monitoring – M. Henri Grizel, IFREMER, France (annexe 11)

## **5. ATELIER - ORGANISATION PROFESSIONNELLE ET DE FINANCEMENT DE L'ASSOCIATION**

L'Association des conchyliculteurs professionnels du N.-B. a été créée en 1997 et bénéficie du support financier de l'Agence de promotion économique du Canada atlantique et du ministère de l'agriculture, des pêches et de l'aquaculture. L'Association en est à sa dernière des trois années de ces contributions. En octobre 2004, l'Association devra être indépendante financièrement.

L'intérêt pour l'aquaculture et particulièrement pour l'élevage des huîtres en poches ostréicoles sur la côte Est du Nouveau-Brunswick a pris de plus en plus d'ampleur depuis les dernières années. L'industrie conchylicole contribue au



maintien et à l'épanouissement de l'économie locale et permet la création d'emplois dans les communautés rurales. La promotion de notre Industrie a pour but d'encourager la venue de nouveaux entrepreneurs, favoriser l'expansion des entreprises existantes, accroître l'impact socio-économique des communautés rurales et côtières et assurer la mise en marché des produits aquacoles. La survie financière de l'Association est donc essentielle afin de poursuivre ces objectifs.

La tenue d'un atelier portant sur l'organisation professionnelle et le financement permettra à l'Industrie conchylicole du N.-B. de se doter d'outils importants pour son développement et sa survie.

## **Présentations**

5.1 Organisation professionnelle et financement de l'Association – M. Martial Monnier, secrétaire général du Comité National de la Conchyliculture, France (annexe 9)

5.2 Présentation de l'ébauche de la stratégie de financement proposée pour l'Association des conchyliculteurs professionnels – M. Léon Lanteigne, président ACPNB (annexe 10)

## **6. ATELIER - RECHERCHE ET LES EXIGENCES DE MONITORING AFIN D'OPTIMISER LA PRODUCTION DES MOLLUSQUES AU N.-B.**

Au Canada, la récolte récréative et commerciale de mollusques est gérée par le Programme canadien de salubrité des mollusques (PCSM) appliqué conjointement par le Ministère des pêches et des océans, Environnement Canada et l'Agence canadienne d'inspection des aliments. Son objectif principal est de protéger le public contre la consommation de mollusques contaminés. Cependant, au courant de la dernière décennie, les intervenants de l'industrie conchylicole ont identifié les lacunes du PCSM en ce qui concerne la production de certaines espèces conchylicoles. Au Canada atlantique, l'apparition de phytoplancton toxique a réitéré cette affirmation. Au printemps de 2002, la présence d'acide domoïque dans le sud-est du Golfe St. Laurent a résulté en des taux inacceptables d'acide domoïque toxique dans les moules. Le suivi continu de cette espèce sentinelle fut la base pour une longue et entière fermeture de la cueillette de tous les mollusques. Par contre, les indications d'acide domoïque dans les huîtres sont demeurées nulles. Les producteurs ont donc questionné l'interdiction de récolter les huîtres non contaminées.

Les pays d'Europe, caractérisés par un long historique en conchyliculture ont fait face à ces enjeux par le passé. Plus particulièrement la France a développé plusieurs réseaux de monitoring afin de résoudre les enjeux et optimiser la production tout en assurant la sécurité du publique. Également, certaines approches de monitoring sont fondamentalement différentes de celles retrouvées au Canada (i.e. le monitoring des comptes bactériologiques dans les chairs plutôt que dans les eaux). Les réseaux de monitoring en France incluent :

- Réseau de Surveillance Microbiologique (REMI)
- Réseau de Surveillance du Phytoplancton et des Phycotoxines (REPHY)
- Réseau sur la Pathologie des Mollusques (REPAMO)
- Réseau Mollusques des Rendements Aquacoles (REMORA)
- Réseau National d'Observation (RNO)

En tenant compte des informations précédentes, l'Association des conchyliculteurs professionnels du N.-B. considère qu'il est temps de réviser certains éléments spécifiques du PCSM. Nous avons établis trois catégories : (1) algues toxiques [gestion par espèce], (2) contamination bactériologique [analyse des chairs vs. analyse des eaux], et (3) productivité des fermes/baies [capacité de support]. L'atelier proposé regroupera des experts nationaux et internationaux qui, nous l'espérons, permettront d'identifier les besoins en recherche pour (a) optimiser le programme de monitoring au Canada et (b) développer de nouveaux réseaux de monitoring lorsque applicable.

## **Présentations**

- 6.1** Réseaux français – Mr. Henri Grizel, IFREMER, France (annexe 11)
- 6.2** Initiatives courantes: recherche, programmes de suivi – Thomas Landry, Marc Ouellette, Mary Stephenson, Stephen Bates, MPO (annexes 12 et 13)
- 6.3** Réseau de monitoring des mollusques dans le sud du Golfe St. Laurent – Luc Comeau, MPO (annexe 14)
- 6.4** Survol du PCSM – Bernard Richard, Environnement Canada et Edmond Arsenault, Agence canadienne d'inspection des aliments (annexe 15)
- 6.5** Initiatives du ministère d'agriculture, pêches et aquaculture – Sylvio Doiron, MAPA (annexe 16)
- 6.6** Projet de Monitoring des mollusques – Claire Carver (annexe 17)

## 7. DISCUSSIONS

### Présentation de l'ébauche de la stratégie de financement:

- la conchyliculture crée de l'emploi, engendre des retombées économiques, permet les investissements dans les communautés et par conséquent constitue un bénéfice pour les gouvernements en ce qui concerne les retenues à la source, les taxes et impôts générés par l'Industrie
- l'Association devra voir à une stratégie de mise en marché. A cet effet, il est mentionné que le Nouveau-Brunswick doit faire la promotion de son produit. L'Association a un mandat provincial mais participe à certaines initiatives nationales
- La cotisation professionnelle volontaire du modèle français semble contradictoire. On explique que la profession fixe le montant de la cotisation (volontaire) et ensuite elle devient obligatoire
- Q : Est-ce que les frais d'utilisation seront en sus des frais déjà obligatoires du MAPANB? R : On devra préciser cet élément dans la stratégie finale.
- Q : Comment les membres seront-ils avisés de la mise en œuvre de la stratégie et la perception des frais par le gouvernement provincial?  
R : les membres seront invités à voter la stratégie de financement l'Assemblée générale annuelle.
- Q : A-t-on, dans l'élaboration de l'ébauche de financement, étudié le fonctionnement et les méthodes de financement des autres associations provinciales? R : Oui, et comme le NB, les autres associations ont bénéficié du programme de démarrage de l'APÉCA. Cependant, certaines associations représentent les conchyliculteurs et les aquaculteurs de saumon ce qui génère plus de revenus au niveau du membership. Également comme chaque province est à un niveau de développement différent, il devient plus facile d'obtenir des cotisations suffisantes pour certaines associations.
- Nous devons trouver des moyens innovateurs pour se financer. Est-ce que des contingents de certaines espèces peuvent devenir des moyens de financement? Est-ce que la livraison de projet peut constituer un moyen de financement?

- L'APÉCA devra continuer de soutenir l'Association pour une durée de 3 à 5 ans. La collaboration financière du MAPA sera également nécessaire
- Les frais d'utilisation augmenteront proportionnellement avec le pourcentage d'abandon des sites. Il faudra considérer que des nouveaux arrivants pourront bénéficier de ces sites et qu'ils remplaceront ceux qui abandonneront
- Il ne semble pas y avoir de problèmes avec la stratégie de frais d'utilisation en autant que les services essentiels tels l'allocation de site ou modification de permis soient assurés.

### **Financement et Organisation professionnelle**

Q : Comment sont conduites les délibérations en ce qui concerne l'auto gérance?

R : Ce sont le CNC (Comité National de la Conchyliculture) et le pouvoir public qui prennent les décisions et des mesures d'accompagnement sont suggérées. En ce qui concerne le contrôle de la densité, sa gestion est du ressort du CNC et des SRC (Sociétés Régionales de la Conchyliculture). La proposition est avancée par les producteurs, elle est évaluée par l'IFREMER et les mesures sont alors imposées. La mise en œuvre se fait par les professionnels et si des problèmes surviennent, il y a intervention des pouvoirs publics. Il existe un chemin des structures qui équivaut approximativement à un code de pratique.

Q : Quelle est la différence entre les CPO (Cotisation professionnelle obligatoire) et les CPV (Cotisation professionnelle volontaire)?

R : La CPO est obligatoire par la loi et on adhère volontairement au CPV.

Q : Comment le CNC et les SRC sont-ils supportés financièrement par l'État?

R : Le CNC et les SRC ont chacun leur système de cotisation. Un producteur devra payer 2 CPO (une au CNC et une au SRC). L'État subventionne le SRC mais non le CNC.

Q : Quel est le montant des amendes lors de retrait de droit|titre?

R : C'est l'État qui détermine les amendes selon une échelle fixée et la gravité.

Q : Qui a l'autorité des amendes?

R : Les pouvoirs publics. Les redevances domaniales sont perçus mais ne reviennent pas à l'Industrie

Q : Pour une entreprise typique ou moyenne, que représente la cotisation?

R : La CPO du CNC comprend un taux fixe forfaitaire, un taux à l'are (superficie) ou un taux par mètre pour les moules, un taux à l'are pour l'alimentation en eaux pour les usines. Tout ceci représente environ 50€ ou environ 70\$. Les plus grosses entreprises payent environ 210\$. En plus de cette cotisation, les producteurs doivent payer la CPO des SRC qui peut souvent excéder la CPO du CNC.

En France il existe 6000 entreprises qui génèrent environ 700 000€ pour une moyenne de 117€

Q : Quel est l'organisme qui est responsable de la perception des cotisations pour le CNC?

R : La perception est sous-traitée pour l'émission de factures et les recouvrements. Les SRC gèrent la perception mais c'est coûteux et lourd administrativement.

Q : Quelle est la période de renouvellement pour les concessions?

R : Le décret de 1983 fixe à 25 années maximum la période de location. Les raisons motivant cette période est que pour bâtir une industrie, la durée de renouvellement doit être suffisamment de longue durée. La France ne supporte pas le système de « vente » comme on connaît ici. Un autre décret porte sur la commission d'évaluation et permet au cédant de choisir son successeur qui doit rencontrer certaines conditions. On reconnaît l'indemnité qui constitue un revenu. Si aucun successeur n'est choisi, on publie une offre et les demandes sont évaluées selon certaines conditions.

Q : Est-ce que la valeur de l'entreprise est reconnue par les services financiers?

R : Oui, elle peut s'inscrire au bilan

Q : Depuis quand la structure du CNC et les SRC existent-elles?

R : Le premier décret a été instauré en 1957. Le CNC et le SRC se sont développés en même temps.

Q : Comment le CNC était-il financé à ses tous débuts?

R : Ce sont les restaurateurs parisiens qui cultivaient et mettaient au menu leur produit que tout a commencé. Plus tard, les Bretons se sont regroupés à leur propre frais. Mais petit à petit et avec la venue des enjeux menaçants les entreprises, l'Industrie a réalisé qu'il fallait se regrouper. De 1957 à 1995, le financement provenait des taxes parafiscales. Au début, les étiquettes sanitaires (salubrité) étaient vendues aux expéditeurs, les producteurs ne payaient rien. Ce système rapportait de 2 à 3 fois plus de revenus que les CPO et les CPV.

## Ébauche de la stratégie de financement

Q : On remarque une progression dans le partage des coûts.

R : Il est proposé qu'une révision de la stratégie soit effectuée après 5 ans.

Q : Il est nécessaire de maintenir le travail de l'Association puisque le MPO est à la croisée des chemins en ce qui concerne la position que doit adopter le ministère vis-à-vis les dossiers de l'aquaculture. Les priorités de l'Association détermineront l'avenir de l'Industrie. Le MPO gère les demandes telles que l'accès aux sites et la Loi sur la protection des eaux navigables. L'Association est nécessaire pour coordonner les activités. Le MPO crée le lien nécessaire pour soutenir en parallèle les initiatives de l'Association.

Q : Comment a démarré le CNC au niveau de structure de financement?

R : Au début, c'était une activité d'appoint, pour compléter les retraites ou comme récompenses aux marins. La redevance domaniale à l'État était symbolique donc faible. Encore aujourd'hui, cette redevance est toujours faible. Ce sont les initiatives individuelles qui sont à l'origine du développement du CNC avec la vente de l'étiquette sanitaire. Ensuite, il fut réalisé qu'un nouveau métier avait été créé, celui d'écailleur. Jusqu'en 1950, on parle d'un contexte qui ne tient pas compte de contamination, compétition et des enjeux sanitaires. Ce sont des services collectifs qui jouent un rôle bénéfique à tous et requiert de faibles ressources financières. A ce moment, on parle de parafiscale – l'âge d'or de la conchyliculture. Dans l'attente de lois et règlements, les conchyliculteurs ont fait fortune. En 1970, un secrétaire est embauché pour prendre le compte rendu des réunions. Depuis, on connaît la structure telle qu'elle est présentement.

En France les activités de conchyliculture en région constituent des activités socio-économiques importantes. Les activités sont non polluantes au niveau de la qualité des eaux. Les retombées, la création d'emploi à l'année, les impacts directs et indirects ainsi que les activités connexes sont très importantes.

Q : Le sous-ministre adjoint du MAPANB, M. Roland Cormier indique qu'il a été éveillé à l'aquaculture et que sa curiosité fait suite à une visite à Arcachon en 1977. Il indique que nous n'aurons pas besoin de faire d'autres demandes par rapport à notre proposition – elle a été entendue par les représentants de son ministère. Elle sera étudiée en consultation avec l'APÉCA et le MPO. Il y donnera suite pour assurer le financement stable de l'Association. Le timing est excellent mais il faut noter que l'Association n'est pas le seul client qui a besoin d'assistance financière.

M. Cormier transmet un message du ministre et du sous-ministre à l'effet que l'existence de l'Association est essentielle et qu'ensemble on travaillera pour assurer le financement à long terme.

Notre proposition demandera une modification à la Loi sur l'aquaculture et dans les meilleurs délais, ne sera possible que vers le printemps 2005. Ces modifications demanderont des audiences publiques non seulement avec les aquaculteurs mais avec le grand public en général.

L'Industrie est assujettie d'autres lois que la Loi sur l'aquaculture (ex. Terres de la Couronne). Il faut bien cibler les objectifs et réaliser qu'il est difficile de faire exception pour un secteur en particulier.

Q : Dans des conditions idéales, les modifications à la Loi ne seront possibles qu'au printemps 2005 et le financement de l'Association se terminera en octobre 2004. On demande le soutien continu de l'APÉCA et du MAPA jusqu'en 2005.

Un comité devra être formé pour examiner les besoins et assurer la continuité des activités de l'Association.

M. Roland Cormier ne veut pas entretenir d'engagement mais indique que le MAPA est très intéressé à l'avancement de l'Association et la supportera autant et aussi longtemps que nécessaire. Cependant, il met en garde qu'il en coûtera. Au niveau du pourcentage, on devra discuter et il faudra considérer l'opinion publique. Il indique que l'impact de l'Industrie, la création d'emploi et l'importance de l'apport socio-économique sont des arguments utilisés de tous. Il faut plutôt démontrer les opportunités additionnelles de développement et les impacts positifs. On ne pourra pas toujours compter sur le support des gouvernements. La politique du gouvernement provincial refuse de soutenir les budgets d'opération de base des Associations. A chaque fois, des fonds spéciaux doivent être créés pour permettre le démarrage.

Q : L'Association est nécessaire à cause de la bureaucratie lourde des gouvernements.

Q : Il existe d'autres modèles de financement tel que la loi de la représentativité des pêcheurs côtiers (UPM) ou le financement de l'agriculture à l'Ile-du-Prince-Édouard.

Q : Comme tous les détenteurs de baux ne seront pas tous membres de l'association, il faut prévoir une forme de représentativité.

Q : La tendance pour un projet de loi semblable est le respect du principe de « aucune taxation sans représentation ».

### **Réseaux de monitoring**

Q : Que fait-on avec les produits retirés de la mise en marché?

R : Ils sont remis aux producteurs pour la remise en marché après la fermeture

Q : Pourquoi l'Étang de Thau a-t-il un taux élevé de productivité?

R : À cause de la courantologie (vents), par sa productivité (apport en matière organique ie. nitrate), par la température des eaux et du taux de filtration. Les huîtres sont toujours dans la couche d'eau et filtrent en tout temps.

Q : Quelle est la corrélation entre les tests d'eau et de chair?

R : C'est la chaire qui est mangée.



## Annexe 18 - Liste des participants

### Financement de l'Industrie Le 2 décembre 2003

<b>Ministère de l'agriculture, des pêches et de l'aquaculture</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Gérin Girouard	Fredericton
Pierre Rioux	Fredericton
Jacques Mallet	Shippagan
Sylvio Doiron	Shippagan
Hélène Lacroix	Shippagan
Céline Godin	Shippagan
Abel Noël	Bouctouche
Marcel Léger	Bouctouche
<b>Ministère Pêches et Océans</b>	
Maurice Mallet	Moncton
Kevin LeBlanc	Moncton
Michel Albert	Tracadie-Sheila
Denise Methé	Moncton
Stephen Bates	Moncton
Claude Léger	Moncton
Mary Stephenson	Moncton
Thomas Landry	Moncton
Marc Ouellette	Moncton
Luc Comeau	Moncton
Rémi Sonier	Moncton
Angéline LeBlanc	Moncton
Kim Thériault	Tracadie-Sheila
Moniques Niles	Moncton
<b>Agence de promotion économique du Canada atlantique</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
Denise Lang	Moncton
Raymond Arsenault	Miramichi
Alvin Robichaud	Tracadie-Sheila
Michel Lavigne	Miramichi
Chantal Thériault	Moncton

<b>Corporation de développement communautaire</b>	
Paulette Robert	Tracadie-Sheila
Bruno Holmes	Tracadie-Sheila
<b>Entreprises Nouveau-Brunswick</b>	
Michel Albert	Fredericton
Yves Nazaire	Dalhousie
<b>Réseaux Entreprises</b>	
Guy Léger	Bouctouche
Suzanne Gagnon	Bouctouche
Karine Larssen	Tracadie-Sheila
<b>Conseil National de recherches</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Centre de recherché des zones côtières</b>	
Sylvain Poirier	Shippagan
Lise Ouellette	Shippagan
<b>Université de Moncton</b>	
Victorin Mallet	Moncton
<b>Formation et Développement de l'emploi</b>	
Gaétanne Savoie	Caraquet
Réjean Talbot	Tracadie-Sheila
Calvin Stewart	Miramichi
Maurice Vautour	Miramichi
<b>PEI Aquaculture Alliance</b>	
Greg McCullum	Charlottetown
<b>Invités</b>	
Henri Grizel	France
Martial Monnier	France
<b>Collège communautaire de la Péninsule Acadienne</b>	
Albertin Albert	Caraquet
Monique Haché	Caraquet
Tina LeBouthillier	Caraquet
Annie Robichaud	Caraquet
Robert Mallet	Caraquet
Rémi Thériault	Caraquet
Rodney Salvane	Caraquet
<b>Adel Kent</b>	
Gilles Babineau	Bouctouche
Gérard LeBlanc	Bouctouche
<b>Société de développement régional</b>	
LucThériault	Fredericton
<b>Autres</b>	

Gaetan Dugas	Caraquet
<b>Association des conchyliculteurs professionnels du NB</b>	
Léon Lanteigne	Tracadie-Sheila
Maurice Daigle	Dieppe
Mario Noël	Shippagan
Serge Gaudet	Richibouctou
Ovila Daigle	Richibouctou
Émile Basque	Néguac
Victorin Mallet	Shédiac
Émile Basque	Néguac
Joseph Caissie	Grande Digue
Gerald Beck	Rexton
Roger Benoit	Brantville
Annette Comeau	Néguac
Terrance Comeau	Oak Point
Ola Daigle	Richibouctou
Stephen Doucet	Baie Ste. Anne
Jean-Pierre Haché	Shippagan
Thomas Kenny	Canobie
Ernest McGraw	Losier Settlement
Paul-Émile Thibodeau	Tracadie-Sheila
Léonide Roussel	Le Goulet
Marcel Poirier	Caraquet
Laurent Savoie	Néguac
Yan Roussel	Shippagan
Paul Breault	Néguac
Donald Caissie	Grande Digue
Yvon Duclos	St. Isidore
Zénon Chiasson	Chiasson Office
Yrois Robichaud	Richibouctou
Elizabeth Comeau	Oak Point
Denis Thibodeau	Tracadie-Sheila
Armand King	Richibouctou Village
Jean-Claude Larocque	Pointe Alexandre
Jean-Guy Robichaud	Inkerman
Donat Robichaud	Shippagan
Marc André Robichaud	Shippagan
Rhéal Haché	Le Goulet
Ludger Savoie	Néguac
Paul Vienneau	Le Goulet

**Organisation professionnelle et financement de l'Association  
le 3 décembre 2003 (08h00 – 11h30)**

<b>Ministère de l'agriculture, des pêches et de l'aquaculture</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Gérin Girouard	Fredericton
<b>Ministère Pêches et Océans</b>	
Maurice Mallet	Moncton
Kevin LeBlanc	Moncton
Michel Albert	Tracadie-Sheila
<b>Agence de promotion économique du Canada atlantique</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
<b>Conseil National de recherches</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Entreprise Kent</b>	
Guy Léger	Bouctouche
Suzanne Gagnon	Bouctouche
<b>Invités</b>	
Henri Grizel	France
Martial Monnier	France
<b>Association des conchyliculteurs professionnels du NB</b>	
Léon Lanteigne	
Maurice Daigle	
Mario Noël	
Serge Gaudet	
Ovila Daigle	
Émile Basque	
Victorin Mallet	

**Monitoring**  
**le 3 décembre 2003 (12h30 – 17h00)**

<b>Ministère de l'agriculture, des pêches et de l'aquaculture</b>	
Roland Cormier	Fredericton
Robert Rioux	Shippagan
Christian Noris	Shippagan
Pierre Rioux	Fredericton
Gérin Girouard	Fredericton
Pierre Rioux	Fredericton
<b>Ministère Pêches et Océans</b>	
Maurice Mallet	Moncton
Gilles Olivier	Moncton
Denise Méthé	Moncton
Stephen Bates	Moncton
Mary Stephenson	Moncton
Thomas Landry	Moncton
Marc Ouellette	Moncton
Claude Léger	Moncton
Luc Comeau	Moncton
Kevin LeBlanc	Moncton
Rémi Sonier	Moncton
Michel Albert	Tracadie-Sheila
Simon Courtney	Moncton
<b>Agence canadienne d'inspection des aliments</b>	
Jean Gauvin	Shédiac
Dick Whalen	Moncton
Francine Albert	Shippagan
Edmond Arsenault	Moncton
<b>Environnement Canada</b>	
George Lindsey	Fredericton
Bernard Richard	Moncton
<b>Agence de promotion économique du Canada atlantique</b>	
Claude Lapointe	Bathurst
Robert Gaudet	Moncton
<b>Centre de recherche des zones côtières</b>	
Lise Ouellette	Shippagan
Sylvain Poirier	
<b>Université de Moncton</b>	
Jean-Paul Vanderlinden	Moncton

Allison	Moncton
Victorin Mallet	Moncton
<b>PEI Aquaculture Alliance</b>	
Greg McCullum	Charlottetown
<b>Conseil National de recherches</b>	
Bernard Albert	Bathurst
Tim Jackson	Saint John
<b>Invités</b>	
Henri Grizel	France
Martial Monnier	France
Claie Carver	Halifax
<b>Association des conchyliculteurs professionnels du NB</b>	
Léon Lanteigne	
Serge Gaudet	
Ovila Daigle	
Émile Basque	
Mario Noël	

**Annexe 19 : Partenaires financiers**

**MERCI  
À NOS PARTENAIRES FINANCIERS**

**Entreprise Kent  
Entreprise Péninsule  
Entreprise Miramichi  
Entreprise Sud-est**

**Programme Collaboratif de Recherche et  
Développement en Aquaculture (PCRDA)  
Pêches et Océans Canada**

**Institut de recherche sur les zones  
côtières Inc.**



**The CBDC and aquaculture, a  
winning combination!**



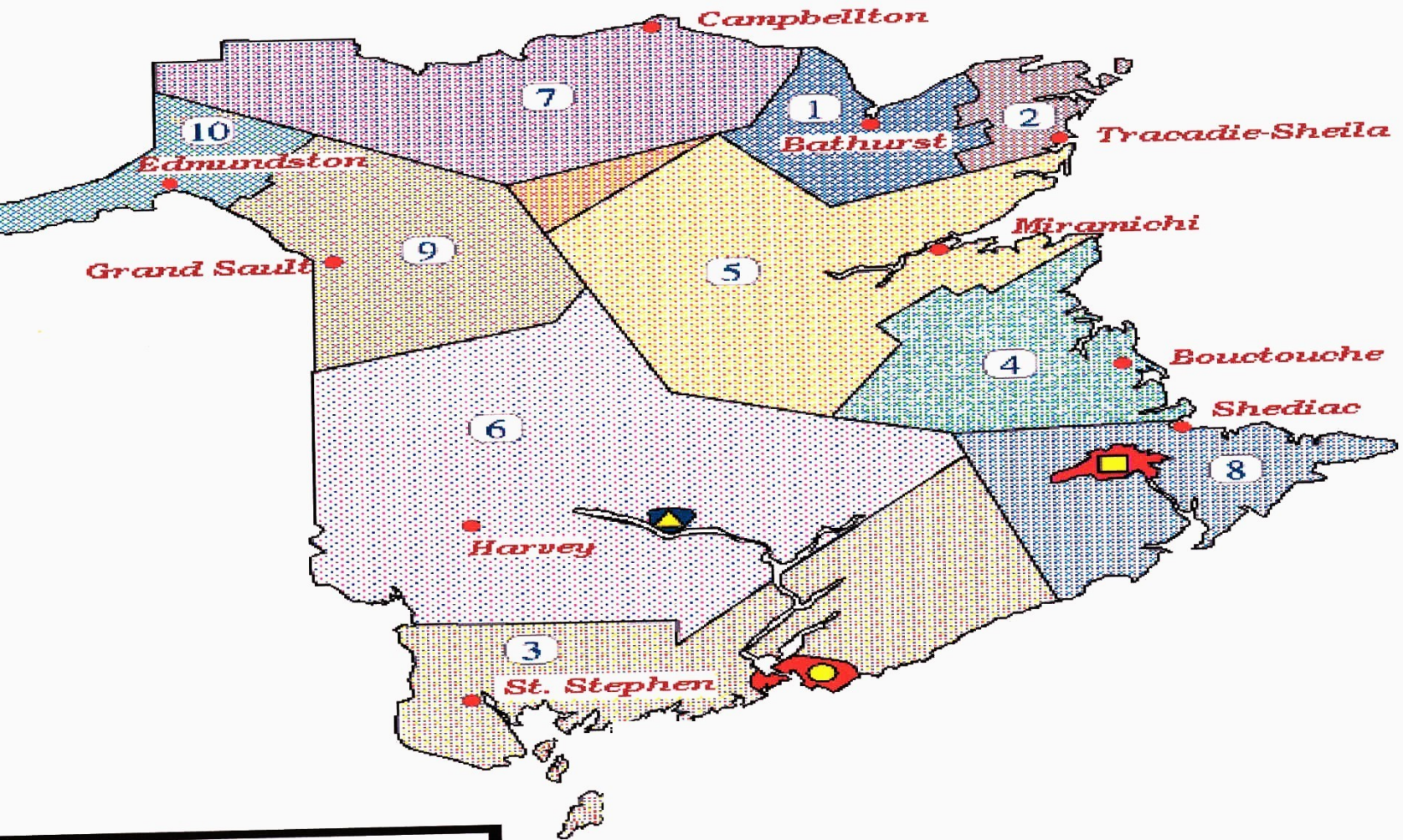
# Presentation plan

- **Presentation of the CBDC-PA**
- **Connection program**
- **Commercial loan program**
- **Business plan preparation for aquaculture (PA only)**
- **Shellfish development program**



# Presentation of the CBDC-PA

- **Financial and technical aide**
- **10 CBDC in New-Brunswick**
- **Several financial and technical aide programs**
- **Situated in Tracadie-Sheila, in the Acadian peninsula.**

# 10 CBDC



## Excluded Municipalities

-  Moncton
-  Saint John
-  Fredericton



# Capital and orientation program Connection

**Personal loan up to 15 000 \$**

**Created for the start-up or expansion of a business  
for people of 18 to 29 years old**

**Training budget up to 2 000 \$ offered with the  
program**

**Consultation and help offered**

**Important criteria: viability, management capacity of  
the applicant and healthy competition**

**Our partners: Atlantic Canada Opportunity Agency  
and the ministère Formation et développement de  
l'emploi**





# Our commercial loans

**Can go up to 125 000 \$**

**Oriented towards the start-up or acquisition of a business, and also to the expansion and modernization of an existing business.**

**Practically all commercial loans are complimentary to other financing provided by recognised financial institutions (banks, caisses populaires, BDC)**

**Important criteria's : viability, management capacity of the applicant and healthy competition**

**Flexible pay-out and conditions**

**Job creation and/or maintenance**

**Our partner: ACOA**



# Business plan preparation for aquaculture



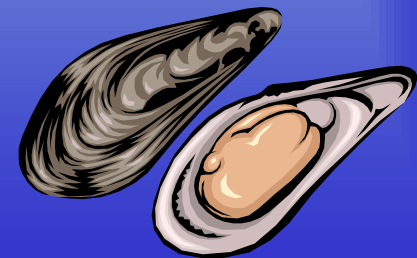
- Includes a part describing the project and financial projections for the first 5 years
- Regroups all required documents for the treatment of financial requests
- Financial projections include all financial sources for the project
- Business plan updates available





# Shellfish development program

- Financial aide in the form of non-refundable contribution
- Equal to 35 % of assets and seed costs, up to 50 000 \$ for the duration of the program
- Extends itself for two years until funds run out
- Specifically covers oyster and mussel culture





# Program objectives

- Favour the economic diversification of New-Brunswick's coastal zone by counting on existing regional resources
- Promote long term job creation
- Support the establishment and expansion of the shellfish industry in New-Brunswick



# **Admissibility criterias**

- **Provide the following documentation:**
  - **A business plan including a 5 year financial projection (including a balance sheet, financial results, account movements)**
  - **A copy of the lease and aquaculture permit**
  - **A curriculum vitae**
  - **A personal balance sheet**
  - **The last 3 income tax reports or financial statements of the applicant (if incorporated)**
- **Satisfy environmental regulations**
- **Provide a cost estimate for the material and seed**



# Other useful information

- Beneficiaries of the Fond de la Relance cannot benefit from this program this year
- The owner must invest at least 20 % in the business or possess the equivalent in equity



# Case example

## Project cost

- Seed: 15 000 \$
- Equipments: 50 000 \$
- Operat. cost: 35 000 \$

Total: 100 000 \$

## Financing

- ACOA : 32 500 \$
- CBDC-AP: 22 750 \$
- Bank loan: 24 750 \$
- Person. inv.: 20 000\$

100 000 \$



**The CBDC and aquaculture, a winning combination!**

# Atlantic Canada Opportunities Agency

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**Business Development Program (BDP)**



Atlantic Canada  
Opportunities  
Agency

Agence de  
promotion économique  
du Canada atlantique

# What is the Business Development Program (BDP)?

---

- # The BDP focuses on SMEs
- # The Program offers access to capital in the form of interest-free unsecured loans
- # The Program is flexible
- # Businesses have up to 8 years to repay the loan



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Opportunities  
Agency

Agence de  
promotion économique  
du Canada atlantique

# What areas are eligible?

---

- # Information Technology (IT) and knowledge-based businesses
- # Research and development (R&D)
- # Manufacturing and processing
- # Tourism
- # Industries that provide services to businesses
- # Aquaculture
- # Non-commercial projects



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# What areas are not eligible?

---

- # Services of a personal nature
- # Distribution, wholesale
- # Retail
- # Primary sectors (farming, fishing, wood harvesting)
- # Construction/Transportation
- # Refinancing, mergers and acquisitions
- # Professional services (lawyers, accountants)
- # Government services



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du Canada atlantique



# What activities are eligible?

---

- # Business start-up, expansion, modernization
- # Innovation, research and development (R&D)
- # Training, productivity and quality improvements
- # Trade development and marketing studies



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promotion économique  
du Canada atlantique

# How are projects evaluated?

---

- # Viability of project
- # Net economic benefit to the community or to the region
- # Demonstrated need for assistance
- # Level of risk
- # Minimum investment – 20%



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Opportunities  
Agency

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promotion économique  
du Canada atlantique

# **Interest-free loans are available for projects including:**

---

- # Start-up, expansion and modernization costs - up to 50% of eligible costs
- # Studies, public bid preparation, marketing, quality assurance, training - up to 75% of eligible costs
- # Innovation - up to 75% of eligible costs (provisionally repayable)
- # Maximum contribution - \$.5 million
- # Maximum project size - \$20 million



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Opportunities  
Agency

Agence de  
promotion économique  
du Canada atlantique

# Business Development Program Eligible Cost Financing 50%

- The construction or acquisition of a building
- Machinery and equipment needed for the project
- Working capital requirements related to an establishment or expansion project
- Site improvements such as land clearing and paving required for the project
- Leasehold improvements required for the project
- Leased equipment and conditional sales contracts
- Infrastructure such as sewer and water needed for a project
- Self-built assets
- Intangible assets such as patents, trademarks and licenses
- Start-up costs such as insurance and interest capitalized during construction



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Opportunities  
Agency

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promotion économique  
du Canada atlantique

# Business Development Program Eligible Cost Financing 75%

- **Marketing:** Includes the development of a marketing plan, the hiring of marketing expertise to implement the plan, and related marketing activities.
- **Training:** Includes the development of a training plan, the hiring of training expertise to implement the plan and related activities
- **Productivity/Quality Improvement:** Includes the development of a productivity or quality improvement plan, the hiring of expertise to implement the plan, and related activities such as obtaining a recognized quality certification such as ISO
- **Innovations:** Includes costs related to researching and developing new or improved products, services and processes such as the labour costs of expertise, materials, special equipment, testing and patents.
- **Consultant Advice:** Includes the cost of hiring a qualified consultant to prepare a business plan, feasibility study, investigate licensing opportunities, conduct a venture capital search, technology transfer search or provide advice to improve your business skills.
- **Contract bidding:** Includes the cost of improving your competitive ability to bid on and acquire public and private sector contracts.
- **Business proposal development:** Includes the cost of turning your idea into a viable business proposal, example the completion of feasibility study, prototype development, and gathering information on markets and raw material suppliers. Maximum contribution is \$10,000 for this activity.
- **Business Support:** Not-for profit organizations may qualify for assistance towards activities that support the business community, entrepreneurship or economic development



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Opportunities  
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du Canada atlantique

# Contribution to an innovation project

---

- # Provisionally repayable, based on the success of the project
- # Risk-sharing approach
- # Maximum level of assistance available is up to 75% of eligible costs



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du Canada atlantique

# Information required

---

- # For capital cost projects
- # For marketing projects
- # For study projects
- # For innovation projects



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du Canada atlantique

# Information required

---

## # For all projects(Except Studies)

- A history & description of the business, including the products manufactured or services rendered
- Supporting data on major items to be purchased/built costs, quotations(make, model,etc.)
- Sufficient market data on project e.g. who are my competitors, where are they,what is the proposed market, how will it be promoted?
- Outline of management structure for business, resumes of key people, experience in type of proposed business etc.
- For existing business: financial statements for the last fiscal year & 1 year projected Income & Expenses. If project is over \$200,000 a 3 year projected statements including cash flow,source and application of funds, & Balance Sheet including key assumptions



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Opportunities  
Agency

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promotion économique  
du Canada atlantique



# Information required

---

## # For all projects(Except Studies)

-For new business copy of projected opening Balance Sheet & 1 year projected Income & Expenses. If project is over \$200,000 a 3 year projected statements including cash flow,source and application of funds, & Balance Sheet including key assumptions

-Personal Net Worth

## #For marketing projects

-Detailed implementation plan (3 years) outlining costs of various activities to be undertaken

-If applying for a qualified person, include a detailed job description & resumes of proposed person to be hired

-Latest financial statements



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Opportunities  
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du Canada atlantique

# Information required

---

## # For study projects

Proposal from Consultant

Latest Financial Statements

Personal Net Worth Statement

## # For innovation projects

Complete description of the proposed project

Latest financial statements



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Opportunities  
Agency

Agence de  
promotion économique  
du Canada atlantique

# ***Business New- Brunswick***

***FINANCIAL SUPPORT  
FOR BUSINESS***

# Help to the aquaculture industry

- Objective:

Offer financial help to shellfish growers for immobilizations and cash flow.

- Candidates:

All aquaculture operations in N.-B.

# Term loans (aquaculture)

- Term loans up to 15 years
- Provincial interest rates (fixed)
- Payments November 1<sup>st</sup> each year (capital and interests)
- Guaranties for immobilizations et equipment
- Personal guaranties, if needed
- Up to 90% of immobilization expenses
- Immobilization expenses < 500 000 \$
- 20% of the necessary capitalization

# Loan guaranties (aquaculture)

- Guaranties on credit lines for exploitation
- Current bank rates and modalities
- Privilege on immobilization, inventories and debit accounts





# New Brunswick Innovation Foundation Fondation de l'innovation du Nouveau- Brunswick

Professional Shellfish Growers Association of NB  
December 2, 2003

Yves Gagnon, P.Eng., D.Sc.  
President/CEO- Président/Directeur général

FI **NB** IF  
*Building* **INNOVATION** *Partnerships*

FI **NB** IF  
*Développer l'* **INNOVATION** *ensemble*

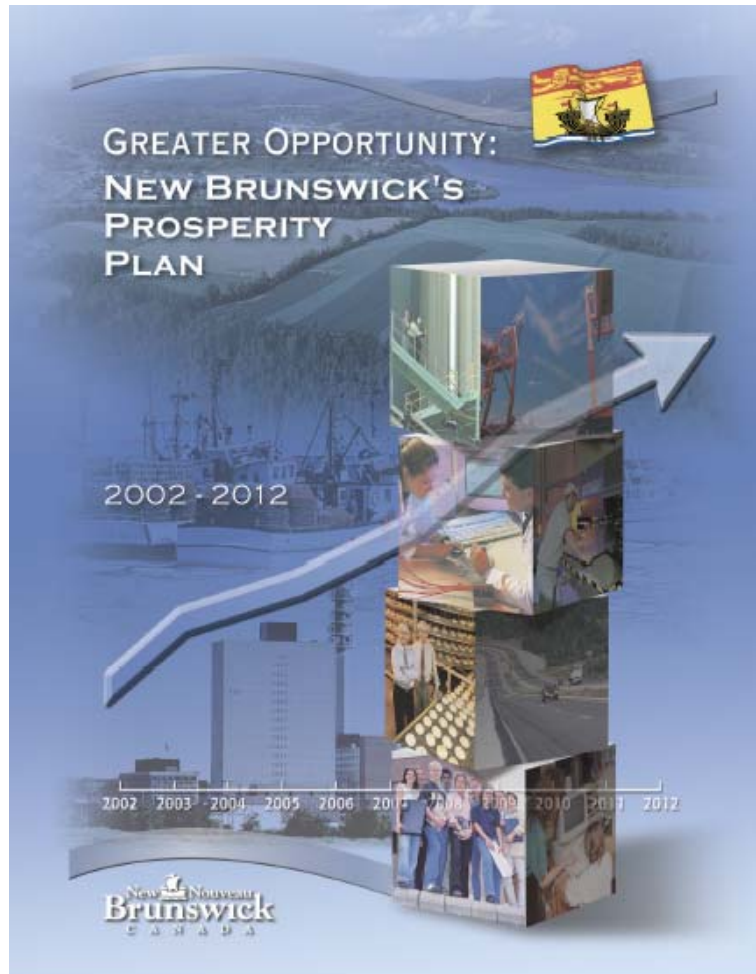
# Summary of the Presentation



- The New Brunswick Innovation Foundation (NBIF)
- Innovation
- Investment Profile of NBIF
- Tax Credits for R&D and Innovation
- Some Determinants of Success in Innovation

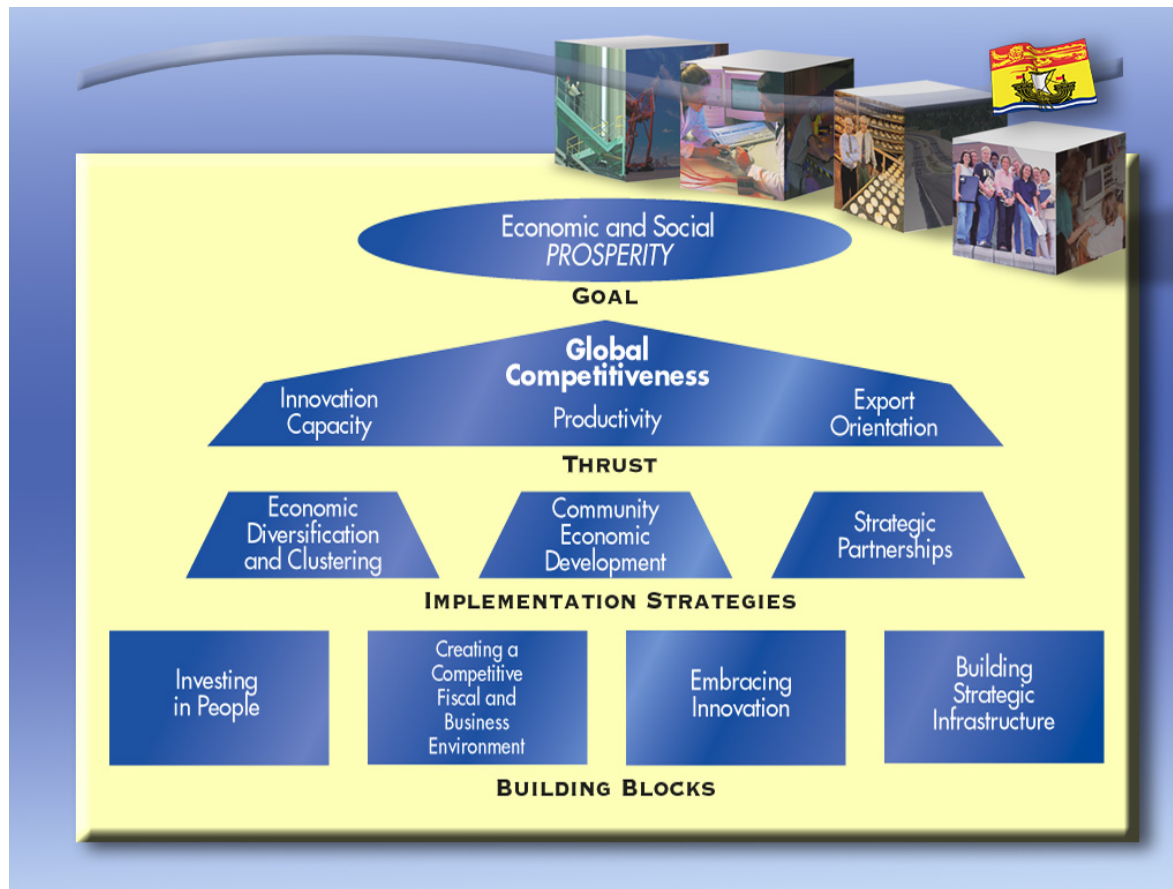


# Genesis of NBIF



FI NB IF  
*Building* **INNOVATION** *Partnerships*

# NB's Prosperity Plan 2002-2012



FI NB IF  
*Développer l'***INNOVATION** *ensemble*

## Mission of NBIF



The mission of the NBIF, an independent corporation, is to contribute to building the province's innovation capacity. The Foundation supports targeted and leveraged investments in innovation, and in research and development in New Brunswick.

# Innovation



- A Definition

Transforming new ideas into new products, services, technologies or processes

Source: Documents of the New Brunswick Innovation Foundation

# Innovation



- Another Definition

Innovation, new ways of doing new things and new ways of doing old things

Source: Premier Bernard Lord  
December 3, 2002

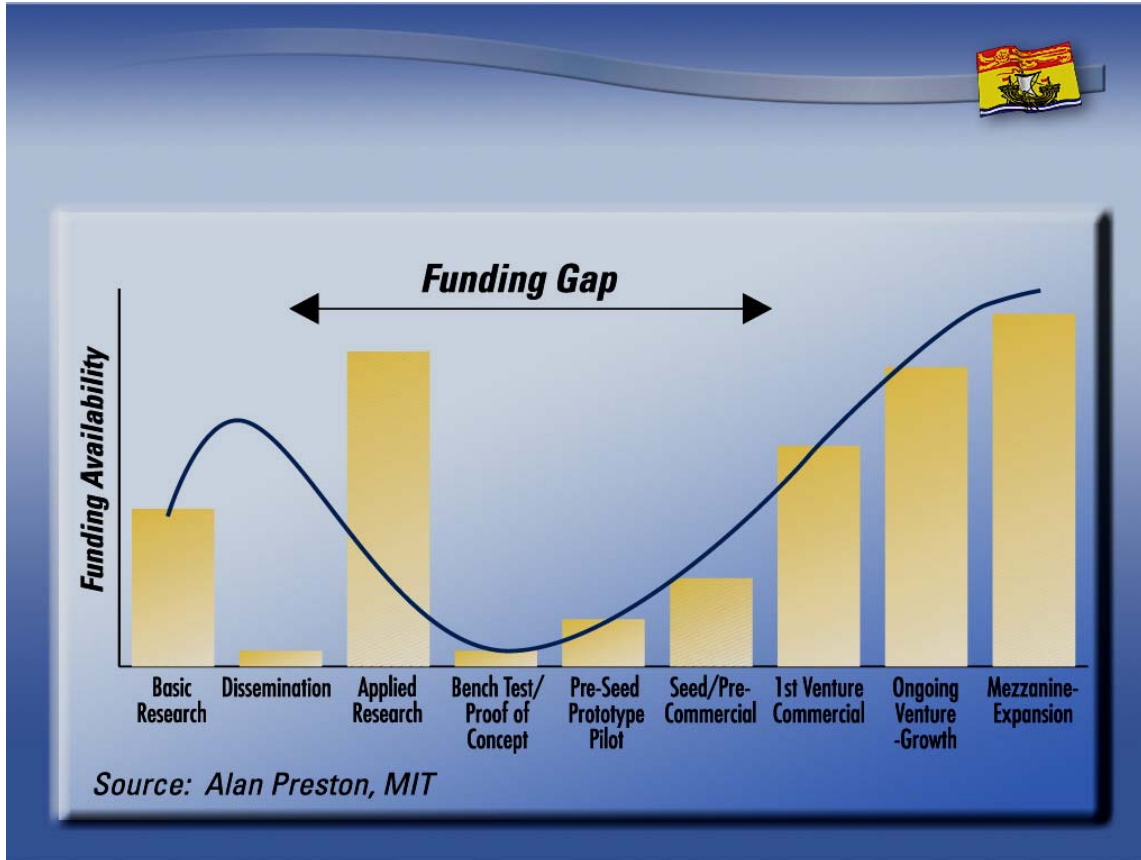
# Innovation



- Still Another Definition

Research creates knowledge;  
Innovation transforms knowledge in a  
useable form for society.

# Innovation Continuum



# Investment Profile of NBIF



## Three + One Funds:

- Research Innovation Fund
- Enterprise Innovation Fund
- Venture Capital Fund
  
- Business Incubator Fund



# Research Innovation Fund



- Objectives of the Fund
  - Contribute to building the innovation capacity of academic and research organizations
  - Support innovation projects in academic and research organizations
- Funding Priority
  - Value-added partnerships Academia/Private sector companies
  - Strategic clusters

# Research Innovation Fund



- Components of RIF
  - Emerging projects
  - Concept validation
  - Innovation capacity development initiatives
  - Start-up grants for professors
  - Research assistantships
  - Research technicians

# Enterprise Innovation Fund



- Objective of the Fund
  - Support innovation projects from private companies and individuals in NB
- Seed Stage Projects
  - Concept validation
  - Pre-commercial stage of development

# Enterprise Innovation Fund



- Funding Instruments
  - Indirect equity investments
    - Convertible debt (capital investment that can be repaid or converted to equity)
    - Provide business mentoring through the monitoring of the company
  - Equity investments
    - Seed capital investments
    - Provide management support through participation in the Board of Directors of the company
  - Level of investments
    - Typically up to 250 k\$
    - Up to 25 k\$ to start a company
  - Prepare the company for larger equity investments

# Venture Capital Fund



- Objective of the Fund
  - Support promising and innovative NB companies that have unique and commercially viable ideas
- Early Stage Capital Investments
  - Maximum of 500 k\$
  - 20% of the total investment in the company

# Venture Capital Fund



- Funding Instrument
  - Venture capital investments in the form of equity positions in the companies
  - Provide management support through participation in the Board of Directors of the company
  - Prepare the company for larger equity investments

# Business Incubator Fund



- Objective of the Fund
  - Support private and not-for-profit business incubators in NB
  - Projects or initiatives that provide support for the development of businesses in incubation

# R&D Tax Credit – New Brunswick



- Research and Development (NB R&D Tax Credit)
  - 15% of eligible expenditures in R&D
  - Fully refundable
  - Refund amount equal to excess of provincial tax payable under the NB Income tax Act
  - Can help relieve cash flow challenges



# SBI Tax Credit – New Brunswick



- Small Business Investor Tax Credit
  - 30% non-refundable personal income tax credit of up to 15,000\$ per year to eligible investors who invest capital in eligible small businesses in NB
  - Eligible investors: NB resident, conditions on investment (amount, duration, etc.)
  - Eligible small businesses: Certificate of Registration, submit an Investment Plan

# R&D Tax Credit - Federal



- Scientific Research and Experimental Development (SR & ED Tax Credit)
  - Cash refunds and/or tax credits for expenditures on eligible R&D work done in Canada
  - Investment tax credit rates (20 to 35%) and percentage that can be refunded (0 to 100%) vary according to type of business

# Some Determinants of Success



- Understand and Know the Markets
- Capitalize on the Culture Shift of Universities
  - Research vs Innovation
- Build Value-Added Partnerships in Innovation Projects
  - Private sector companies and Academia
- Leveraging
  - Funding (in particular through equity)
  - Information
  - Knowledge
  - Expertise

New Brunswick Innovation Foundation  
Fondation de l'innovation du Nouveau-Brunswick



[www.nbif.ca](http://www.nbif.ca)

[www.finb.ca](http://www.finb.ca)

*Développer l'* **FI NB IF** *INNOVATION* *ensemble*

**Your Ideas**  
**Vos idées**



**Our Support**  
**Nos ressources**

*Building* **FI NB IF**  
**INNOVATION** *Partnerships*

*Développer l'* **FI NB IF**  
**INNOVATION** *ensemble*

# FORUM

Association des conchyliculteurs professionnels du  
Nouveau-Brunswick

Professional Shellfish Growers Association of New Brunswick

Le 2 décembre 2003/December 2,2003

## Ordre du jour/Agenda

1. Association du Réseau Entreprise du N.-B.  
New Brunswick Enterprise Network Association
2. Fonds de développement économique communautaire  
Community Economic Development Fund
3. Questions et discussion  
Questions and discussion


# Kent Community Economic Development Fund Criteria

1. Each funding request could be eligible to receive a contribution of 50%
2. The applicant must provide proof that he/she can finance the remaining funding request amount, including any additional costs.
3. The applicant must provide a preliminary financial plan for the eventual start-up or expansion project that demonstrates that he/she can finance the project.
4. The applicant must submit a formal written request to initiate the evaluation process. This request must include a proposal from a professional in the field, including details of the work to be undertaken, as well as the timing and costs.

# Kent Community Economic Development Fund Criteria

5. The applicant must be at least 19 years of age.
6. The financial assistance may not be used to finance a business plan which is already completed.
7. the applicant's start-up or expansion project must be established in the Kent Region (Entreprise Kent's territory).
8. The applicant must agree to provide Enterprise Kent a copy of the paid invoice and cancelled cheque in order to be reimbursed.





Training and Employment  
Development  
Formation et developement de  
l'emploi



# PRINCIPAL PROGRAMS

- Work Ability
- Workforce Expansion
- Training and Skills Development
- Employment services
- Student Employment and Experience Development (SEED)





# WORKFORCE EXPANSION

- Employer Wage Subsidy
- Self Employment Benefits



# COMPOSANTE-SUBVENTION SALARIALE

- Eligible employers
  - Private sector
  - Non-profit organisation





## PERSONS ELIGIBLE

- unemployed
- non-family member
- non-student



## WHAT TYPE OF JOBS ARE ELIGIBLE

- additional employment
- do not displace or replace employees
- full time -- seasonal or year round
- 30 hours or more a week
- wage other than commission or by unit
- not financed by other public fund(s)



## DURATION AND REEMBURSEMENT

- 10 à 14 weeks for seasonal jobs 50%
- 24 weeks in the year 50 à 70%
- 40 weeks for a post-secondary graduate 70%
- up to a maximum of \$ 8.00/hour



# SELF EMPLOYMENT BENEFITS

- Unemployed and starting a business
- Have an active EI claim
- Have claimed EI for the past three years
- Have claimed EI within the past five years  
(Maternity, Parental)





# FINANCING

- Receive EI benefits
- Receive support at a determined rate



# STUDENT INTERNSHIPS

- Non-profit organisation





# EMPLOYMENT SERVICE

## ➤ Job banks

- Acadian Peninsula 726-2639
- Miramichi 627-4000
  - Rivière-du-Portage-Brantville 394-3453
- Moncton 869-6944
  - Richibucto-Bouctouche 523-7612



## WEB SITES

Government of Nouveau-Brunswick:

<http://www.gnb.ca>

Department of Training and Employment Development

<http://www.gnb.ca/0105/index-f.asp>

Employment regulations

<http://www.gnb.ca/0308/0001f.htm>

1-888-4LABOUR, or 1-888-452-2687





## REGIONAL OFFICES - FDE

Phone numbers for general information on programs  
and services

Miramichi: (506) 627-4000

Moncton: (506) 869-6944

Acadian Peninsula: (506) 726-2639

# *Overview of the National Research Council*



# *National Research Council of Canada*

- Federal Government Organisation
- 3,000 full-time employees, 700 fellow workers
- Research Institutes
- Industrial Research Assistance Program



# *Industrial Research Assistance Program*



*IRAP — Create Wealth for Canadians  
through Technological Innovation*

**NRC · CNRC**

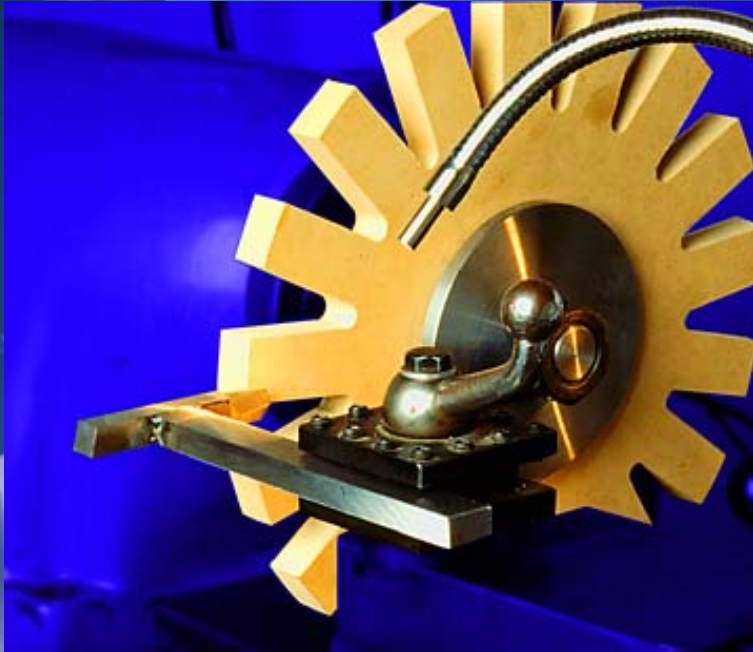




## *IRAP's Mission*

***Stimulate Innovation in Small and Medium-size Enterprises (SME) in Canada***

# *IRAP — Stimulate Innovation*

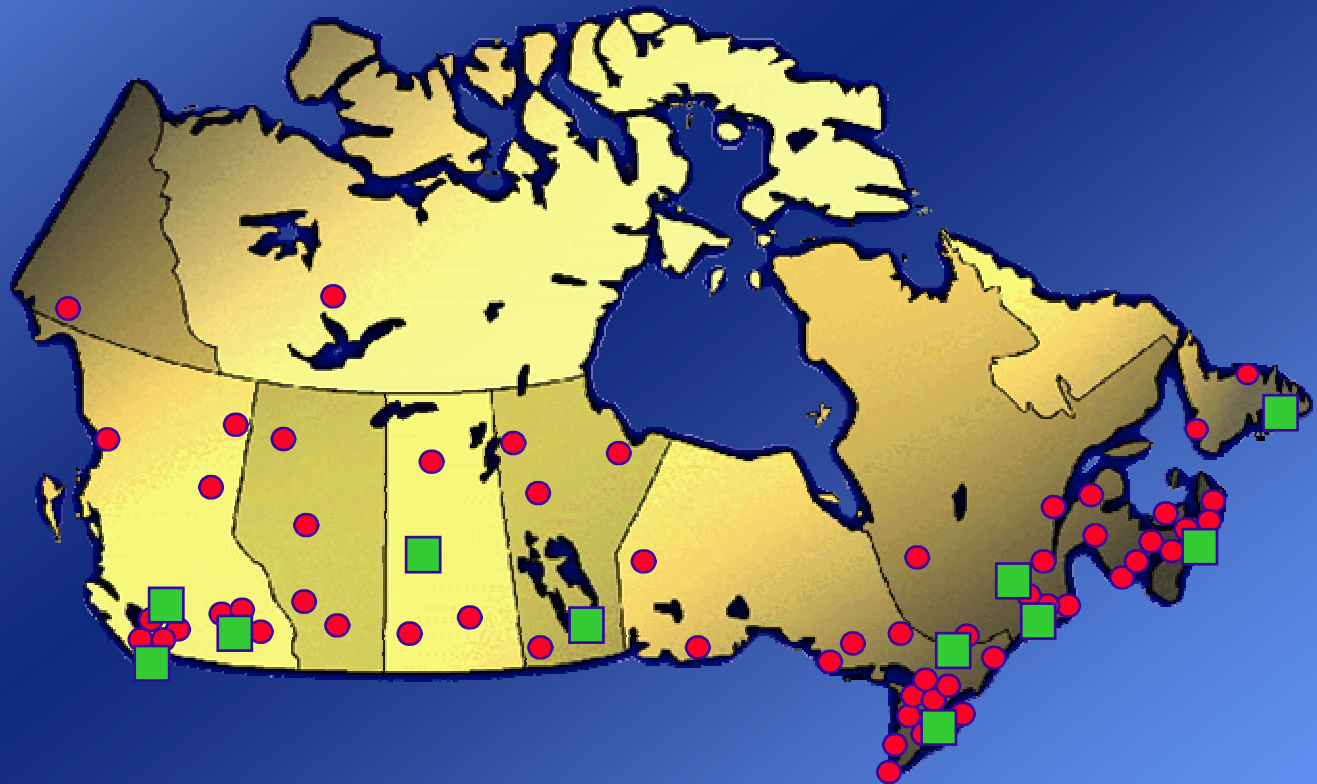


***Strategic Objective:***

***Improve Canadian SME's  
Innovation Capacities***

# *What is IRAP?*

*A national network of experienced advisors*



- NRC Institute / Innovation Centre
- IRAP Office

# *IRAP Advisors*



- *Are Engineers and Scientists with industrial experience*
- *Understand the realities of small companies*
- *Work in the field with the clients*
- *Offer help adapted to the client's needs*



## *IRAP Advisors*

### ***Facilitate industrial innovation by:***

- *Offering advice and information regarding technology and innovation*
- *Putting the clients in touch with expertise, research facilities and the necessary resources*
- *Offering financial help in order to stimulate innovation within Canadian SME's*





## *IRAP – Focus on the client*

- *Good response to the client's needs*
- *Flexible approach*
- *Timely decisions to meet the client's needs*
- *Commitment to quality service*

*IRAP works!*

*Client's gains from IRAP:*

- *Increased technical capacities*
- *New productions*
- *Increased sales*
- *Improved global productivity*



## *Clients' admissibility*

- *Canadian incorporated companies*
- *Any business sector*
- *500 employees or fewer*
- *Autonomous operating unit*





## *Admissible Projects*

- *Development of new products and/or processes*
- *May support technological demonstrations and pilot projects*

# *Contribution*

- *Payment of a percentage of supported encured costs*
- *Total contribution : maximum of 50 % of admissible project costs*
- *Type of costs supported :*
  - *Technical direct labor*
  - *Technical Consultant costs*



## *Admissible activities*

- *Development of a new technology : from proof of concept to pre-commercialization*
- *Can support non-technical activities required to guide the development*

# *Admissible costs*

- *Includes :*

- *Direct labour*

- *Contractor fee*

- *Materials and equipment (items < \$5000)*

- *Depreciation (items > \$5000)*

- *Overhead (up to 65 % of direct labour)*

# *Project Evaluation*

- *Four basic questions:*

- Does the project represent a good business opportunity for the company?*
- Does the company have what it takes to complete the project and to market the results?*
- Is the success of the project dependent on the contribution?*
- Does the project represent sufficient market potential to justify the government's investment (job creation, economic development)?*



## *IS IRAP for you?*

- *SME*
- *Manufacturing Sector, Transformation, or other*
- *Technical Problems*
- *Improved Technological Projects*
- *New Product Development*



***Your ITA***

***Bernard Albert***

***275 Main Street, Suite 212-i***

***Bathurst, N.B.***

***[Bernard.albert@nrc-cnrc.gc.ca](mailto:Bernard.albert@nrc-cnrc.gc.ca)***

***(506) 545-3764***

**NRC · CNRC**



An aerial photograph of a large, deep blue body of water, likely a reservoir or bay. In the background, a dense forest of tall, thin trees lines the shore. In the middle ground, several rectangular racks of oyster farming equipment are visible in the water, consisting of parallel lines of floats or buoys. The text "Market Study" is overlaid in white, serif font in the center of the image.

# Market Study

Oyster



# Quick Oyster Facts

- Oysters are well known: as far back as the 17th century.
- Baby Boomers are focusing on disease prevention to reduce medical cost and are seeking healthier foods. Traditionalist are constant consumers.
- Very healthy food: no other single food product contains as much zinc. Also rich in iron ( 5-7 milligram per serving). Recommended daily intake is 18 milligram.
- Most consumers are used to eating oysters raw. They are conscious of the risk factors involve with eating raw seafood and are demanding that the industry provide safe and quality products.



# Continue.....

- The industry is in fact very aware of this factor and are taking every measures possible to ensure product safety through:

NSSP/CSSP National/Canadian Shellfish Sanitation Program.

HACCP: program.

ICSSL: Interstate Certified Shellfish Shippers List.

Constant monitoring: Canadian Food Inspection Agency, Environment Canada, Coast Guard, DFO, AFA etc.

- Growing in popularity: Oyster Bars, Restaurant  
Menu offer various choices
- Virginia oysters are grown world wide:  
USA Europe, New Zealand, Japan, Mexico, Chile



# Popular Type of Oysters

- Most popular:
  - *Virginica* ( East Coast )
  - *Gigas* ( West Coast )
- *Edulis* ( European Flat ) / *Belon*
- *Lurida* ( Pacific Olympia )
- *Kumamoto* ( Pacific Japanese )



# Canadian Oyster Production

Canadian Oyster Production													
Provinces		1997			1998			1999			2000		
		Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs
<b>Atlantic</b>													
	<i>PEI</i>	3,147,312	\$ 3,181,000.00	\$ 1.01	4,350,696	\$ 4,447,000.00	\$ 1.02	5,340,292	\$ 5,075,000.00	\$ 0.95	6,019,124	\$ 6,324,000.00	\$ 1.05
	<i>NS</i>	634,752	\$ 1,030,000.00	\$ 1.62	830,908	\$ 1,186,000.00	\$ 1.43	1,710,304	\$ 1,815,000.00	\$ 1.06	1,703,692	\$ 1,891,000.00	\$ 1.11
	<i>NB</i>	584,060	\$ 567,000.00	\$ 0.97	630,344	\$ 788,000.00	\$ 1.25	630,344	\$ 788,000.00	\$ 1.25	1,366,480	\$ 1,700,000.00	\$ 1.24
	<i>Total</i>	4,366,124	\$ 4,778,000.00	\$ 1.09	5,811,948	\$ 6,421,000.00	\$ 1.10	7,680,940	\$ 7,678,000.00	\$ 1.00	9,089,296	\$ 9,915,000.00	\$ 0.76
<b>Pacific</b>													
	<i>BC</i>	8,044,600	\$ 3,917,000.00	\$ 0.49	12,122,000	\$ 4,900,000.00	\$ 0.84	12,783,200	\$ 6,000,000.00	\$ 0.47	13,003,600	\$ 7,000,000.00	\$ 0.54
<b>Total Canada</b>		12,410,724	\$ 8,695,000.00	\$ 0.70	17,933,948	\$ 11,321,000.00	\$ 0.63	20,464,140	\$ 13,678,000.00	\$ 0.67	22,092,896	\$ 16,915,000.00	\$ 0.77
***This table includes Commercial fisheries and Aquaculture													
Sources: Stat Can and MPO													

# Virginica Oyster Producers and Canadian Maritime Exports

## Suppliers of Virginica oysters

Year 2000- 2001

New Brunswick	PEI	Nova Scotia	United States	Approx Total
1,366,480 lbs	6,019,124 lbs	1,703,692 lbs	27,811,109 lbs	36,900,405 lbs approx
\$1,700,000.00	\$6,324,000.00	\$1,891,000.00	\$67,770,970.00	\$77,685,970.00

## Exports of Virginica oysters from the Maritimes Provinces

In 2001

New Brunswick	PEI	Nova Scotia	Approx Total
\$22,861.00	\$4,306,260.00	\$1,057,263.00	\$5,383,384.00



# New Brunswick Cultured Oyster Projections

## Production Projections

	Oyster seeds	Cocktail Oyster in units	Market Oyster in units
2002	15 000 000	2 422 500	1 297 150
2003	15 000 000	5 795 833	3 826 383
2004	15 000 000	10 440 000	9 167 525
2005	15 100 000	14 651 999	17 762 149
2006	15 000 000	16 735 810	21 804 960
2010	15 000 000	25 715 000	29 279 000



# Atlantic Canadian Oyster Exports

## Exports of Oyster Products from the Atlantic Provinces 1997-2001

Destination / Year	Atlantic Provinces			
	NB	NS	PEI	Total
<b>1997</b>				
United States				
Massachusetts		\$ 5,721.00	\$ 227,796.00	\$ 233,517.00
Maine	\$ 12,793.00	\$ 104,438.00	\$ 693,079.00	\$ 810,310.00
California		\$ 15,109.00	\$ 445,023.00	\$ 460,132.00
Texas				\$ -
District of Columbia				\$ -
Rhode Island		\$ 5,047.00		\$ 5,047.00
Hawaii		\$ 14,407.00		\$ 14,407.00
Others			\$ 52,715.00	\$ 52,715.00
Belgium		\$ 11,000.00		\$ 11,000.00
<b>Total</b>	\$ 12,793.00	\$ 155,722.00	\$ 1,418,613.00	\$ 1,587,128.00
<b>1998</b>				
United States				
Massachusetts		\$ 18,671.00	\$ 782,026.00	\$ 800,697.00
Maine	\$ 90,243.00	\$ 71,498.00	\$ 1,030,096.00	\$ 1,191,837.00
California		\$ 14,213.00	\$ 140,041.00	\$ 154,254.00
Texas			\$ 16,353.00	\$ 16,353.00
District of Columbia	\$ 2,378.00			\$ 2,378.00
Rhode Island		\$ 148,517.00		\$ 148,517.00
Hawaii				\$ -
Others		\$ 17,047.00	\$ 65,260.00	\$ 82,307.00
United Kingdom				\$ -
Belgium		\$ 45,000.00		\$ 45,000.00
St.Pierre-Miquelon		\$ 12,000.00		\$ 12,000.00
<b>Total</b>	\$ 92,621.00	\$ 326,946.00	\$ 2,033,776.00	\$ 2,453,343.00

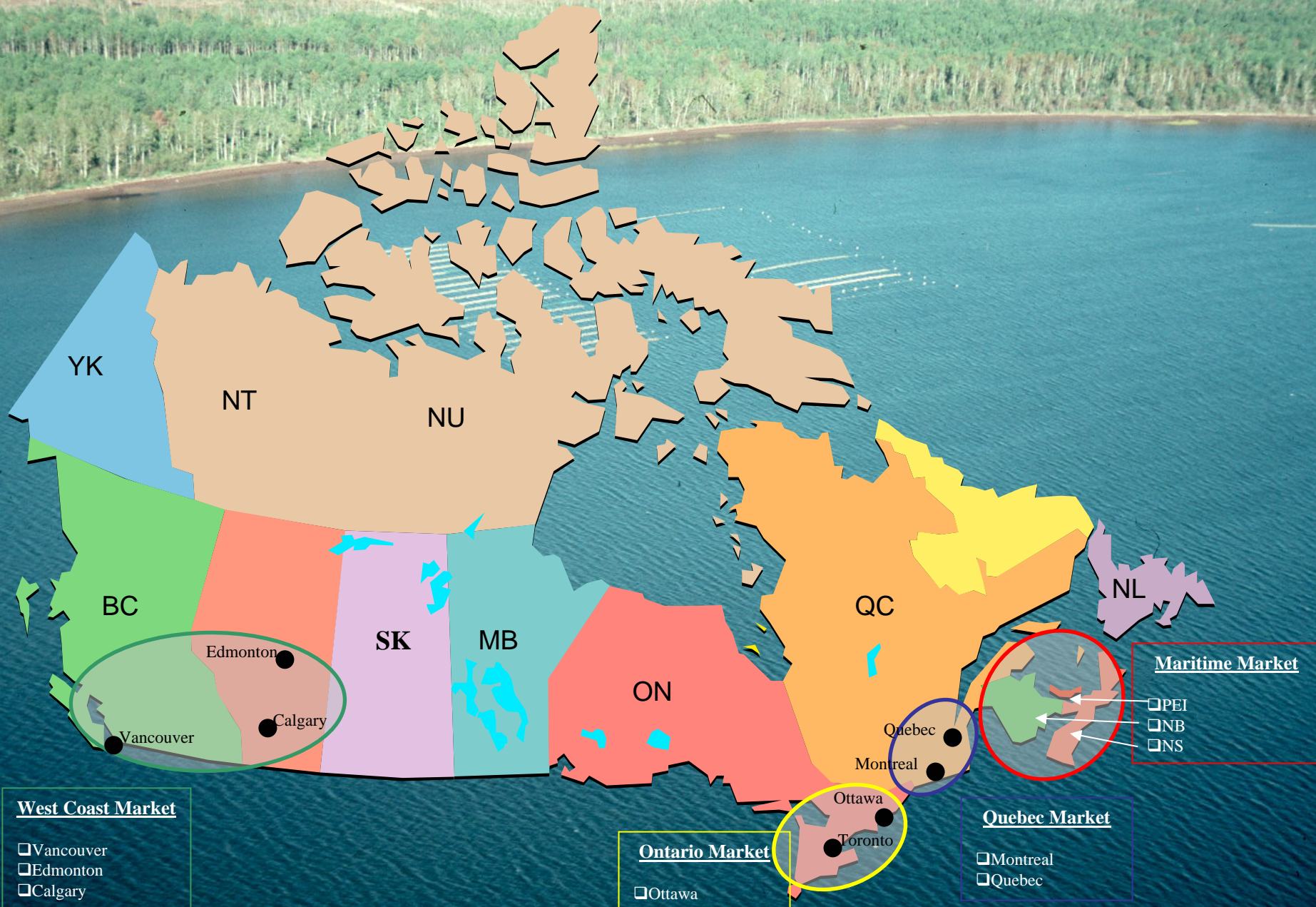


# Continue...export

	NB	NS	PEI	Total
<b>1999</b>				
United States				
Massachusetts		\$ 118,762.00	\$ 1,415,557.00	\$ 1,534,319.00
Maine	\$ 19,189.00	\$ 104,411.00	\$ 1,270,721.00	\$ 1,394,321.00
California		\$ 73,594.00	\$ 300,752.00	\$ 374,346.00
Texas			\$ 4,520.00	\$ 4,520.00
District of Columbia				\$ -
Rhode Island		\$ 357,050.00		\$ 357,050.00
Hawaii				\$ -
Others		\$ 14,368.00	\$ 233,795.00	\$ 248,163.00
Hong Kong		\$ 59,000.00		\$ 59,000.00
St.Pierre-Miquelon		\$ 19,000.00		\$ 19,000.00
France		\$ 16,000.00		\$ 16,000.00
Belgium		\$ 13,000.00		\$ 13,000.00
<b>Total</b>	\$ 19,189.00	\$ 775,185.00	\$ 3,225,345.00	\$ 4,019,719.00
<b>2000</b>				
United States				
Massachusetts	\$ 6,854.00	\$ 498,531.00	\$ 2,424,442.00	\$ 2,929,827.00
Maine	\$ 11,434.00	\$ 132,443.00	\$ 1,521,894.00	\$ 1,665,771.00
California		\$ 56,104.00	\$ 685,866.00	\$ 741,970.00
Texas			\$ 226,865.00	\$ 226,865.00
District of Columbia	\$ 15,888.00			\$ 15,888.00
Rhode Island		\$ 387,523.00		\$ 387,523.00
Hawaii		\$ 4,329.00		\$ 4,329.00
Others		\$ 50,607.00	\$ 879,687.00	\$ 930,294.00
Singapour		\$ 21,000.00		\$ 21,000.00
Belgium		\$ 18,000.00		\$ 18,000.00
Iceland		\$ 11,000.00		\$ 11,000.00
<b>Total</b>	\$ 34,176.00	\$ 1,179,537.00	\$ 5,738,754.00	\$ 6,952,467.00
<b>2001</b>				
United States				
Massachusetts	\$ 8,227.00	\$ 344,742.00	\$ 1,748,566.00	\$ 2,101,535.00
Maine	\$ 4,144.00	\$ 128,626.00	\$ 1,080,019.00	\$ 1,212,789.00
California		\$ 17,101.00	\$ 418,489.00	\$ 435,590.00
Texas			\$ 492,943.00	\$ 492,943.00
District of Columbia				\$ -
Rhode Island	\$ 10,490.00	\$ 277,062.00		\$ 287,552.00
Hawaii				\$ -
Others		\$ 85,732.00	\$ 566,243.00	\$ 651,975.00
France		\$ 192,000.00		\$ 192,000.00
Iceland		\$ 12,000.00		\$ 12,000.00
<b>Total</b>	\$ 22,861.00	\$ 1,057,263.00	\$ 4,306,260.00	\$ 5,386,384.00



# Canadian Market



## West Coast Market

- Vancouver
- Edmonton
- Calgary

## Ontario Market

- Ottawa
- Toronto

## Quebec Market

- Montreal
- Quebec

## Maritime Market

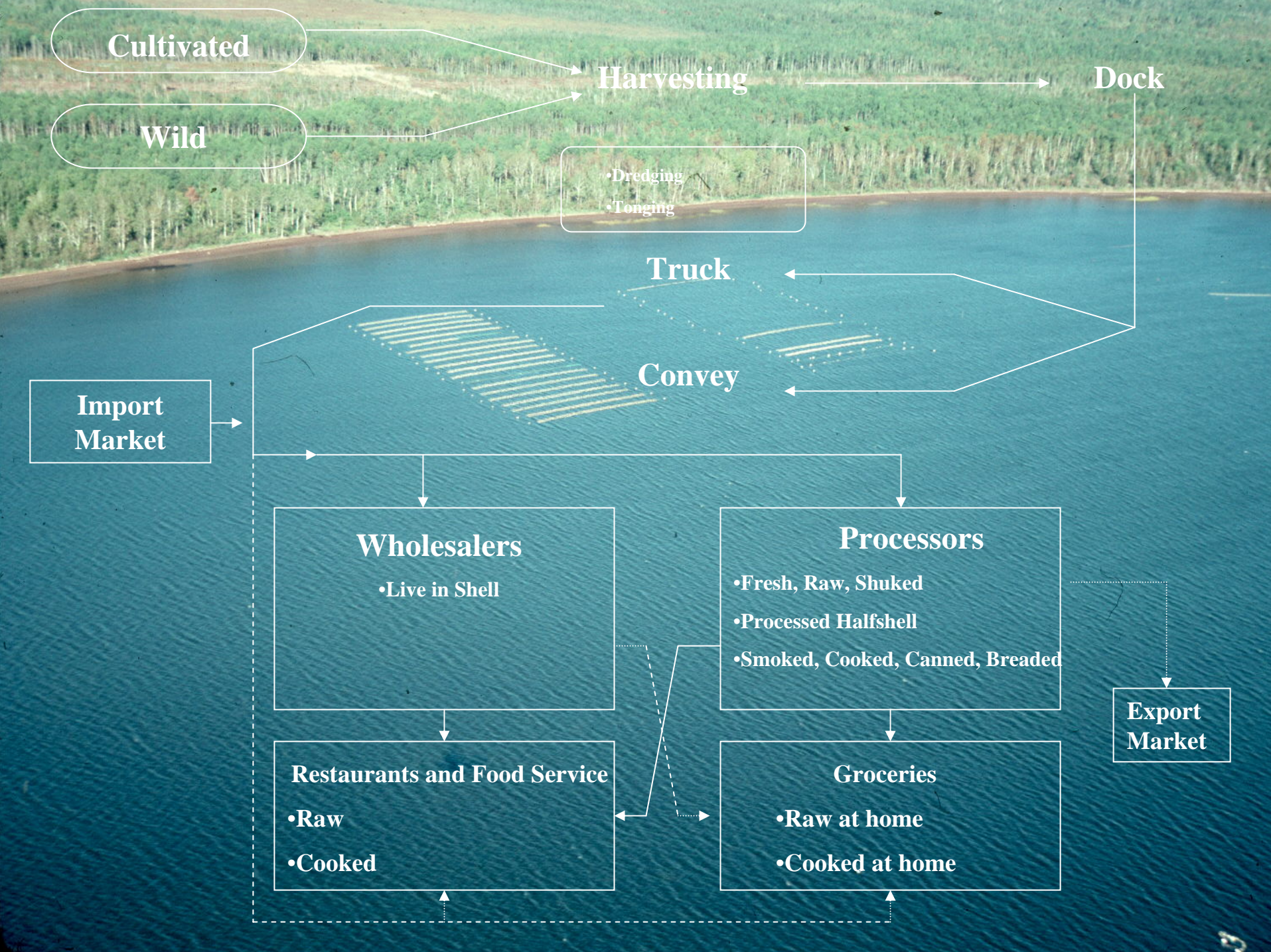
- PEI
- NB
- NS



# Canadian Market Consumption & Trends

- Private Parties ( Events, Office )
- Retail / Supermarkets
- Pubs & Tavern Types of Restaurants
- Restaurants
- Oyster Bars (more in Ontario and Western Canada)
- Home consumption
- White and Blue Collar Worker







# Typical Canadian Oyster Consumer

- Relate to Seafood and Coastal Waters
- Age group 35 – 50
- Younger generation age group 30 – 35
- Income level \$35,000 +
- Gender: 75% male ( female percentage increasing )
- Frequency of consumption: 2-3 times per year ( maybe more with availability.)
- Likes local identity ( Origine of product )

Information: Distributor, Retailers and Restaurants: Pêcherie Atlantic, Metro Richelieu, Norref, Rodney's Oyster Bar, Billingsgate Seafood,



# Restaurant menu West Coast

## *“Catch Restaurant Calgary”*

**Chef Michael Noble**

Oysters		6	12	pcs
Caraquet	Caraquet Bay, NB minty taste, slightly	12.50	25.00	2.50
Tatamagouche	Tatamagouche, NS open ocean, good salt	15.00	30.00	3.00
Bras D'or	Cape Breton Island Atlantic sea salt	15.00	30.00	3.00
Kumamoto	Washington State small, delicate and sweet	13.75	27.50	2.75
Malaspina	Denman Island, BC hippy little oyster	12.50	25.00	2.50
Stanley Bridge “The Real Malpeque”	PEI sweet distinctive flavor	15.00	30.00	3.00
Colville Bay	Colville Bay from Johnny Flynn’s beach	12.50	25.00	2.50
Shucker’s Choice	Try 6 different oysters with 6 different.....\$18.00			



# Marketing Tips

- Help build consumer confidence by promoting all safety measures undertaken by Industry and Regulatory Agencies to assure product safety and quality.
- Promote health benefits through advertising.
- Promote individualities of harvesting areas with descriptive phrases.
- Promote cultured method as it relates to quality of the product and describe your product's true attributes.
- Find proper and effective distribution channel.
- Cater to specific events such as: office parties, super bowl parties, holidays seasons, wine festivals with special packaging and promotional material.



# Continue....marketing tips

- Promote smaller case count for retail counters.
- Promote your oyster through Chefs Associations.
- Promote by exhibiting at trade show and visiting customers.
- Work with local distributors to promote product.



# Challenges

- Effective monitoring mechanism to assure product safety.
- Marketing Cocktail Oyster:
  - unknown ( definition )
  - overcome market size demand for Virginia Oysters.
  - marketing and promotion.
- Growing the Perfect Oyster: Virginia Oyster
  - “A 3 ½ - 4 inch oyster with a deep cup, well rounded shape with a plump fat meat content and a good medium salinity flavor” ????
- Effective distribution channels
- Maintaining consistency, quality and availability.



# USA Market Segmentation

## Midwest Area

- Minnesota
- Wisconsin
- Iowa
- Illinois
- Indiana
- Michigan

## North East Area

- Maine
- Massachusetts
- Rhode Island
- Connecticut
- New Jersey
- New York
- Delaware
- Pennsylvania

## Atlantic Area

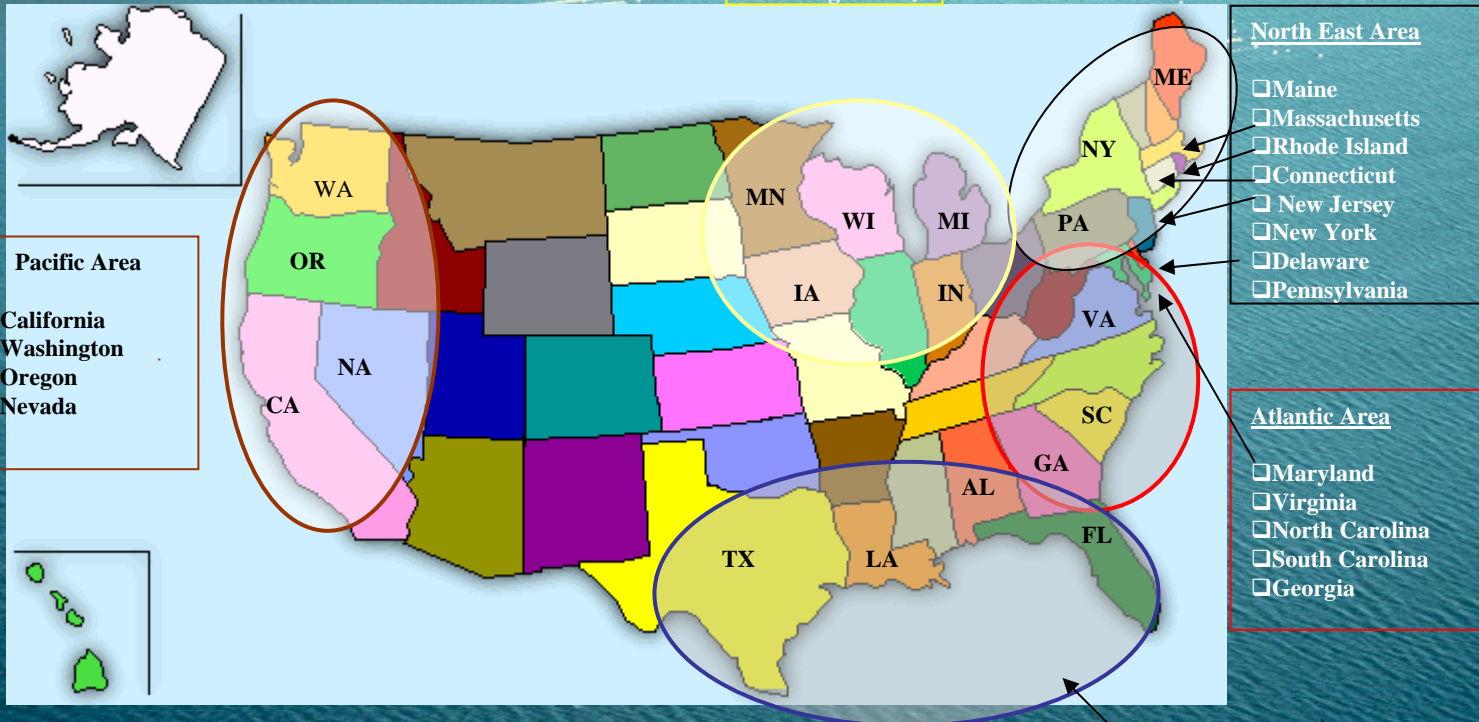
- Maryland
- Virginia
- North Carolina
- South Carolina
- Georgia

## Golf Area

- Texas
- Louisiana
- Mississippi
- Alabama
- Florida

## Pacific Area

- California
- Washington
- Oregon
- Nevada



# USA Oyster Production

		United States Oyster Production (annual landings)											
States		1997			1998			1999			2000		
		Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs	Lbs	Dollars	Average \$ per Lbs
<b>Region I</b>													
<i>Atlantic</i>	FL East Coast	37,560	\$ 93,191.00	\$ 2.48	40,827	\$ 97,501.00	\$ 2.39	39,165	\$ 102,337.00	\$ 2.61	48,993	\$ 129,876.00	\$ 2.65
	GA	7,480	\$ 18,428.00	\$ 2.46	6,956	\$ 17,211.00	\$ 2.47				3,800	\$ 9,733.00	\$ 2.56
	MD	1,429,409	\$ 4,507,620.00	\$ 3.15	2,460,954	\$ 7,635,153.00	\$ 3.10	2,439,995	\$ 7,111,469.00	\$ 2.91	2,368,236	\$ 7,192,089.00	\$ 3.04
	NC	248,983	\$ 1,010,933.00	\$ 4.06	236,030	\$ 974,409.00	\$ 4.13	217,041	\$ 923,752.00	\$ 4.26	203,421	\$ 804,242.00	\$ 3.95
	SC	199,451	\$ 770,829.00	\$ 3.86	203,542	\$ 730,010.00	\$ 3.59	253,660	\$ 985,652.00	\$ 3.89	273,676	\$ 1,092,152.00	\$ 3.99
	VA	303,359	\$ 959,368.00	\$ 3.16	222,775	\$ 657,650.00	\$ 2.95	346,234	\$ 966,964.00	\$ 2.79	163,066	\$ 478,967.00	\$ 2.94
<b>Subtotal Region I</b>		<b>2,226,242</b>	<b>\$ 7,360,369.00</b>	<b>\$ 3.31</b>	<b>3,171,084</b>	<b>\$ 10,111,934.00</b>	<b>\$ 3.19</b>	<b>3,296,095</b>	<b>\$ 10,090,174.00</b>	<b>\$ 3.06</b>	<b>3,061,192</b>	<b>\$ 9,707,059.00</b>	<b>\$ 3.17</b>
<b>Region II</b>													
<i>Gulf</i>	AL	695,320	\$ 1,397,908.00	\$ 2.01	10,949,873	\$ 24,074,180.00	\$ 2.20	344,735	\$ 839,938.00	\$ 2.44	791,908	\$ 1,755,475.00	\$ 2.22
	FL West Coast	1,867,839	\$ 2,718,855.00	\$ 1.46	1,525,629	\$ 2,416,591.00	\$ 1.58	2,235,213	\$ 3,490,411.00	\$ 1.56	2,503,803	\$ 3,844,312.00	\$ 1.54
	LA	13,221,705	\$ 29,770,615.00	\$ 2.25	12,856,173	\$ 30,994,392.00	\$ 2.41	12,128,187	\$ 25,776,785.00	\$ 2.13	11,513,438	\$ 24,614,159.00	\$ 2.14
	MS	3,499,964	\$ 5,309,334.00	\$ 1.52	2,388,611	\$ 3,812,793.00	\$ 1.60	2,793,201	\$ 4,457,261.00	\$ 1.60	3,548,240	\$ 6,113,303.00	\$ 1.72
	TX	4,579,092	\$ 11,200,249.00	\$ 2.45	3,437,926	\$ 8,282,479.00	\$ 2.41	6,411,229	\$ 13,820,394.00	\$ 2.16	6,187,818	\$ 13,846,592.00	\$ 2.24
<b>Subtotal Region II</b>		<b>23,863,920</b>	<b>\$ 50,396,961.00</b>	<b>\$ 2.11</b>	<b>31,158,212</b>	<b>\$ 69,580,435.00</b>	<b>\$ 2.23</b>	<b>23,912,565</b>	<b>\$ 48,384,789.00</b>	<b>\$ 2.02</b>	<b>24,545,207</b>	<b>\$ 50,173,841.00</b>	<b>\$ 2.04</b>
<b>Region III</b>													
<i>Northeast</i>	CT	1,511,456	\$ 5,103,618.00	\$ 3.38	1,382,627	\$ 8,978,088.00	\$ 6.49	1,309,000	\$ 11,050,000.00	\$ 8.44	623,816	\$ 4,839,468.00	\$ 7.76
	ME	20,690	\$ 76,771.00	\$ 3.71	47,792	\$ 181,881.00	\$ 3.81	50,065	\$ 187,713.00	\$ 3.75	44,626	\$ 165,560.00	\$ 3.71
	NJ	592,870	\$ 2,262,315.00	\$ 3.82	702,849	\$ 2,686,411.00	\$ 3.82	411,377	\$ 1,571,711.00	\$ 3.82	202,443	\$ 966,531.00	\$ 4.77
	NY	528,917	\$ 2,441,822.00	\$ 4.62	236,552	\$ 1,355,848.00	\$ 5.73	68,050	\$ 391,787.00	\$ 5.76	149,520	\$ 1,310,996.00	\$ 8.77
	RI **	256,325	\$ 748,524.00	\$ 2.92	195,505	\$ 685,886.00	\$ 3.51	92,868	\$ 553,285.00	\$ 5.96	95,009	\$ 607,515.00	\$ 6.39
<b>Subtotal Region III</b>		<b>2,910,258</b>	<b>\$ 10,633,050.00</b>	<b>\$ 3.65</b>	<b>2,565,325</b>	<b>\$ 13,888,114.00</b>	<b>\$ 5.41</b>	<b>1,931,360</b>	<b>\$ 13,754,496.00</b>	<b>\$ 7.12</b>	<b>1,115,414</b>	<b>\$ 7,890,070.00</b>	<b>\$ 7.07</b>
<b>Region IV</b>													
<i>Pacific</i>	AK							62,117	\$ 347,312.00	\$ 5.59			
	CA	937,815	\$ 3,586,000.00	\$ 3.82	720,254	\$ 2,498,270.00	\$ 3.47	1,201,483	\$ 4,241,233.00	\$ 3.53	1,201,483	\$ 4,241,239.00	\$ 3.53
	OR	333,466	\$ 1,333,852.00	\$ 4.00	198,000	\$ 495,000.00	\$ 2.50	673,868	\$ 2,857,201.00	\$ 4.24			
	WA ***	5,971,600	\$ 16,486,766.00	\$ 2.76	6,518,347	\$ 17,308,282.00	\$ 2.66	6,769,087	\$ 17,797,812.00	\$ 2.63	8,458,154	\$ 22,473,331.00	\$ 2.66
<b>Subtotal Region IV</b>		<b>7,242,881</b>	<b>\$ 21,406,618.00</b>	<b>\$ 2.96</b>	<b>7,436,601</b>	<b>\$ 20,301,552.00</b>	<b>\$ 2.73</b>	<b>8,706,555</b>	<b>\$ 25,243,558.00</b>	<b>\$ 2.90</b>	<b>9,659,637</b>	<b>\$ 26,714,570.00</b>	<b>\$ 2.77</b>
<b>Total States</b>		<b>36,243,301</b>	<b>\$ 89,796,998.00</b>	<b>\$ 2.48</b>	<b>44,722,232</b>	<b>\$ 113,882,035.00</b>	<b>\$ 2.55</b>	<b>37,846,575</b>	<b>\$ 97,473,017.00</b>	<b>\$ 2.58</b>	<b>38,381,450</b>	<b>\$ 94,485,540.00</b>	<b>\$ 2.46</b>



# USA Market Consumption & Trends

An aerial photograph of a large, calm body of water, likely a bay or estuary. In the background, a dense forest of tall, thin trees lines the shore. In the middle ground, several large, rectangular racks of oyster farming equipment are visible in the water, consisting of numerous parallel lines of floats or buoys. The water is a deep blue-green color.

- Seafood Restaurants and Oyster Bar
- Oyster Bars phenomenon
- Retail / Supermarkets ( canned, smoked )
- Foodservice; hotels, casinos, resorts, cruise ships.
- Home consumption (minimal)



# Typical American Oyster Consumer

- Relate to Seafood and the Coastal Waters
- Age group 35 – 60
- Younger generation age group 30 – 35
- Income level \$35,000 + (us dollars)
- Gender: 85% male ( female percentage increasing )
- Frequency of consumption: 5-6 times per year
- Likes local identity ( Origin of product )
- White Collar worker



# U.S. Population trends by age group

(in millions)								
Years	Under 5 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-65 years	65 and over
2000	19.0	40.0	38.1	37.2	44.7	37.0	24.0	34.7
2001	19.0	40.2	38.8	36.8	44.4	38.5	24.5	34.9
2002	19.0	40.3	39.3	36.5	43.9	39.0	26.1	35.2
2003	19.0	40.4	39.9	36.4	43.2	39.9	27.3	35.5
2004	19.0	40.3	40.4	36.3	42.2	41.5	29.6	36.2
2005	19.1	40.1	41.0	36.3	42.2	41.5	29.6	36.2
2006	19.2	39.9	41.5	36.3	41.7	42.3	30.8	36.6
2007	19.4	39.8	41.9	36.6	40.9	42.9	32.0	37.1
2008	19.6	39.7	42.3	37.1	40.0	43.3	32.9	38.0
2009	19.8	39.7	42.7	37.7	39.2	43.6	34.0	38.7
2010	20.0	39.7	42.9	38.3	38.5	43.6	35.3	39.4



# Restaurant Menu “Oyster Anecdote”

## Example of marketing “anecdotes” in Oyster Bars

1. *Moonstone “Narragansett Bay RI”*

Med-high in salinity, Rack & Bag Grown. Very plump, yet delicate and tender. Salty, Clean seaweed finish

2. *Fox Island*

Cape Breton, Nova Scotia. Slightly salty, crunch with a clean ocean finish.

3. *Tatamagouche, Nova Scotia*

Very salty, thin and briny. Rack & Bag grown in very icy waters.

4. *Canada Cup, PEI*

Very high salinity, thin and wispy. Farmed year round. They are similar in texture and flavor to a Malpeque but smaller and sweeter. “Awesome with cocktail sauce”

5. *Malpeque*

Very high salinity, thin & wispy. Rack & bag grown, salty seaweed finish. “This is a great beginner’s oyster”

6. *Salutation Cove, Nova Scotia.*

High salinity, plump and delicate with a crisp, clean and salty finish.

7. *Wellfleet “Cape Cod Mass”*

High salinity, plump meat, lots of liquor crisp clean salty seaweed finish. “Best of East Coast Oysters” according to Gourmet Magazines.

8. *MillPoint PEI*

Good firm salty oyster, grown in the wild which is unusual for Canadians. Coldest waters in the Northeast. And if you like Malpeques you’d love these.

9. *Blue Point*

Oyster Bay, Long Island. Medium high salinity, very plump and meaty  
This is the most popular east coast oyster



An aerial photograph of a large body of water, likely a bay or sound, with a dense forest of trees along the shoreline. The water is a deep blue-green color, and the trees are mostly green with some brown patches. The text is overlaid on the upper part of the image.

## ATLANTIC OYSTER SELECTION \$2.00 EACH

- **Belons – Maine**  
Large round shell houses East Coast answer to a West Coast oyster
- **Blue Point - Connecticut side of the Long Island Sound**  
Produces a fairly briny firm fleshed oyster with a sweet and clean finish
- **Blue Islands - Atlantic side of Long Island**  
Similar in taste, texture and size to the Blue Points, only slightly more salty
- **Buzzards Bay - Cape Cod, Massachusetts**  
This sweet, crisp and clean oyster should be on every East Coast oyster lover's wish list
- **Canadian Cove, PEI**  
This medium clean, crisp and slightly briny oyster is perfect for you first timers
- **Cape Ann - Nova Scotia, Canada**  
Classically salty medium oyster with sweet crisp finish
- **Falmouth - Rhode Island**  
From the waters off of Providence comes these slightly sweet and briny treasures
- **French Hooter - PEI, Canada**  
Clean and salty medium oyster a favorite for any East Coast oyster fan (gotta luv the name)
- **Malpeque - PEI, Canada**  
Easiest oysters to eat, light in flavor and texture with a sweet and mild finish





**ATLANTIC OYSTER SELECTION**  
**\$2.00 EACH**

- **Martha Vineyard - Cape Cod, Massachusetts**  
Medium sized sweet, mild and slightly briny with a slightly coppery finish
- **Narragansettes - Connecticut**  
Medium oyster with classic East Coast salty finish
- **Pemaquid - Pemaquid Bay, Maine**  
Firm, sweet and a hint of cucumber at the end
- **Pickle Point - PEI, Canada**  
Sweet, salty and crisp another PEI winner
- **Peconic Bay, Long Island**  
Small Long Island oyster, sweet, mild and a bit briny
- **Shaffer Cove, Long Island**  
Created by us for you and it's our very own and it's sweet, crisp and salty
- **Tatamagouche, Nova Scotia, Canada**  
This medium sized clean and crisp oyster ends with a lettuce like finish
- **Wellfleet, Massachusetts**  
One of America's favorite oysters, sweet, crisp and salty



## PACIFIC OYSTER SELECTION \$2.50 EACH

- **Cortez Island - British Columbia**  
Medium to large Pacific cold water oyster with creamy metallic finish
- **Denman Island - British Columbia**  
Medium sized, slightly musky and creamy with big Pacific briny finish
- **Elkhorn - British Columbia**  
Medium to large oyster with creamy briny and slightly exotic finish
- **Fanny Bay - Baynes Sound, B.C.**  
Imported from Japan these medium sized oysters have a slightly creamy exotic taste
- **Hama Hama - Hama Hama River, Washington State**  
Large creamy crisp texture with a touch of brine "a favorite at Shaffer City"
- **Hood Canal - Hood Canal, Washington State**  
Large deep cupped oyster with classic West Coast creamy texture and musky finish
- **Kumomoto - Puget Sound, Washington**  
Originally found in Japan these deep cupped small oysters are intensely flavored
- **Malaspina - Oregon**  
Medium sized creamy and succulent, nice change from the strong tastes of Washington
- **Nootka - Oregon**  
Deep cupped oyster with sweet liquor, creamy and musky, Hama Hama's watchout



An aerial photograph of a large, calm body of water, likely a bay or estuary, with a dense forest of tall, thin trees lining the shore. The water is a deep blue-green color. In the center of the water, there is a small cluster of yellow buoys or markers. The text 'PACIFIC OYSTER SELECTION' and '\$2.50 EACH' is overlaid in white at the top center of the image.

## PACIFIC OYSTER SELECTION

\$2.50 EACH

- **Quilcene - Washington State**  
Medium sized musky and classically creamy, Hama Hama fans will love these babies
- **Pearl Points - Washington State**  
Medium sized slightly metallic oyster with classic creamy texture and slight muskiness
- **Royal Miyagi - Washington State**  
Medium sized oyster with a plump creamy rich briny little fella inside
- **Sinku-British Columbia**  
This West Coast oyster is slightly metallic and musky in flavor with briny finish
- **Skookums - Washington State**  
West Coast winner, creamy metallic finish with smaller oyster inside
- **Snowy Creek - Oregon**  
Similar to Elkhorn with characteristic Washington State creamy flavor
- **Stranger Bay - California**  
West Coast medium sized oyster, slightly briny and musky
- **Whale Points - British Columbia**  
Strong musky oyster flavor with briny finish. "A true West Coast oyster lover's delicacy."



# American Consumer Disposable Income

## PER CAPITA DISPOSABLE PERSONAL INCOME

(Dollars)

Year	Current Dollars	Annual % Change	Constant 1996 Dollars	Annual % Change
1990	\$17,213	-	\$20,145	-
1991	\$17,748	3.1 %	\$19,935	-1.0%
1992	\$18,645	5.1 %	\$20,391	2.3 %
1993	\$19,147	2.7 %	\$20,382	*
1994	\$19,845	3.6 %	\$20,701	1.6 %
1995	\$20,637	4.0 %	\$21,057	1.7 %
1996	\$21,411	3.7 %	\$21,411	1.7 %
1997	\$22,354	4.4 %	\$21,988	2.7 %
1998	\$23,280	4.1 %	\$22,683	3.2 %
1999	\$24,379	4.7 %	\$23,380	3.1 %
2000E	\$25,312	3.8 %	\$24,042	2.8 %
2001E	\$26,057	2.9 %	\$24,634	2.5 %

E - Estimate

\* Less than -0.05%



# Marketing Tips

- Promote product safety and quality.
- Keep good record of exports / show leadership and professionalism.
- Provide descriptive anecdotes for your product by area of harvest.
- Find reliable distribution channels, transportation before targeting specific area.
- Find reliable experienced distributor to work with. Help promote your products to his clients.
- Follow up on every lead and follow through on your commitments.
- Promote your products through advertising.



# Continue.....tips

- Promote through Chefs Associations, Internet, Selective Magazines.
- Attend trades shows and promote your products.
- Be attentive to marketers demands and work hard to meet their requirements.
- Verify your ideas with your distributors, and clients before adventuring and taking risk.
- Evaluate value-added new product potentiel such as: half shell frozen, frozen meat or prepared Rockefeller Oysters.



**Le Comité National  
de la Conchyliculture  
(National Shellfish Comity)**

**Moncton, 2<sup>nd</sup> and 3<sup>rd</sup> of December 2003**



# Shellfish aquaculture in France – some figures

✓ 3 750 businesses : (78 % individuals)

✓ 21 700 persons : 10 400 full time

✓ Surface exploited :  
16 000 ha of parks  
1 700 km of bouchots

✓ 205 000 T : 2<sup>nd</sup> rank in Europe

✓ Market :  
oysters : 1<sup>st</sup> , 4<sup>th</sup> world  
mussels : 2<sup>nd</sup> Europe, 5<sup>th</sup> world

✓ Income : 630 millions €



# **Interprofessional organisation for shellfish aquaculture in France**

# Its particularity

Created by the legislature, it does not answer to associative or syndicate sector, it has an official status « **sui generis** » :

- You do not adhere voluntarily to the interprofessional organisation, membership is **mandatory** from the moment where activities of production, distribution or transformation of farmed shellfish take place.



# Its particularity

## In consequence :

- Representivity of all the activities and all the operators of the distribution and transformation must be assured.
- Constitutes the only organism with the authority to speak to public powers in the name of **all producers**
- Assures the defined missions similar to those of the **public service**.

## In counterpart :

- It is under the guardianship and control of the State.

# Its composition

## **Comprises :**

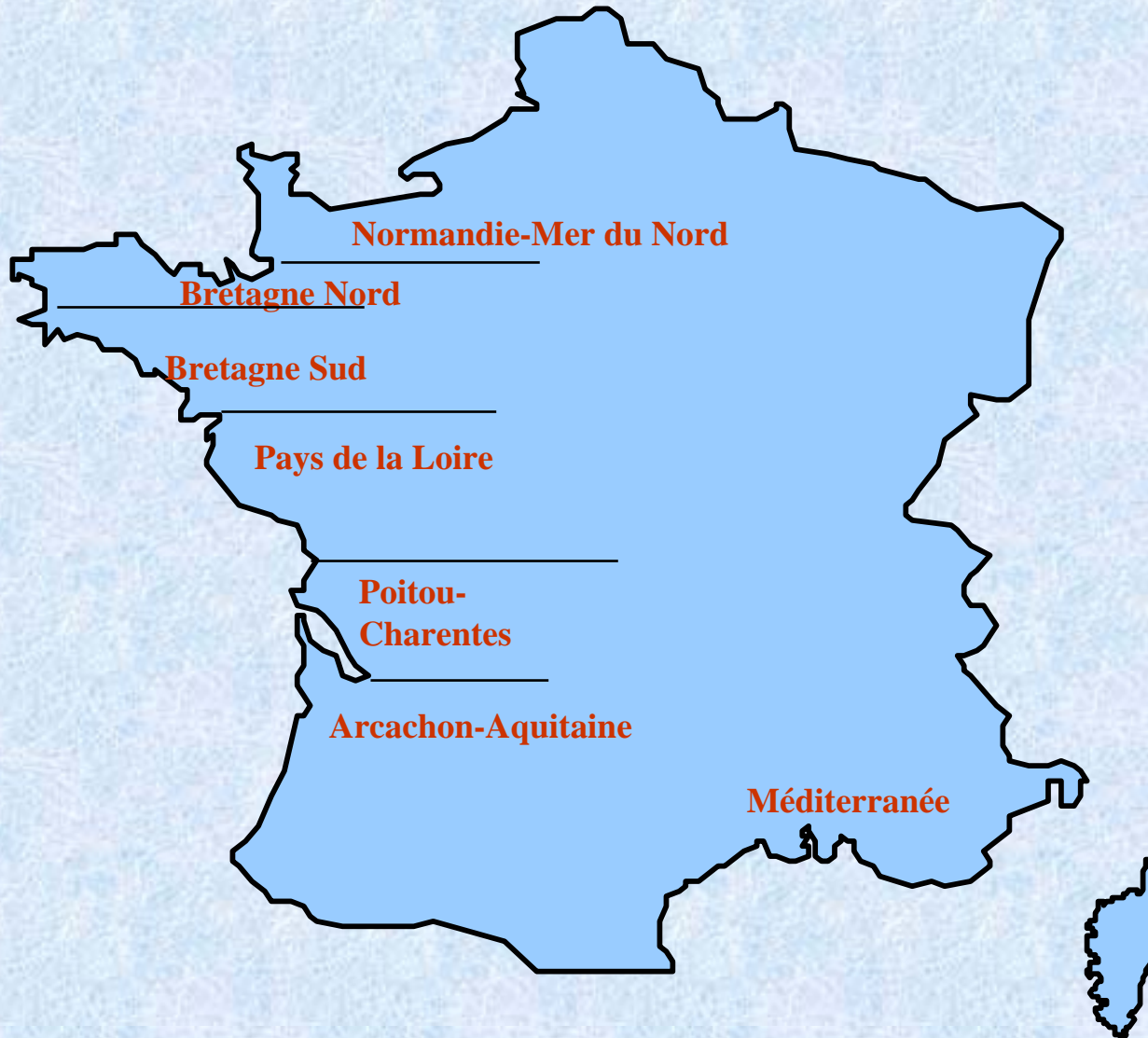
- 1 national comity (the N.S.C (C.N.C.))
- Des comités régionaux (les R.S.S (S.R.C.))

There are 7 R.S.S., each corresponding to one production bassin.

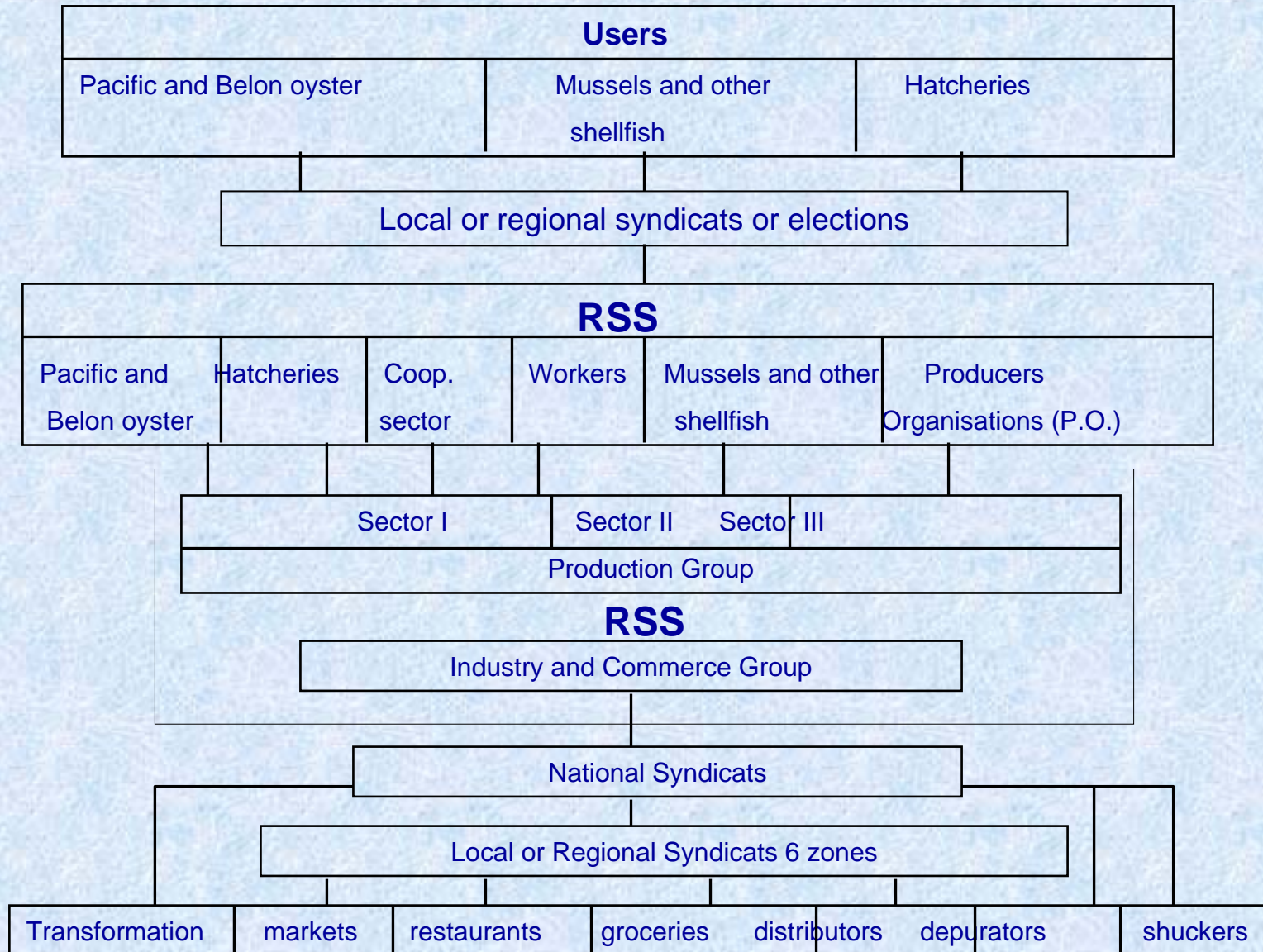
They cover all of the french coast line.



# The 7 R.S.S.



# Professional representation





# Directing agents

## Regional level:

- ✓ The RSS office, is composed of the members of the RSS as a whole, nominated by the Prefect.
- ✓ The RSS president is elected by the office by its members, nominated by the Prefect.
- ✓ All of the functioning regulations are fixed by an interior regulation which must be approved by the Regional Prefect.

## At the national level :

- ✓ The NSC counsel, is composed by the members, nominated by a ministerial order.
- ✓ The NSC President, is elected by the Counsel amongst its members, nominated by ministerial order.

The mandate of the NSC and RSS members and the Presidents are fixed at 4 years (renewable).

# Functioning of the NSC

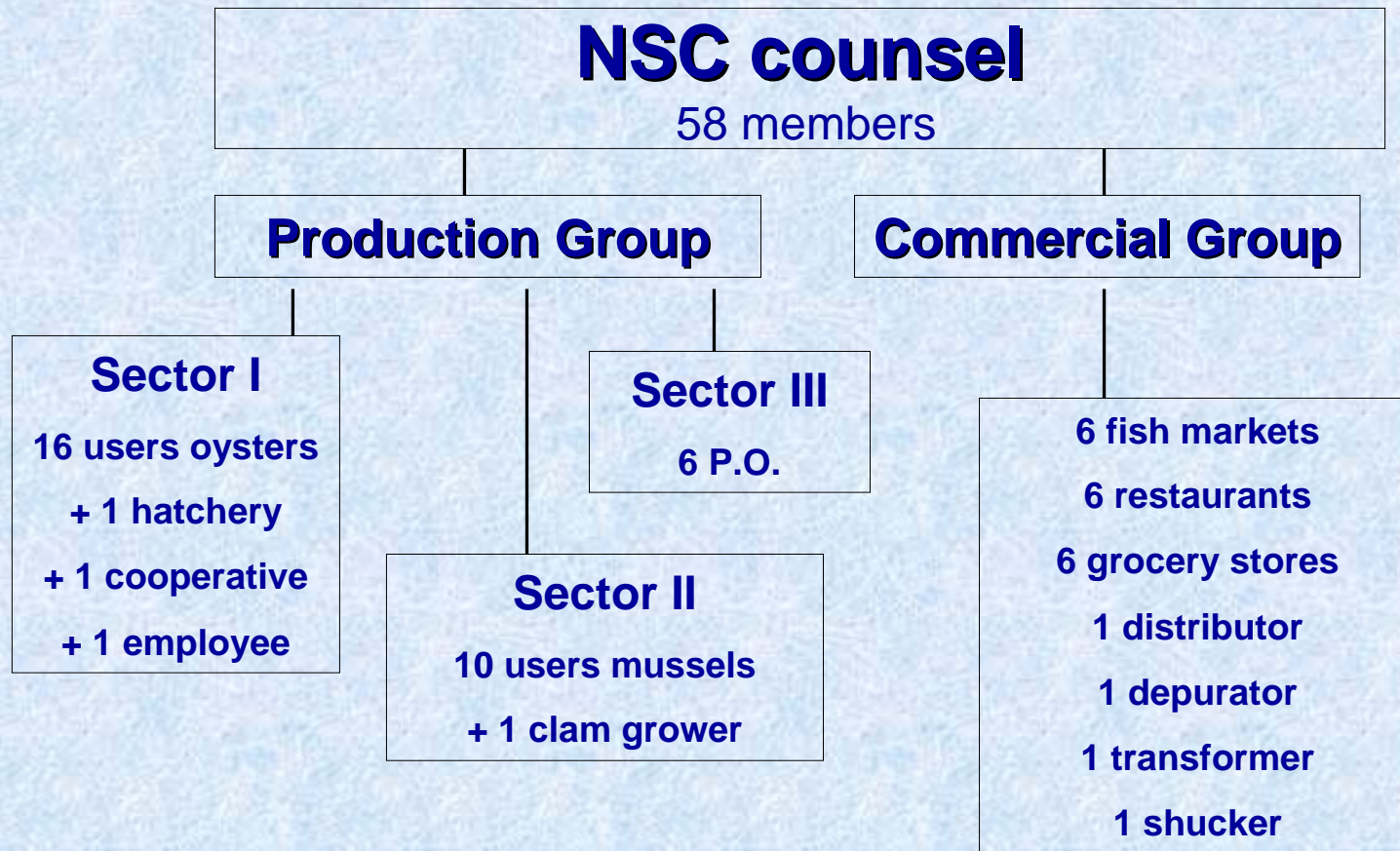
## The NSC is governed :

- by a law
- by a decree
- by an interior government approved by ministerial order

## Is composed of 3 levels :

- The Counsel
- The office
- Work commissions





- ✓ **The Counsel meets at least twice a year at a general assembly.**
- ✓ **The Counsel meets as necessary, small assembly.**
- ✓ **The Counsel designates an office where it can delegate all of its powers except for budgetary matters and deliberations of obligatory character.**

# **NSC Office**

20 members

4 right members :

+ the 3 sector presidents and the  
Commerce Industry president

12 members proposed by the  
Production group

+ 4 proposed by the Commerce  
group

- ✓ **Nomination of the office members is subject to a ministerial order.**
- ✓ **The office meets at least 3 times a year.**



# **The work commissions**

- ✓ **They are created according to the needs associated to particular questions.**
- ✓ **They are mostly composed of Counsel members.**
- ✓ **They can call upon external individuals.**
- ✓ **Their role is to formulate propositions and to prepare Counsel deliberations on precise questions.**

**The most common work group to unite is composed of the RSS presidents**



# The missions of the interprofessional organisation

The RSS (regional) and the NSC (national) propose, participate or lead the actions relative to :

- Representation and defense of the general interests of the shellfish aquaculture industry
- Management of the shellfish sector, and marketing of shellfish products
- Spreading knowledge to professionals
- Research and socio-economic studies
- Promotion of aquaculture products
- Professional training
- Defense of water quality for aquaculture.

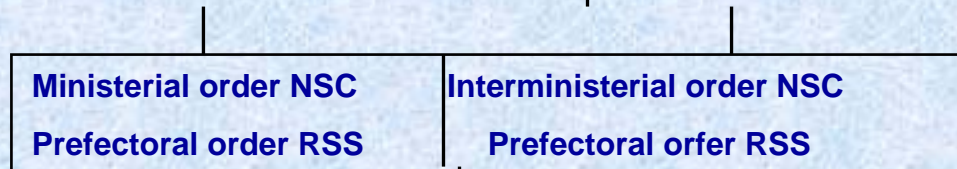
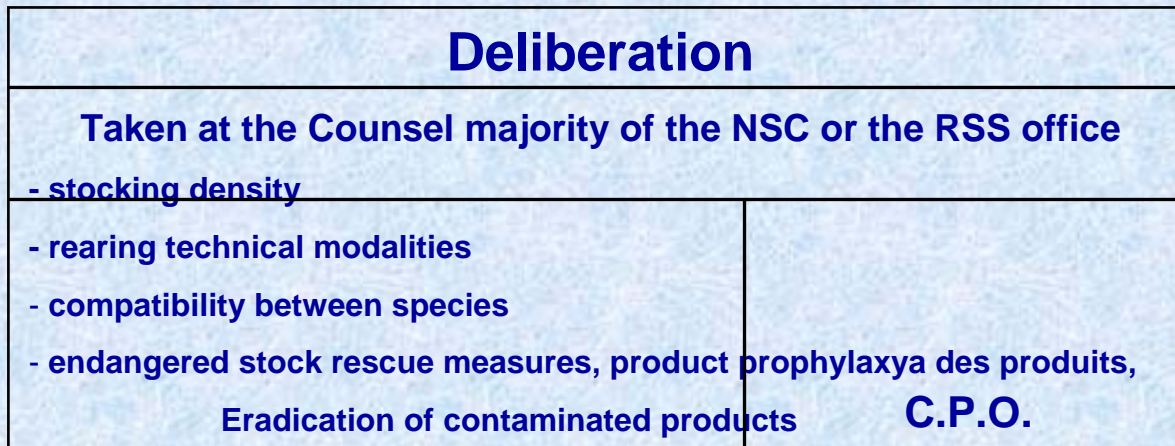
In the case of some of these missions, the RSS and the NSC can take mandatory measures, under State control, applicable to all professionals.



# Mandatory measures

They concern :

- ✓ Ressource protection and conservation
- ✓ The creation of the Professional Mandatory Subscription (PMS)



Maximum duration 5 years (renewable)

**Execution**

Maximum of 1 year (renewable)

Administrative fines, suspensions,  
suspension of rights or titles

**Sanctions**

Contentious



# General interprofessional policy

## Conducted by the NSC :

- The NSC coordinates the RSS actions
- The RSS assures the execution of measures taken by the NSC
- Mandatory deliberations of the RSS cannot be contrary to NSC deliberations
- The NSC must be consulted on all legislative or regulatory measures concerning shellfish aquaculture
- The NSC must be informed of the orientations of the community policy relative to shellfish aquaculture.

# Supplementary mission of the NSC

Through the interministerial order January 13th 2000, the NSC obtained its status as a agricultural interprofession, thanks to the presence of distributors and P.O.'s

This enables the NSC to pass interprofessional agreements between all or part of the operators of the branch.

## ➤ OBJECT

Promote and regulate relations between producers, buyers and transformers

## ➤ APPLICATION FIELD

- Define and favor contractual procedures between partners of the branch
- Contribute to market management by better adapting des products from a qualitative and quantitative perspective and through their promotion
- Re-enforce food security through the traceability of the products

## ➤ CONDITIONS FOR AGREEMENT CONCLUSION

- Collegial deliberation (sector I, II, and III, fish markets, restaurants, super-markets)
- Unanimity rule for the colleges concerned by the agreement.



# Supplementary mission of the NSC (suite)

An agreement can be extended to non signatories, for instance for regulating of the offer, for establishing marketing rules, etc.

The NSC has concluded **2 interprofessional agreements** :

- on the denomination and classification of the Belon oyster
- On the packaging of the Belon oysters

Financing of the agricultural interprofessionals is based on **Voluntary Mandatory Subscription (VMS)**



# State mentoring

In counterpart to the mandatory consultation, of information from the interprofessional organisation and of the compulsory nature of certain decisions, **the State** :

- **exercises a mentoring presence : presence at meetings.**
- **disposes of a veto.**
- **operates a financial control : control mission over the budgets, financial results, and accounts.**

# Financing of the interprofessional organisation

The possible resources are :

- Para fiscal taxes (terminated in France on 31/12/2003)
- PMS
- VMS
- Revenues from services rendered
- Revenues from assets
- Grants
- Donations.



# The VMS

**A deliberation determines :**

**The object :**

- can be general and concern the functioning and missions of the organisation.
- can be particular to one or more actions.

**The concerned :**

All or part of the professionals concerned with the VMS.

**Amount**

Comprehensively adapted to the different concerned activities.

**The rate**

Unique or multiple, fixed or proportional according to the amount.

**Payment delay if necessary**

Fixed according to the nature and length of the VMS

**The recovery is assured by the beneficiary organisation.**

**The VMS has the character of a private rights credit (contrary to the old fiscal tax system) and therefore obeys to the contentious rules of the common law.**



The image shows five open oysters arranged on a bed of green seaweed. The oysters are open, revealing their internal organs, including the mantle edge and the siphon. The background is a dense, textured layer of green seaweed. The text is overlaid in the center of the image.

**MONITORING IN  
SHELLFISH AQUACULTURE**

**BY**

**Henri GRIZEL**



# SANITARY AND ZOO-SANITARY PRINCIPALS FOR SHELLFISH CULTURE



Sanitary : consumer protection and product quality control

Three levels of control :

- environment, **lfremer**
- farms and markets, **SV**
- auto-control, **growers**



Zoo-sanitary : protection of the stocks

A level of technical control

- lfremer

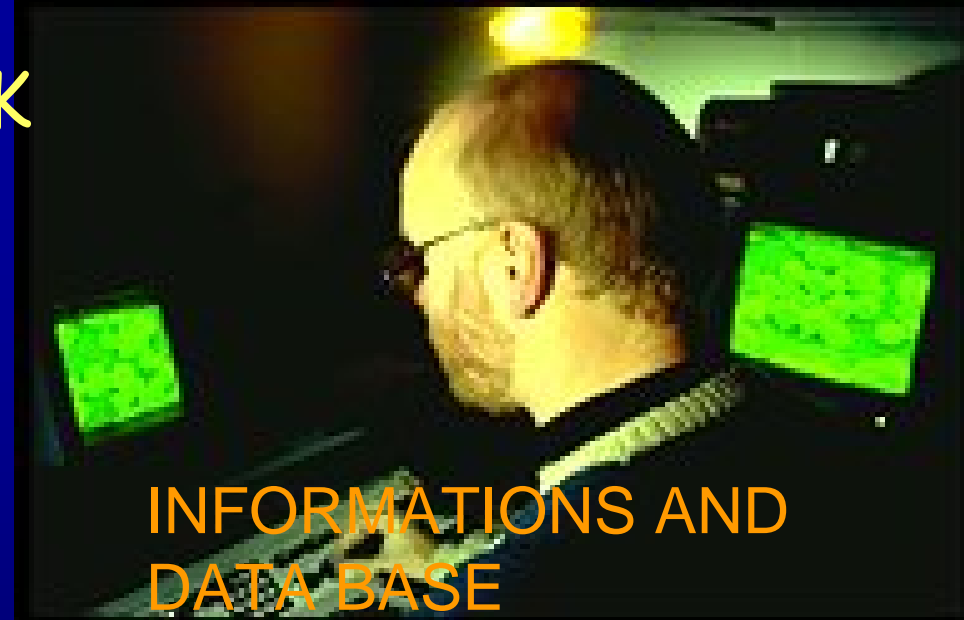
# THE IFREMER NETWORK

## INSTITUTIONAL

- REMI
- REPHY
- RNO
- REPAMO

## INFORMATIONS AND DATA BASE

- REMORA
- QUADRIGE
- RSL
- RAZLEC
- ETC...





# REMI

## OBJECTIVE

Answer to directives which aim at evaluating the sanitary risk (zone surveillance and classification system)

## THE CONTROL

*Escherichia coli* in the shellfish

## REGULATION CONTEXT



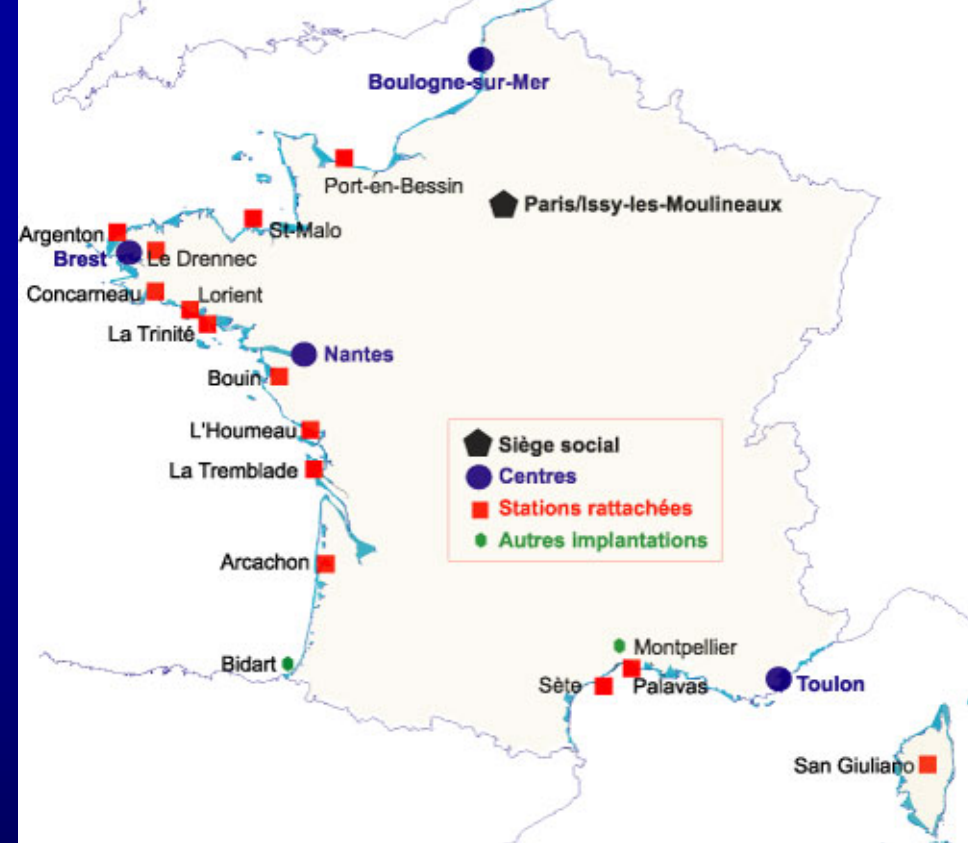
Nombre d' <i>Escherichia coli</i> dans 100 g (C.L.I.) <sup>-1</sup>				
Classe	230	1 000	4 600	46 000
A	≥ 90 %	≤ 10 %	0 %	
B	≥ 90 %		≤ 10 %	0 %
C	≥ 90 %			≤ 10 %
D				> 10 %

Arrêté du 21 mai 1999

# REMI

## ONE ORGANISATION

- Ten laboratories close to the production areas
- One central national laboratory
- One european laboratory of reference in Weimouth (England)



## STANDARDIZED METHODS

Standard NF V08-600 et V08-106

- Technique of the most probable number
- Indirect technique using direct impedancemetry

# REMI

## FONCTIONNING STRUCTURE

- Laboraties under quality control
- Classification based on a three year surveillance study, or after a one year specific study
- Defined sampling (nb sites and target species)
- Monthly or trimestrial baseline surveillance depending on the sites
- Reinforced surveillance on the sites and site-specific events disfonctioning, excess rains, consumer intoxication (TIAC), etc..)





# REMI

## CLOSING AND REOPENING PROCEDURES

### First stage

notification by **Ifremer** according to the following principal :

if negative complementary results

pre-alert with  
complimentary analysis

if first complimentary analysis +: 2 consecutive analysis series  
with - results

if complimentary results are - : stop procedure



### Seconde stage

Examination of the notice by  
the sanitary commissioner

### Third stage

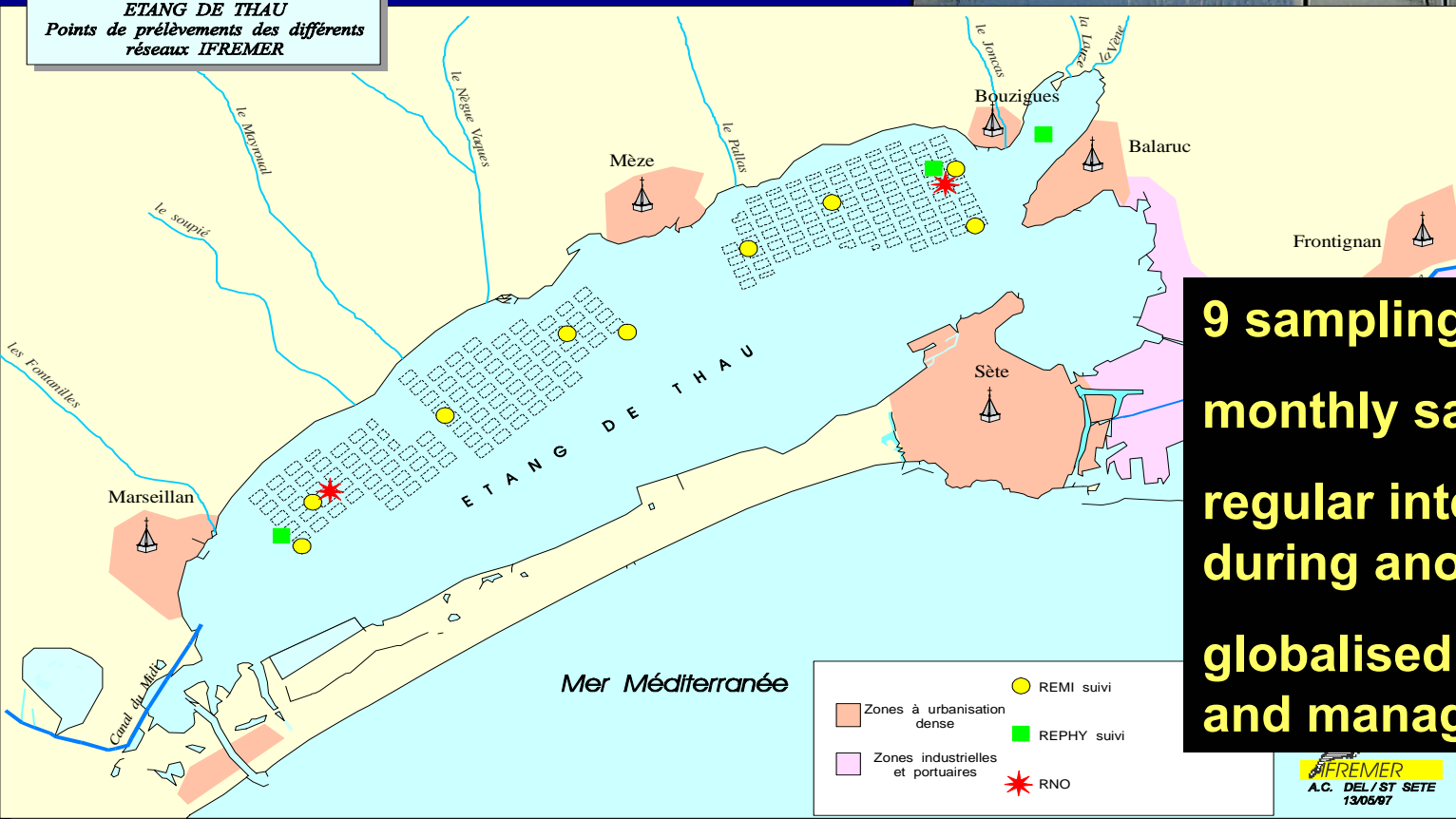
Decision to close or to open  
taken by the Prefect

# REMI

## ONE EXEMPLE : the THAU Lagoon



**ETANG DE THAU**  
Points de prélèvements des différents réseaux IFREMER

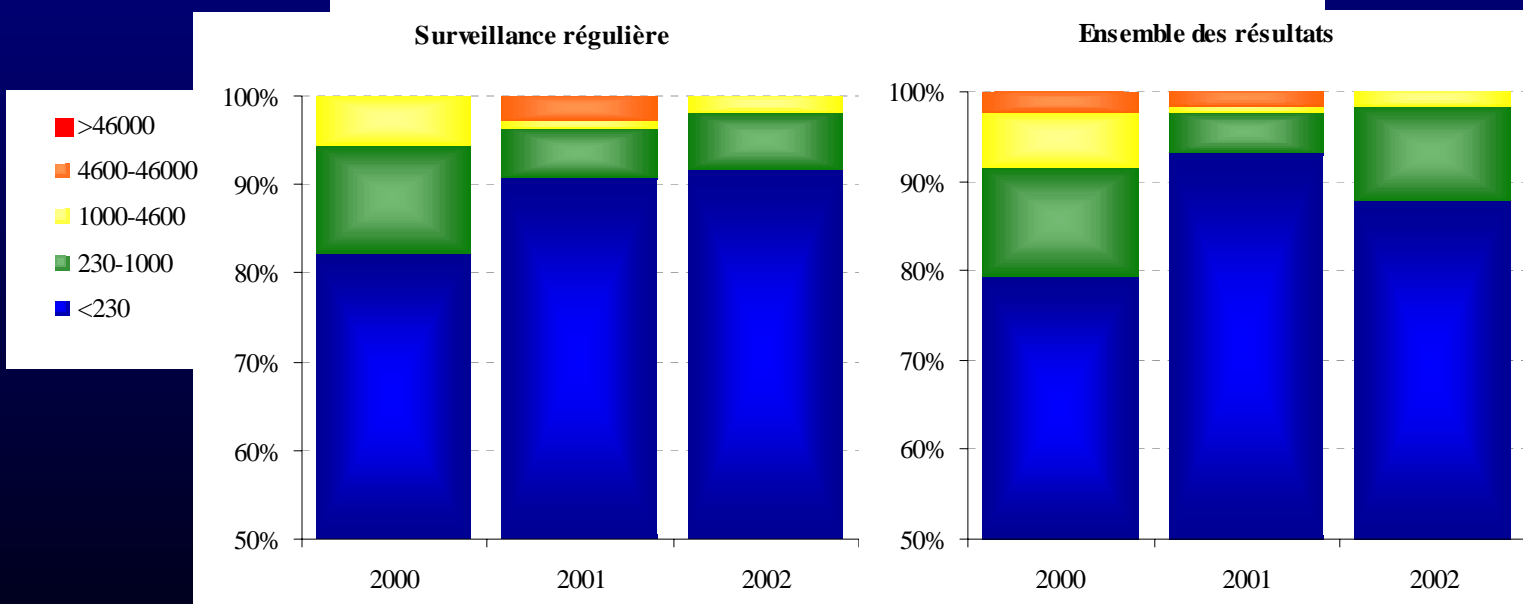
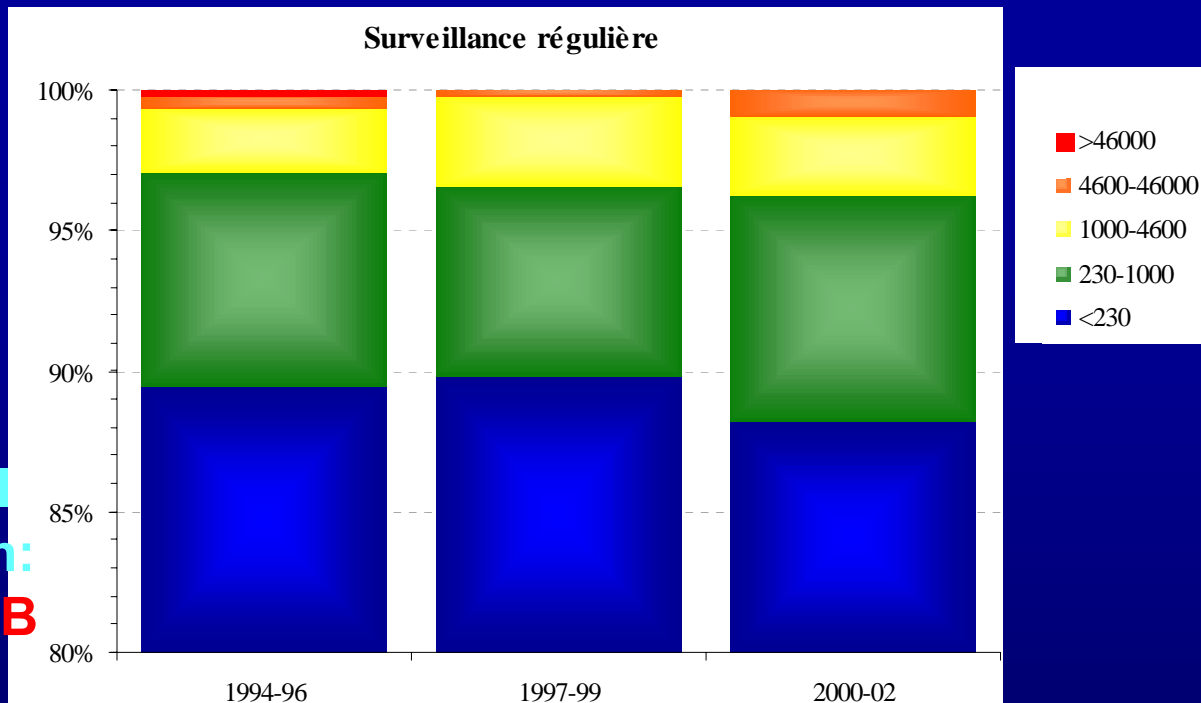


**9 sampling sites**  
**monthly sampling**  
**regular interventions**  
**during anomalies**  
**globalised classification**  
**and management plan**

IFREMER  
A.C. DEL/ST SETE  
13/05/97

# REMI

Evolution of bacteriological results for the Thau Lagoon: results corresponding to a B classification





# REPHY

## OBJECTIVE

Answer to directives aiming at evaluating the sanitary risk (phycotoxin surveillance system)

## SPECIES AND TOXINS

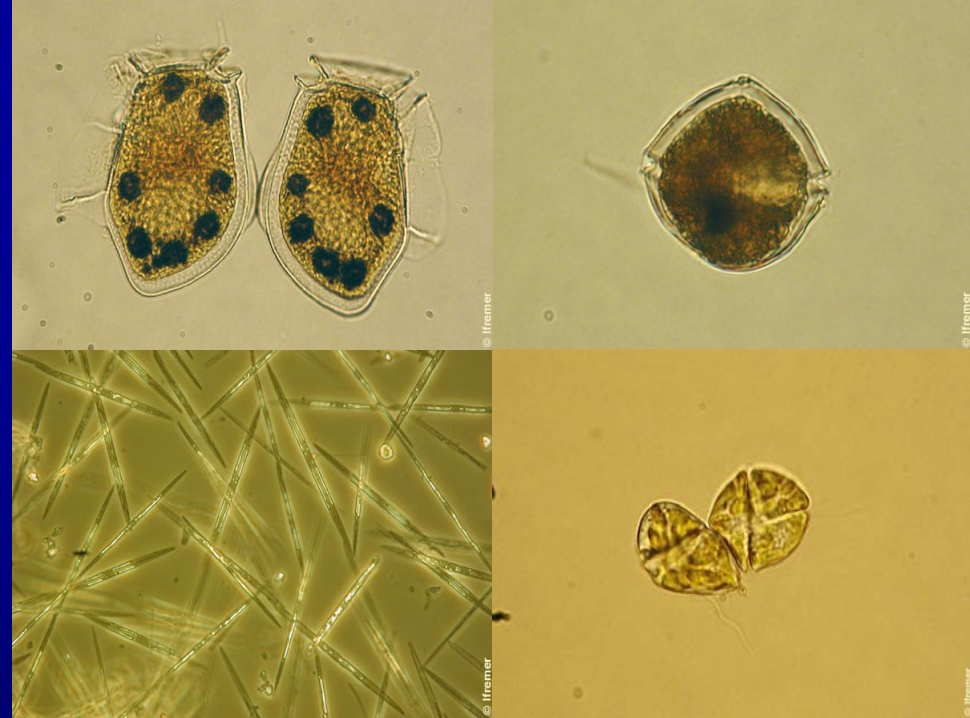
*Dinophysis* (DSP), *Alexandrium* (PSP), *Pseudo-nitzschia* (ASP), etc... in water and shellfish

## A REGULATORY CONTEXT

DSP : threshold (for mouse test) death of 2 out of 3 mice in 24h

PSP : threshold 80µg of saxitoxine for 100g of meat

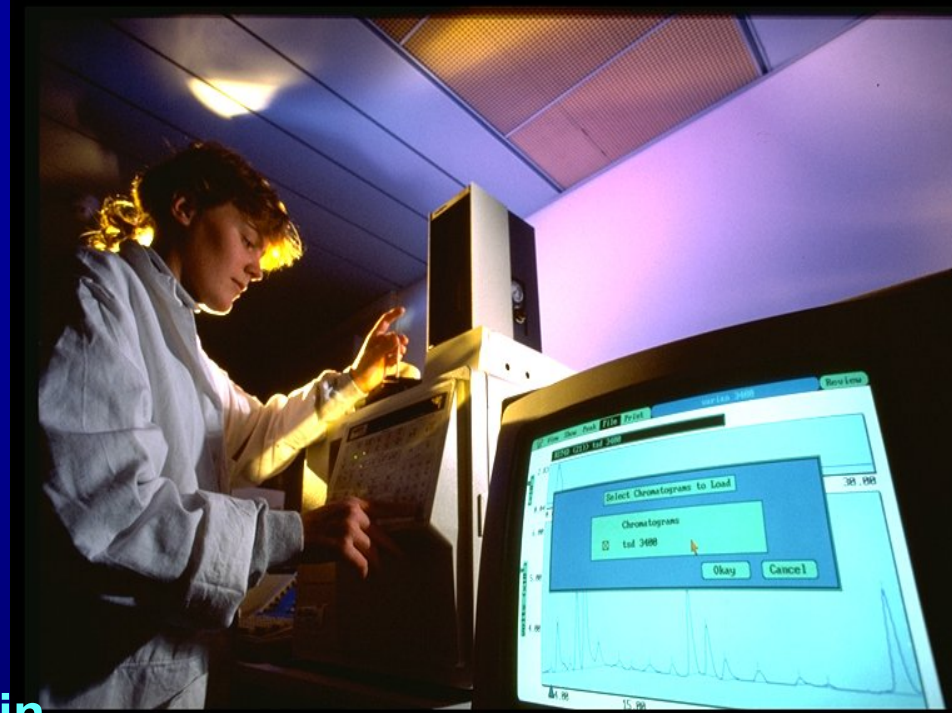
ASP : threshold 20µg of domoïque acid for g of meat



# REPHY

## ONE ORGANISATION

- Ten laboratories close to the production areas
- One central national laboratory
- One European reference laboratory in Vigo (Spain)



## STANDARDIZED METHODS

DSP : biological analysis (mouse test)

PSP : biological and chemical analysis

ASP : chemical analysis by HPLC

# REPHY

## FONCTIONING STRUCTURE

- Laboratories under quality control
- Defined sampling (nb sites and target species)
- Weekly or bi-monthly baseline surveillance of phytoplankton
- Threshold alert (toxicity research) adapted to the sites and their history
- Reinforced site and site-specific event surveillance (animal mortality, visual observation of the water coloration, etc...)

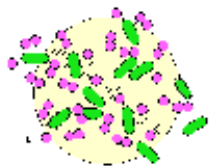




# REPHY

## OPENING AND CLOSING PROCEDURES

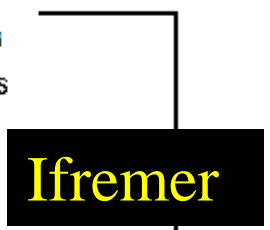
### FERMETURE



Détection de phytoplancton suspect au microscope sur prélèvement d'eau



Extraction de la toxine sur coquillages



**PREFECTURE  
AFFAIRES  
MARITIMES**

**Si supérieur à 80 microgrammes de toxine pour 100 g de chair de coquillage**



Mesure de la quantité de toxine et tests biologiques

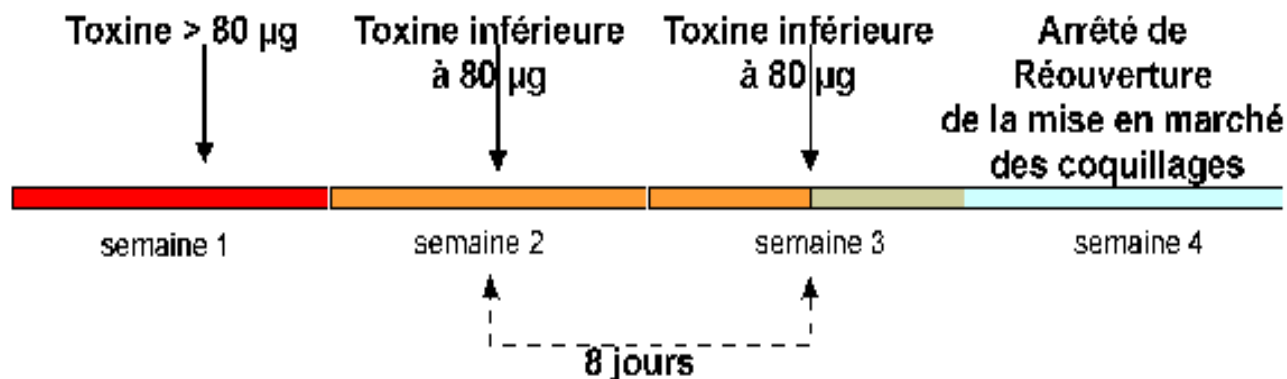
**Decision taken by the Prefect**

**"Cellule de crise"  
Arrêté Interdisant  
la mise en marché  
des coquillages**

# REPHY

## REOUVERTURE

**Decision to open  
taken by the  
Prefect**



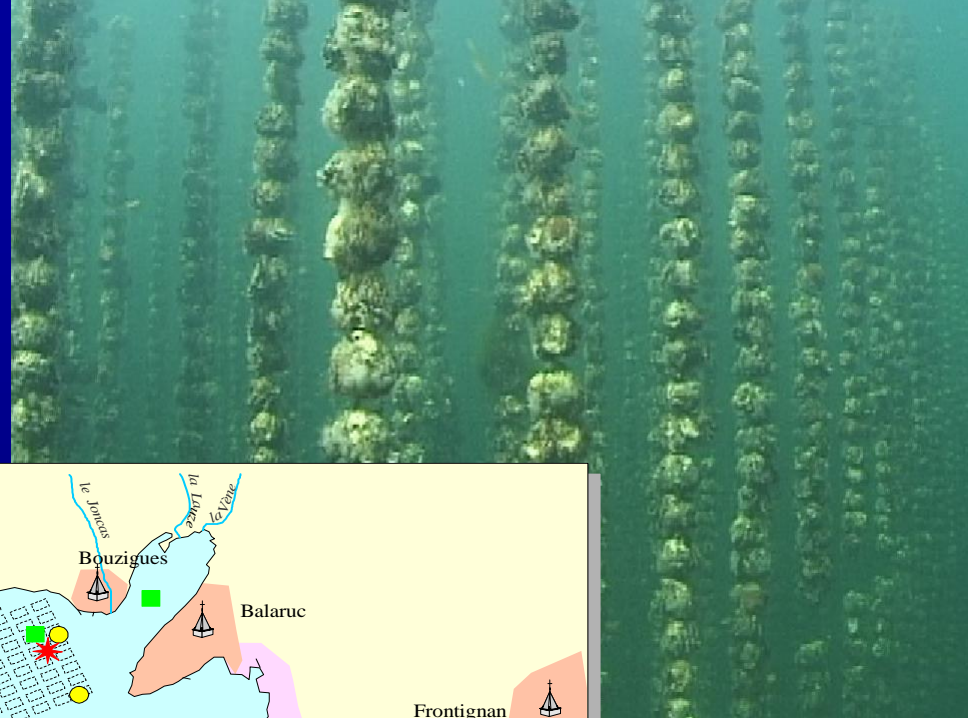
Deux tests négatifs espacés de 8 jours sont obligatoires pour réouvrir un secteur atteint par une telle contamination.

## MODALITIES ADAPTED TO THE NEEDS

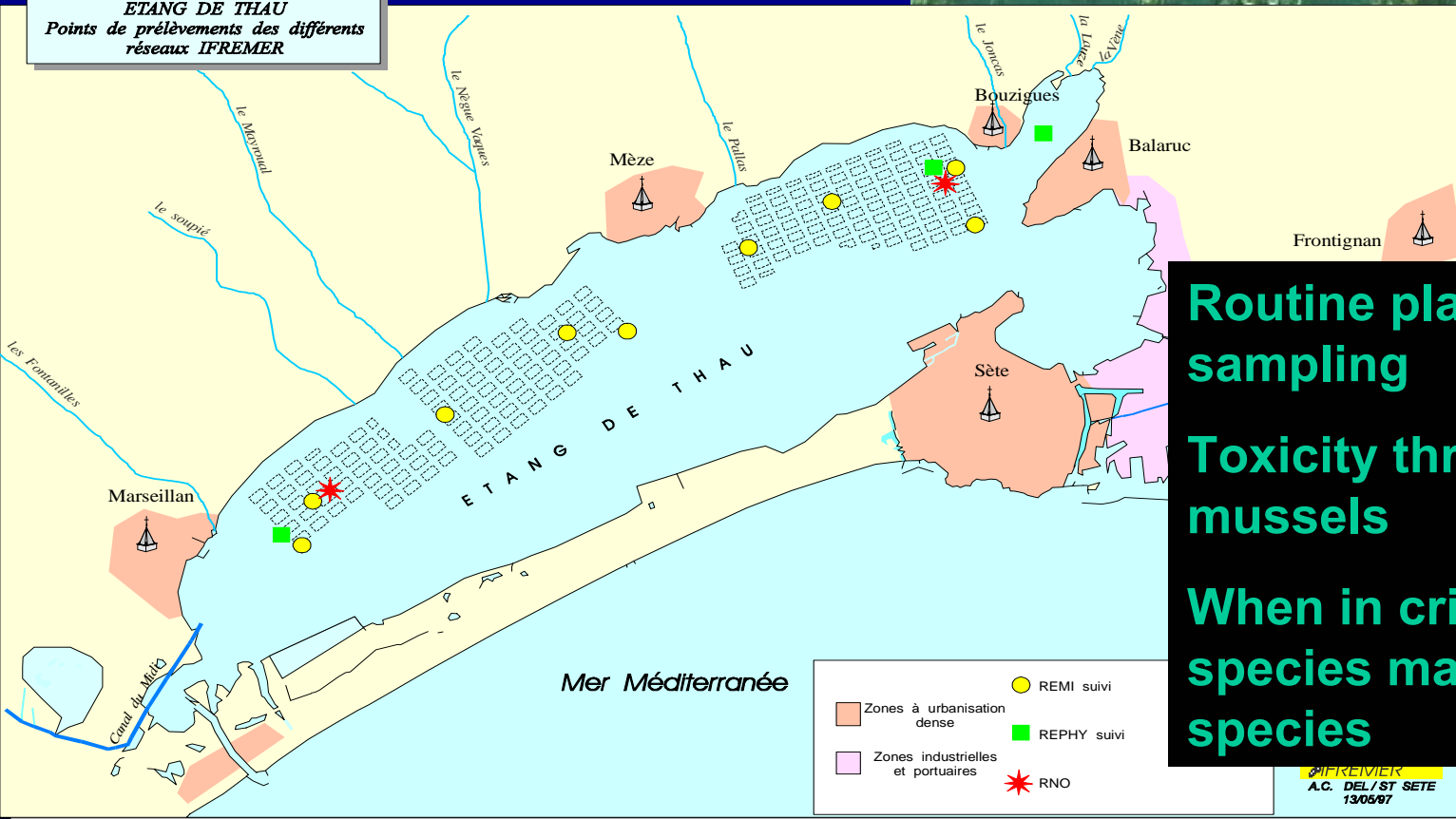
- Specific closure and opening
- Delays shortened by doubling of sampling efforts

# REPHY

## EXEMPLE : the Thau Lagoon



**ETANG DE THAU**  
Points de prélèvements des différents réseaux IFREMER



Routine plankton sampling

Toxicity threshold, mussels

When in crisis, by-species management of 3 species



# REMI ET REPHY

## INFORMATION AND MESURES

- The industry is informed of the closures and openings by the Prefect Services and by the administration of Maritime Affairs, via the Industry structures and the press
- During closure, all shellfish sent to the markets on the eve of closure are taken off the market
- During a closure caused by phytotoxins, all transfers of animals from an affected zone are forbidden
- The consumers are notified via the press, television, fish markets and growers



# RNO

## OBJECTIVE

- Since 1974, RNO invests in the knowledge and surveillance of the marine environment
- Since the directive of 2000/60/CE, on the quality of coastal and marine waters, RNO is a tool permitting to answer this directive
- Obtain data for sanitary regulations



## A VERY LARGE SURVEILLANCE

- General quality parameters in the estuarine zone
- The contaminants (metals, organochlorides, hydrocarbons) in living matter
- Surveillance of biologic effects

## SANITARY REGULATIONS IN PRACTICE

For the consumer



Seuil de contamination chimique (mg/kg chair humide)			Zones	Exploitation
<b>Plomb</b>	<b>Cadmium</b>	<b>Mercure</b>	Classement	Elevage et pêche
< 1.5	< 1	< 0.5	<b>A</b>	<b>Autorisés</b>
> 1.5	> 1	> 0.5	<b>Non A</b>	<b>Interdits</b>

**Directive CEE 466/2001 modifiée par règlement CEE 466/2002**

**For shellfish : recommendations for TBT, regulation of January 27th 1982**

Effects on shellfish for concentrations close to the ng.l

Shell calcification is affected as of 2 ng.l

Reproduction is affected as of 20 ng.l



# RNO

## ONE ORGANISATION

- 15 coastal laboratories insuring sampling and analysis
- One central laboratory which organise, analyse and manage the data



## STANDARDIZED METHODS

- Implicated with the european program QUASIMENE
- Certified reference material (CRM)
- Regular calibration exercise

# RNO

## FONCTIONING STRUCTURE

- One sampling plan for 43 sites
- A large number of sampling sites (90) and samples (ex in 2001 : 356 living matter, 1550 hydrologiques)
- Site-specific complementary studies
- An organised management of datum and integration in a QUADRIGE data base

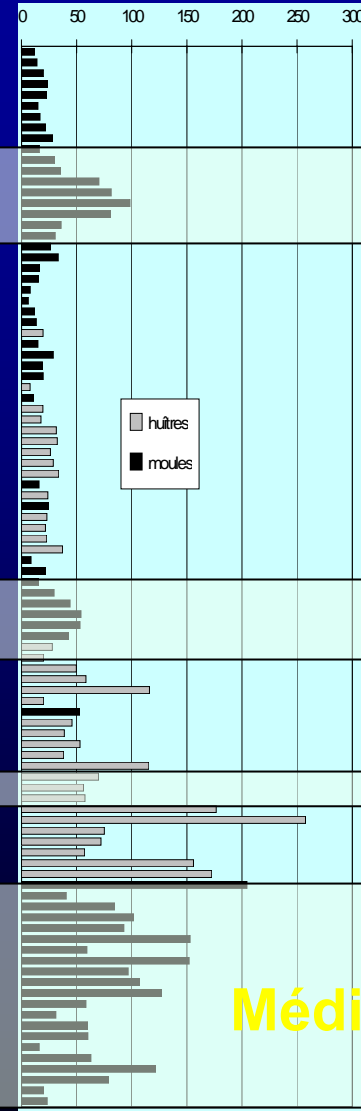
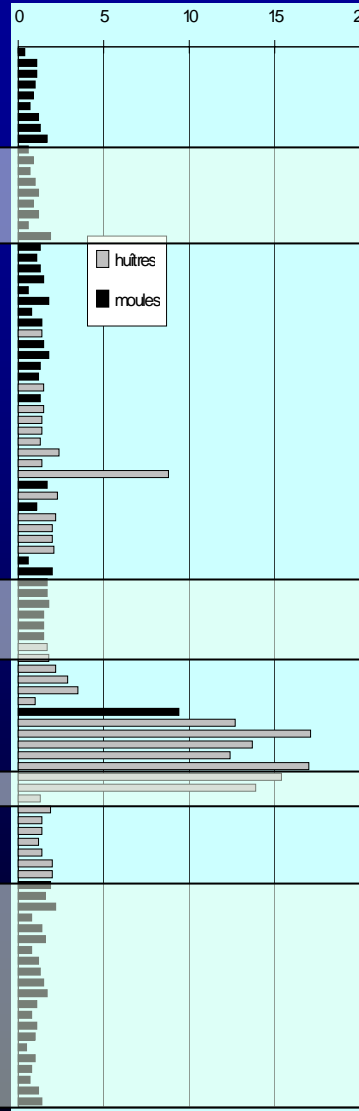
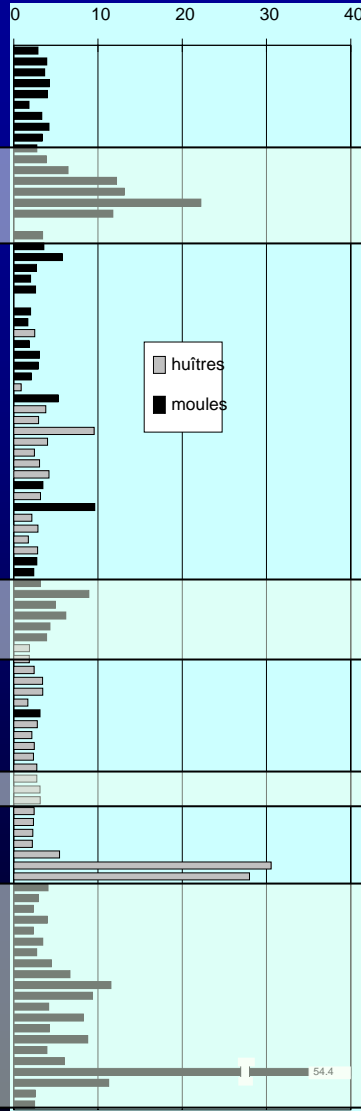
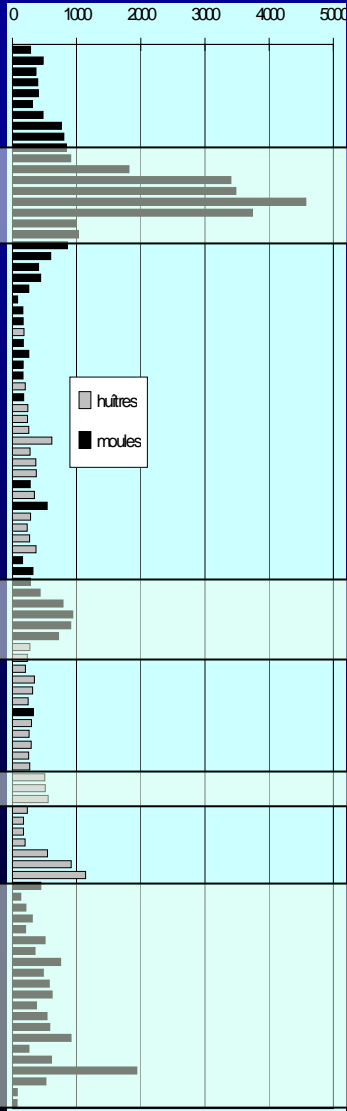


## PCB

## HAP

## Lindane

## $\Sigma$ DDT



Seine




Loire

Gironde

Méditerranée

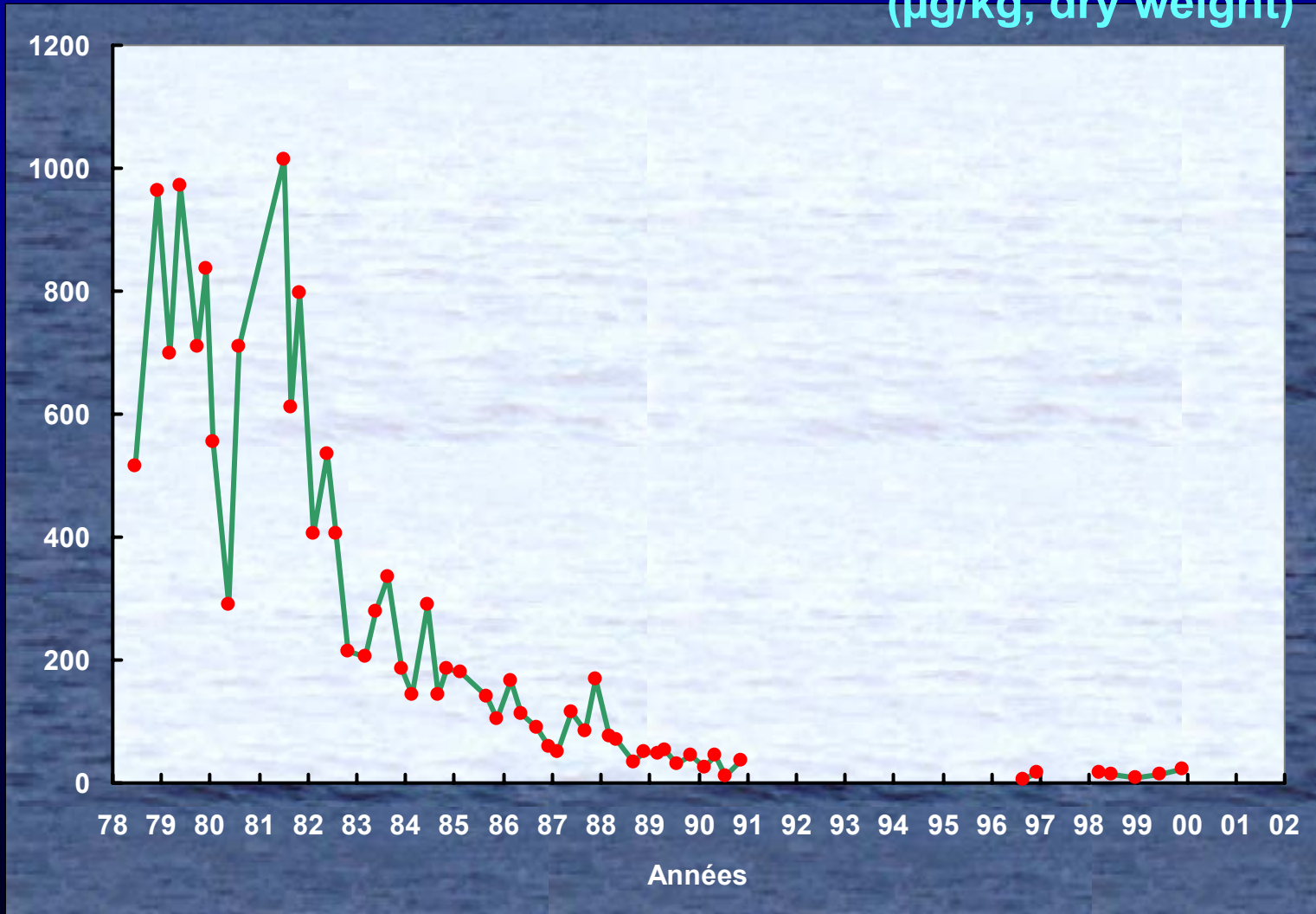


# RNO

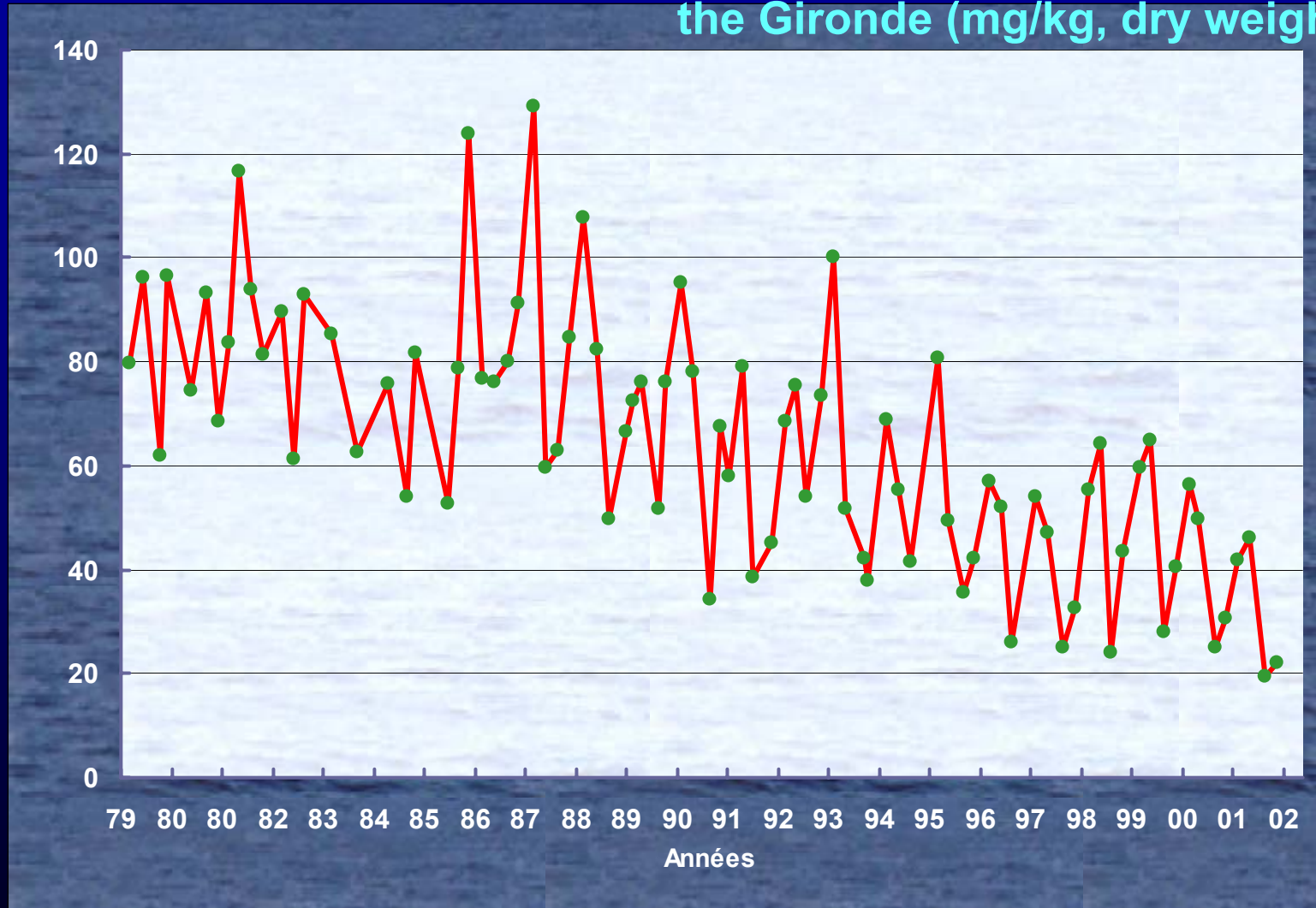
Contaminant			 ou non significatif
Hg	13	27	62
Cd	7	74	21
Pb	4	57	41
Zn	14	30	58
Cu	16	25	61
CB 153	0	26	76
ΣDDT	0	78	24
αHCH	0	68	34
γHCH	0	56	46
ΣHAP	0	17	84
<b>Total</b>	<b>54</b>	<b>468</b>	<b>507</b>

**Tendency numbers per contaminant  
observed by the RNO (1979-1998)**

## Evolution of the $\Sigma$ DDT concentrations in oysters from the Arcachon Bassin ( $\mu\text{g}/\text{kg}$ , dry weight)

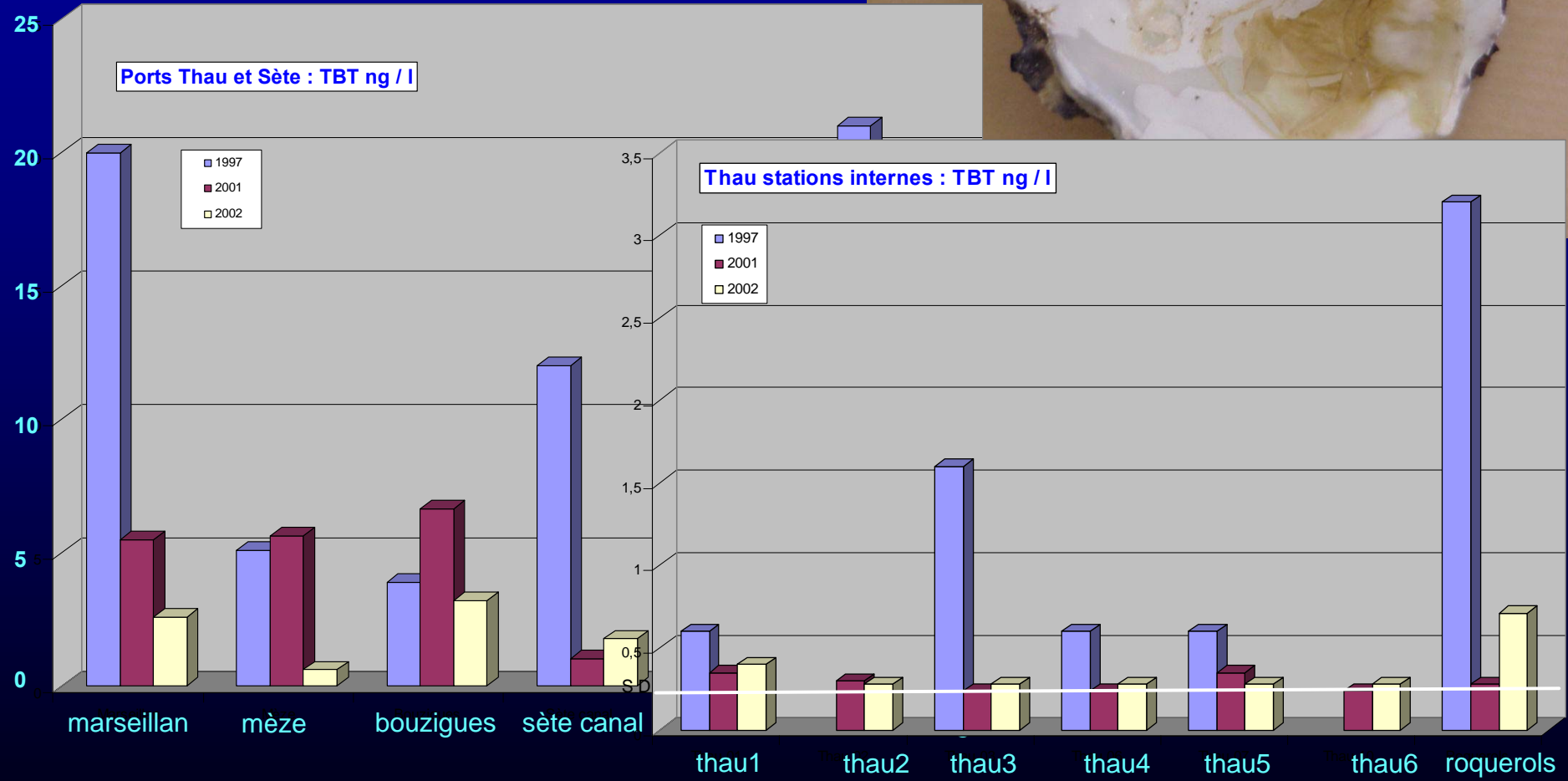


# Evolution of cadmium concentrations in oysters from the Gironde (mg/kg, dry weight)





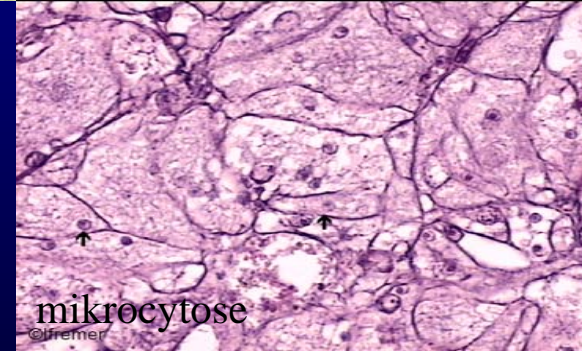
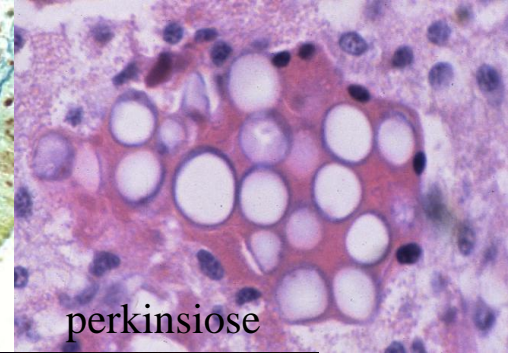
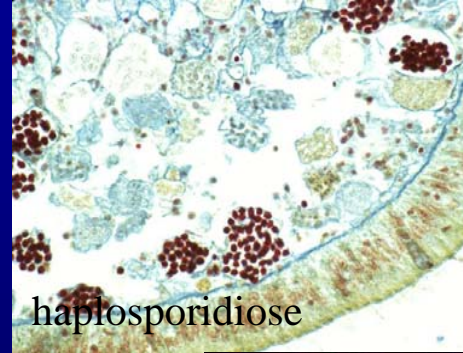
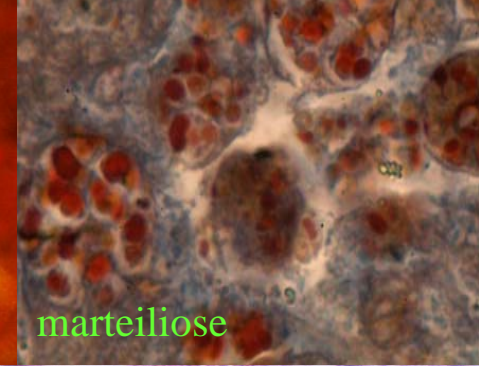
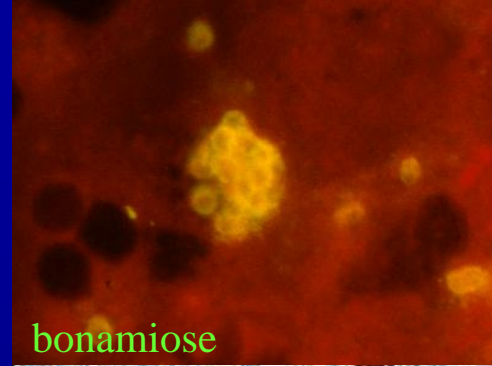
## Evolution of TBT at THAU Lagoon



# REPAMO

## OBJECTIVES

- Answer to european directives (91/67 et 95/70)
- Provide adequate datum to administration and industry
- Rapidly determine the cause for anomalous mortalities



## DESEASES AND SPECIES

- List of deseases which must be declared to the OIE and the UE
- Routine control of the stocks present on site

# REPAMO

## A LARGE REGULATORY CONTEXT

- Site-specific management
- Technical recommendations
- Sampling recommendations

## ONE ORGANISATION

- One central control laboratory
- Regional correspondants by zone

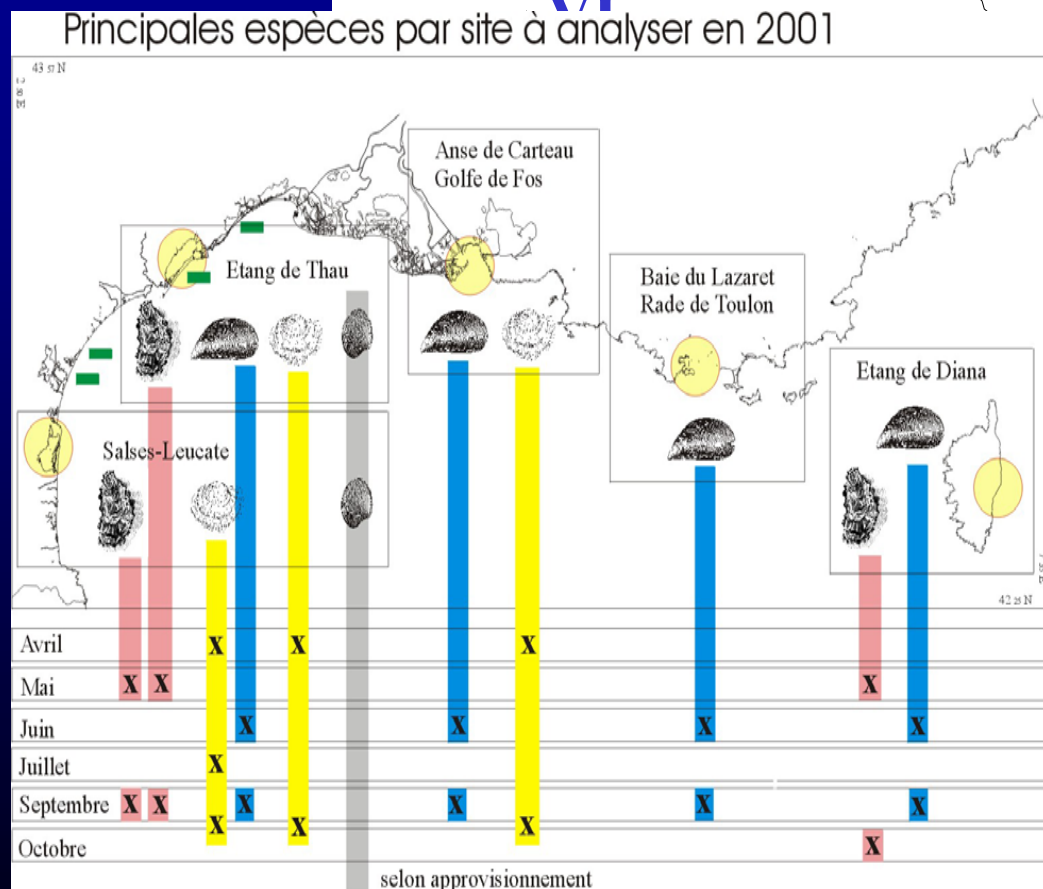
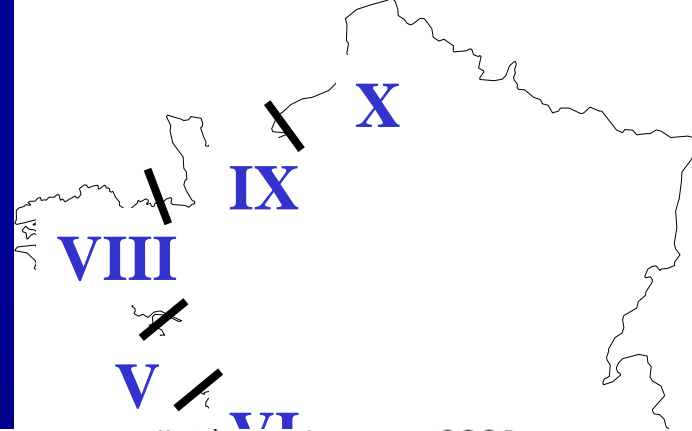




# REPAMO

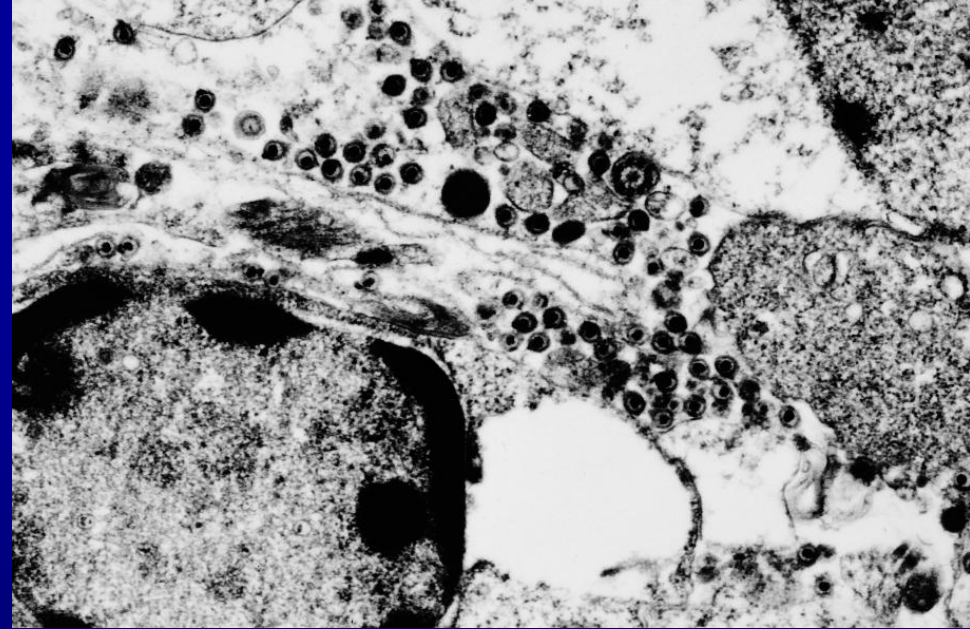
## UN MODE DE FONCTIONNEMENT

- Laboratory under quality control insurance
- One zoning (10 zones)
- One sampling per zone and specie
- One crisis surveillance
- One European and OIE reference laboratory
- Restitution of the information through a data base



# REPAMO

## RESULTS



- Zonage proposal
- Found evidence that *C. gigas* is not a host organism for the two declarable diseases
- Determined the absence of other declarable pathogen agents related to anomalous mortalities
- Creation of an epidemiologique data base relative to all the commercial shellfish species in France
- Identification of opportunistic pathogen agents responsible for punctual mortality events

# REMORA

## OBJECTIVE

Obtain a data base relative to the performances of growth, quality and mortality rate enabling:

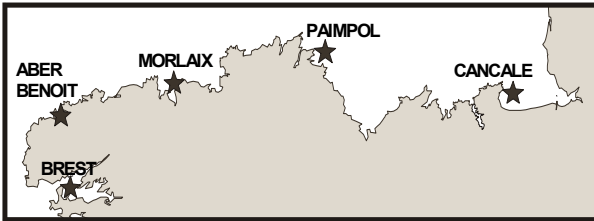
- the creation of historic data series and observation of signs of of production yield loss
- comparison of intra-site and inter-site performances
- the correlation of datum with zootechnical and environmental parameters in order to explain tendencies et find solutions



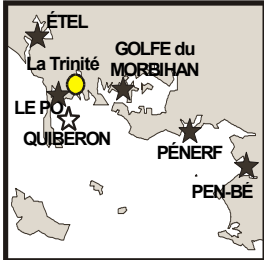


# REMORA

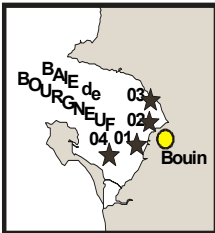
## BRETAGNE NORD



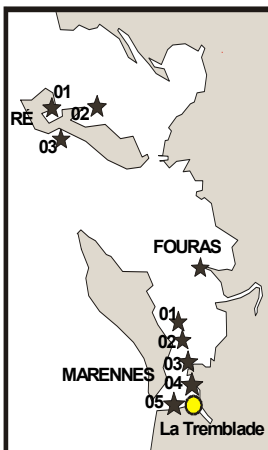
## BRETAGNE SUD



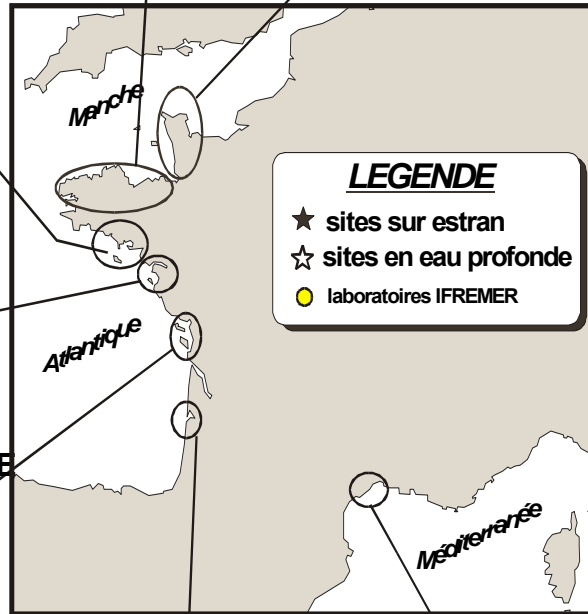
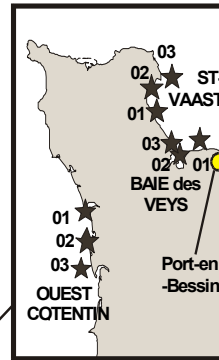
## VENDEE



## CHARENTE-MARITIME



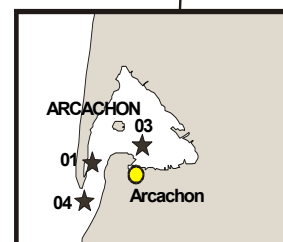
## NORMANDIE



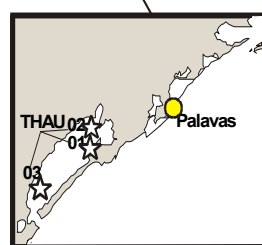
### LEGENDE

- ★ sites sur estran
- ☆ sites en eau profonde
- laboratoires IFREMER

## ARCACHON



## ÉTANG DE THAU



# REMORA

## THE SITES

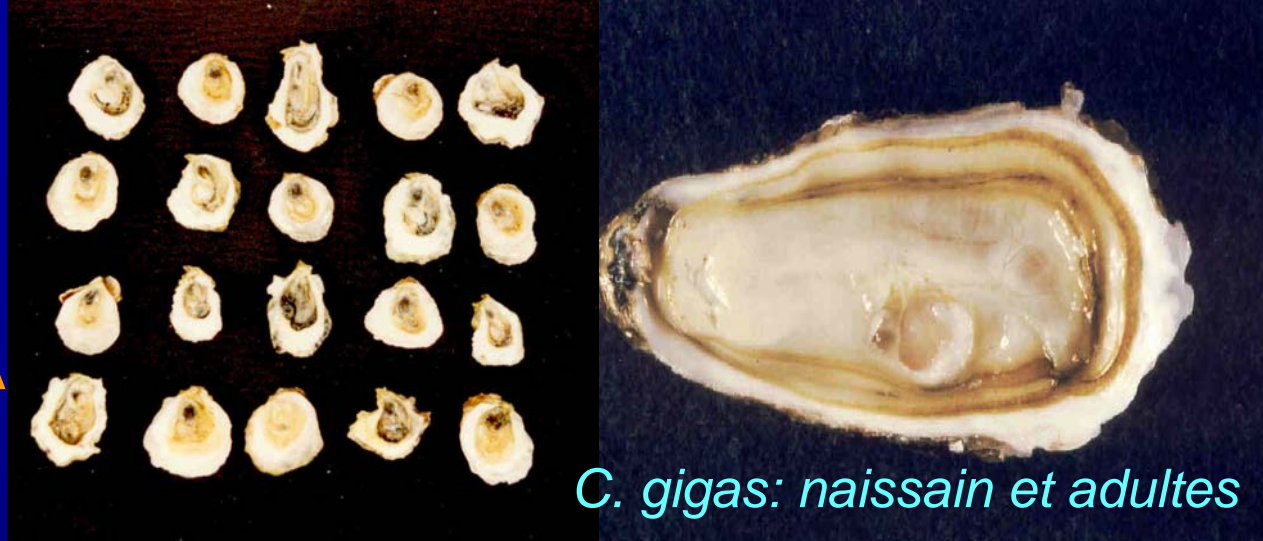
39 stations

## THE TECHNIQUES



# REMORA

ONE SPECIE, TWO A  
CLASSES



*C. gigas: naissain et adultes*

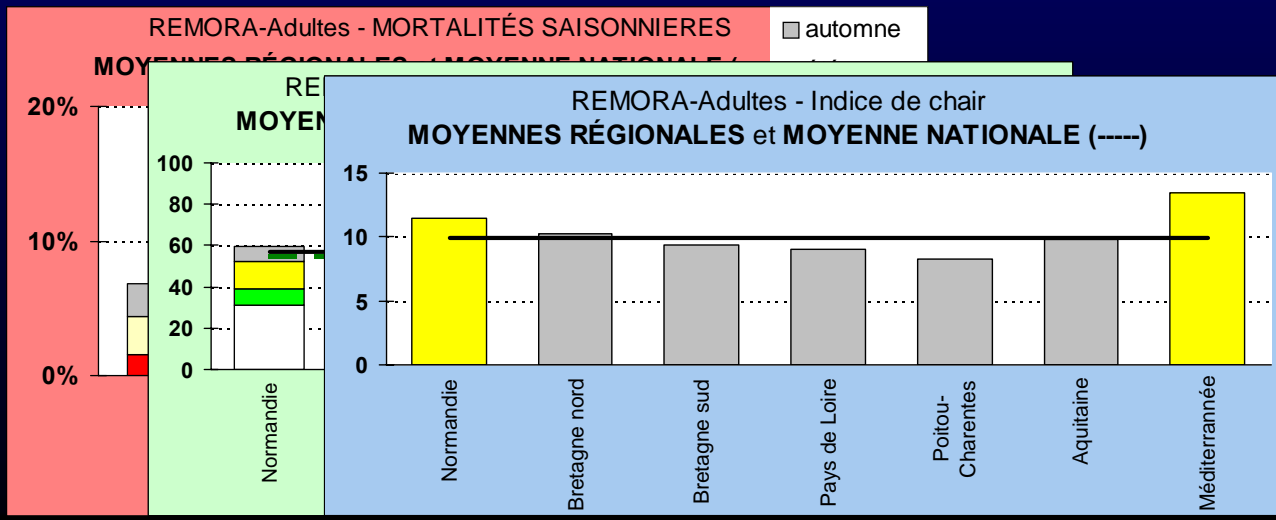
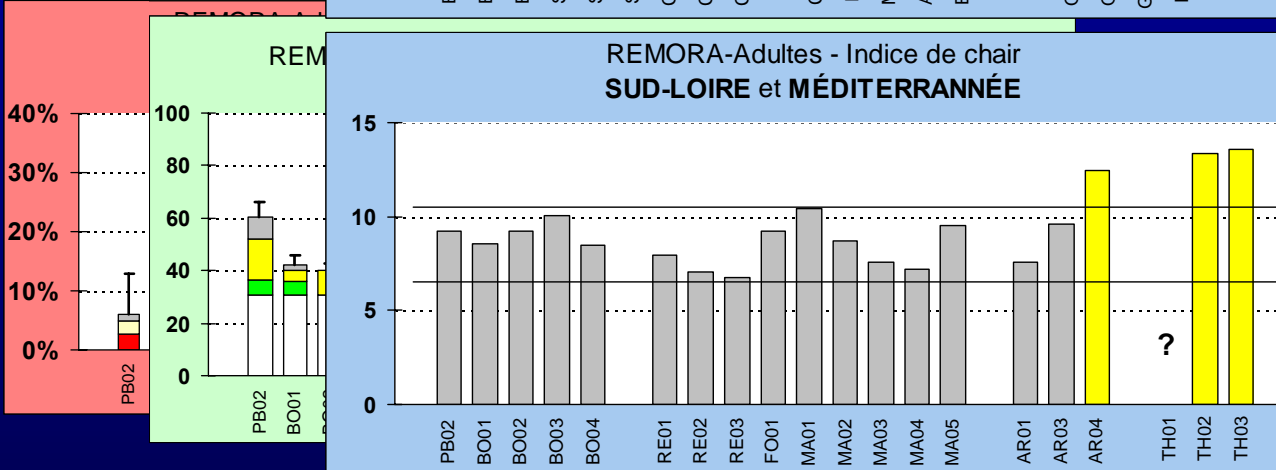
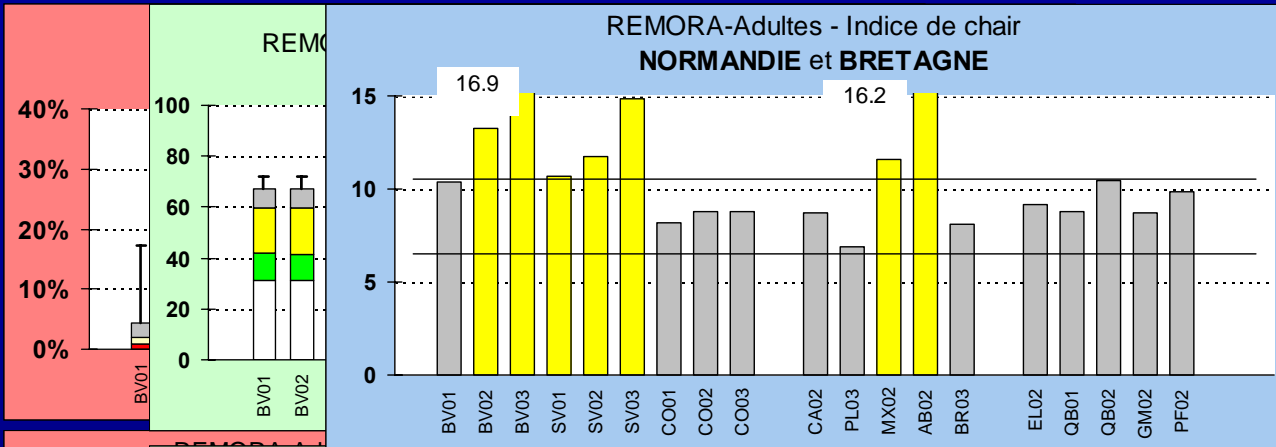
## THE PARAMETERS

**measured** L, l, e, total weight, individual weight of wet and dry meat, of shell, state of the shell, maturity stage

**calculated** Mortality rate, weight gain, growth rate, Afnor meat indice, dry meat ratio, shape coefficient, *Polydora* indice

# REMORA

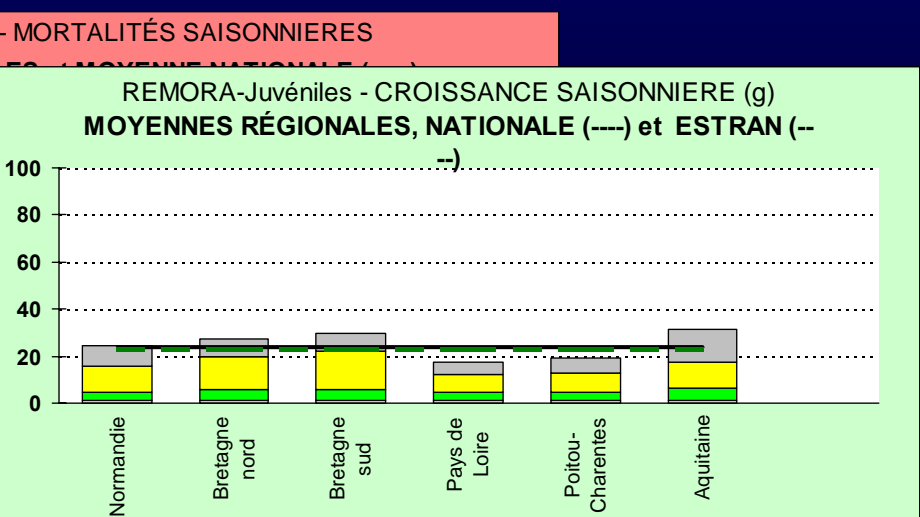
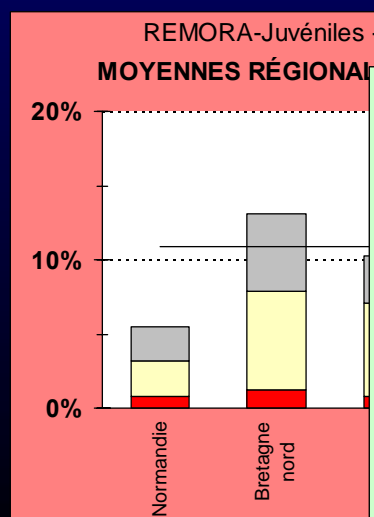
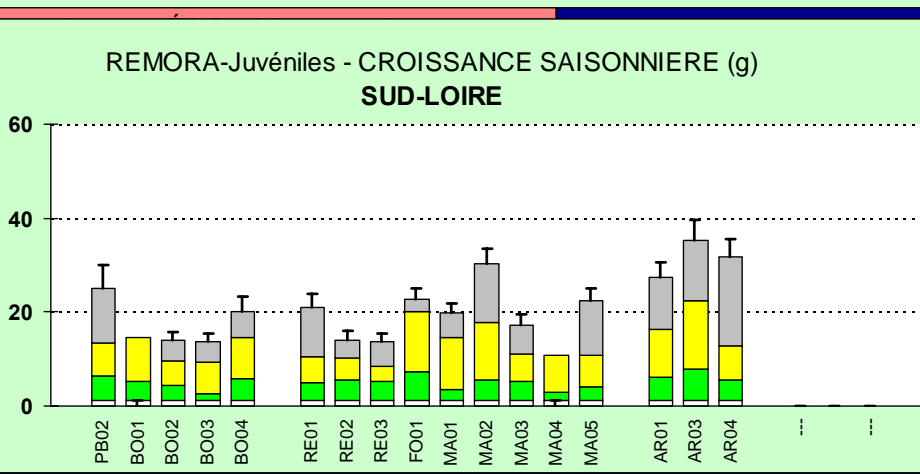
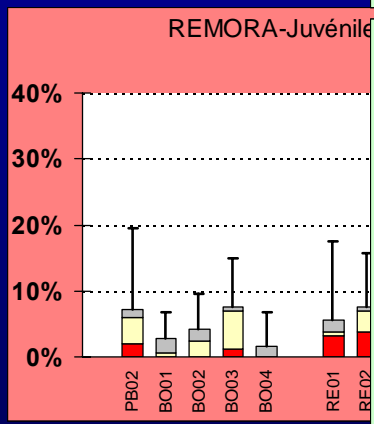
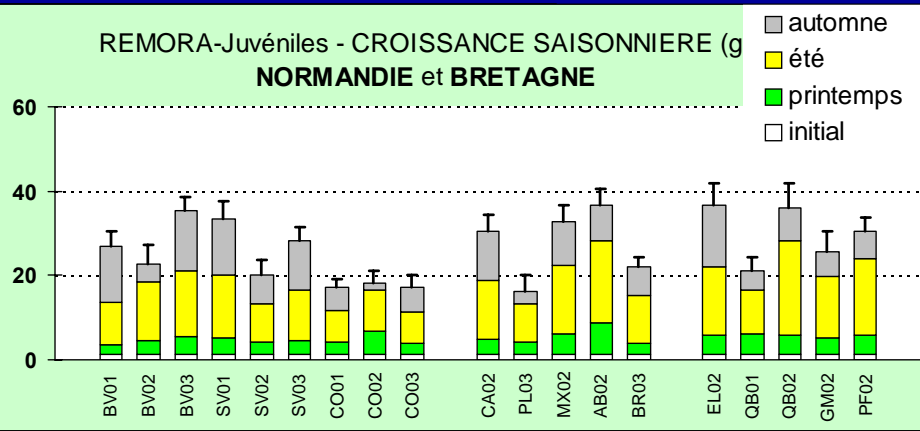
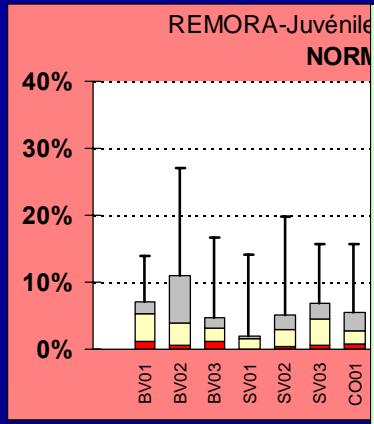
## RESULTS FOR THE ADULT OYSTERS





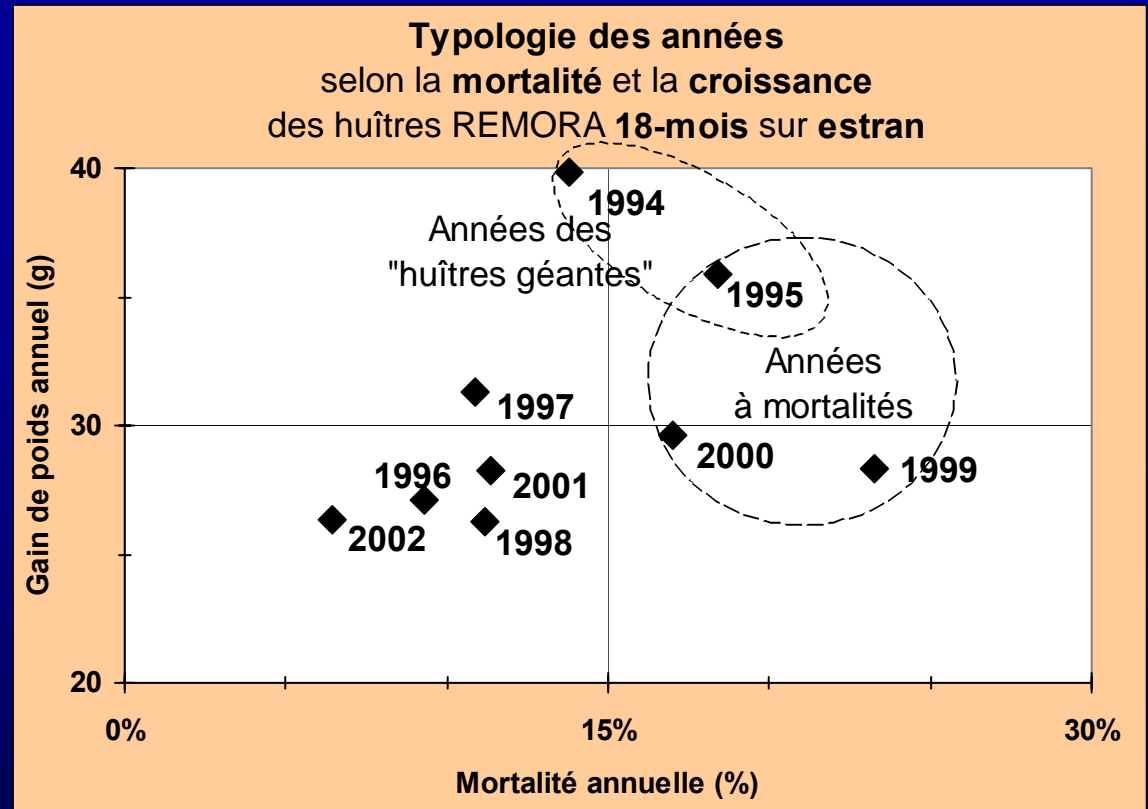
# REMORA

## RESULTS FOR THE JUVENILE OYSTERS



# REMORA

## AN EXAMPLE OF DATA ANALYSIS AND INFORMATION



## ANNUAL RESTITUTION

Reports, internet, via the press

# THE COST OF A NATIONAL MONITORING NETWORK

REMI-REPHY-RNO  
REPAMO-REMORA

**The annual cost of Ifremer is approx. 5 million Euros  
c.e. 7.6 million CAD**

exprimé en KE (ttc)	RNO	REPHY	REMI
personnel	641	838.5	1280.6
investissement et sous-traitance	152.5	122	152.5
fonctionnement	289.7	167.7	274.4
<b>TOTAL</b>	<b>1083.2</b>	<b>1128.2</b>	<b>1707.5</b>
coût par point de prélèvement (E)	4268	11281	4268

**Cost/year RNO-REMI-REPHY : 3.918.900 Euros**

**for 135 full time employees**

**Cost of the water analysis networks: 76.3 ME**



# FINANCING OF THE NETWORKS

Financing sources and amounts vary according to the network :

- REMI, 100% own resources **lfremer**
- REPHY, 50% exterior financing (DGAL, Dep. of agriculture and fisheries, etc...)
- RNO, 100% exterior financing (Dep. Of environment, water agency, regions etc...)
- REPAMO, from **lfremer** budget and takings from the UE
- REMORA, from **lfremer** budget
- Regional networks and studies, financing from territorial collectivities, water agencies, the EDF, the UE and sometimes from the industry, varying between 0 and 100% of the costs

# SOME NUMBERS

**PRODUCTION IN T**

**Millions of Euros**

<b>Oysters</b>	<b>130.000</b>	<b>208</b>	<b>(1.6 E/kg)</b>
<b>Mussels</b>	<b>70.000</b>	<b>77</b>	<b>(1.1 E/Kg)</b>
<b>Clams p</b>	<b>815</b>	<b>4</b>	<b>(4.9 E/Kg)</b>
<b>Clams a</b>	<b>600</b>	<b>9</b>	<b>(15 E/Kg)</b>
<b>TOTAL</b>	<b>201.415</b>	<b>298</b>	

**Network cost/production ratio**

**in % : 1,7%**

# CONCLUSIONS

The interests for a monitoring network are many :

- Answer to national and international regulations
- create a structured and continuous data base for research usage
- conduct applied research
- serve as a link between the different players of the marine environment

The fashion of organisation and functioning as a network supported by a central team seems indispensable for :

- an effective coverage of the production areas and sensible areas
- the homogenisation of the strategies
- the testing of methods and innovation
- increasing effectiveness to response to the double social demand: protection aquaculture activities and consumers



# REMARKS

# RECOMMENDATIONS



- Well define the objectives for the elaboration of priorities
- Reflect on the structure that the networks should take and the method of perennial functioning
- Carefully weight the positive and negative aspects of the methods of functioning and decision making
- Identify existing and necessary studies in order to priorities indispensable complimentary studies
- Consult information from situations in other countries, via internet (ex : in France, <http://www.ifremer.fr/envlit/index.htm>, <http://www.ifremer.fr/remora>)

A photograph of a barge on a body of water. On the barge, there is a large pile of dark, rocky oysters. Four workers are visible: one on the left in yellow overalls, one in the center-left in dark clothing using a rake, one in the center-right in yellow overalls using a shovel, and one on the right in dark clothing operating a red excavator. The sky is blue with white clouds. The text 'FIN et' is overlaid in the upper center, and 'BON VENT DANS VOS ENTREPRISES' is overlaid in the lower center.

FIN

et

BON VENT DANS  
VOS ENTREPRISES

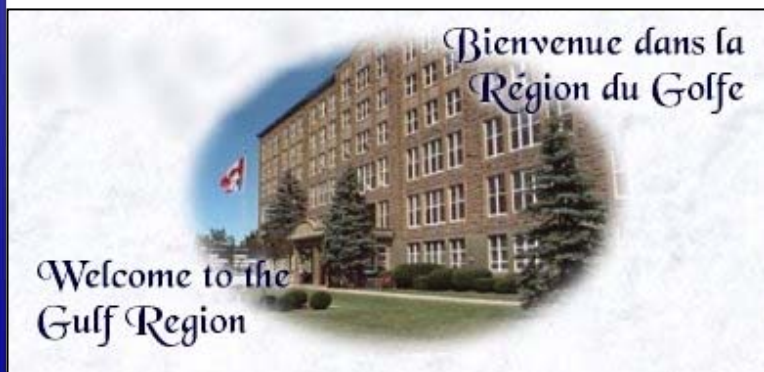




# Molluscan Section / Section des Mollusques

*Aquaculture Sciences Division /  
Division des sciences de l'aquaculture*

Fisheries and Oceans Canada / Pêches et Océans Canada  
Gulf Fisheries Centre / Centre des Pêches du Golfe  
Moncton, NB







# The Team / L'équipe



Thomas Landry



Daniel Bourque

Angéline LeBlanc



Marc Ouellette

Luc Comeau



Leslie-Anne Davidson

Johnatan Hill



Kevin LeBlanc

Andre Drapeau



Monique Niles



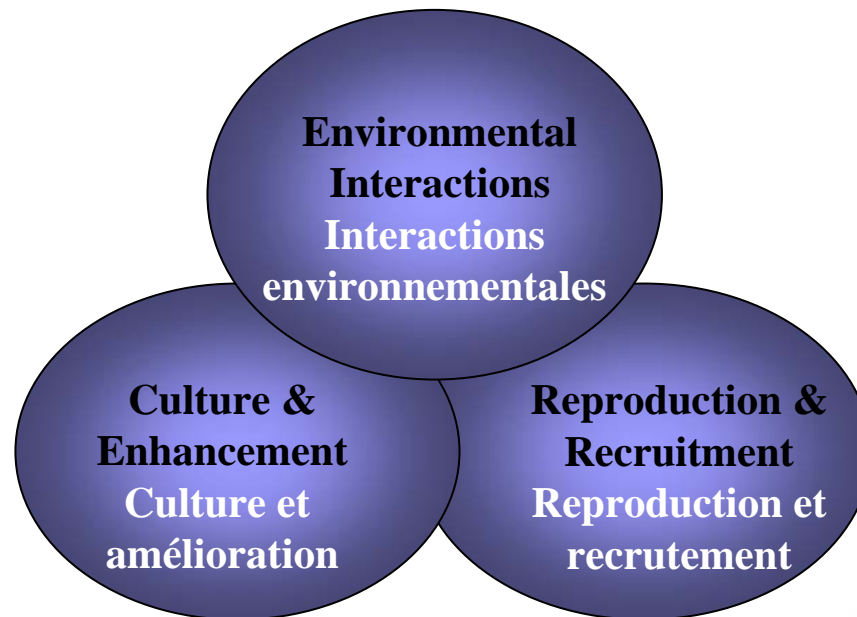


## Goal / But

---

**Provide scientific support to our stakeholders in order to optimize mollusc productivity within a healthy environment**

**Fournir un support scientifique à nos clients afin d'optimiser la productivité des mollusques tout en assurant un environnement sain**





## Reproductive and larval biology / Biologie reproductive et larvaire

**Provide scientific support to evaluate factors related to molluscan physiological health, reproductive and recruitment success.**

- Evaluating the interaction between mussel aquaculture activities and the physiological fitness, reproductive and recruitment success of mussels within a bay.
- Evaluating the temporal and spatial variation in scallop spawning and larval development and abundance.

**Fournir un support scientifique pour évaluer les facteurs reliés à la santé physiologique et le succès de reproduction et de recrutement des mollusques.**

- Évaluation de l'interaction entre la mytiliculture et la santé physiologique, le succès de reproduction et de recrutement des moules à l'intérieur d'une même baie.
- Évaluation de la variation spatio-temporelle de la ponte et du recrutement larvaire des pétoncles.







## **Predators, competitors and invasive species / Prédateurs, compétiteurs et espèces invasives**

**Provide scientific support to evaluate and manage the impact and interaction of predators, competitors and invasive species on mollusc productivity.**

- 
- Investigate interspecific competition between mussels and tunicates.
  - Investigates factors related to the recruitment of tunicates and other epifaunic species.
  - Investigate the effect of control measures in mollusc aquaculture.

**Fournir un support scientifique pour évaluer et gérer les impacts et les interactions des prédateurs, compétiteurs et espèces invasives sur la productivités des mollusques.**

- 
- Examiner la compétition inter-spécifique entre les moules et les tuniciers.
  - Examiner les facteurs reliés au recrutement des tuniciers et autres espèces epifauniques.
  - Examiner l'effet des méthodes de controle en conchyliculture.





## Benthic Ecology / Écologie Benthique

**Evaluate the linkage between the benthic assemblage and mollusc productivity to support enhancement and/or restoration activities for molluscan population.**

---

- Benthic interaction with mussel culture.
- Collaborative research:
  - seabed classification of lobster habitat and quahaug recruitment areas
  - scallop seeding

**Évaluer les liens entre l'assemblage benthique et la productivité des mollusques pour supporter des activités d'amélioration et/ou de restauration de populations de mollusques.**

---

- Interaction du milieu benthique avec la culture de la moule.
- Projets de collaboration:
  - classification du fond marin de l'habitat du homard et des zones de recrutement du quahaug
  - ensemencement du pétoncle





## Monitoring mollusc productivity/ Suivie de la productivité des mollusques

**Provide scientific support to evaluate mollusc productivity and collect data to determine production trends in relation to husbandry practices and environmental factors.**

- 
- Establishing long term mollusc aquaculture monitoring programs.
  - Determining the effect of husbandry practices on mollusc productivity and environment.
  - Developing data collection and reporting tools.

**Fournir un support scientifique pour évaluer la productivités des mollusques et recueillir des données afin de déterminer les tendances de production face aux pratiques de gestion et facteurs environnementaux.**

- 
- Établir un programme de suivie à long terme sur la conchyliculture.
  - Déterminer l'effet des modes de gestion sur la productivité des mollusque et l'environnement.
  - Développer des outils de collecte de données et de communication.





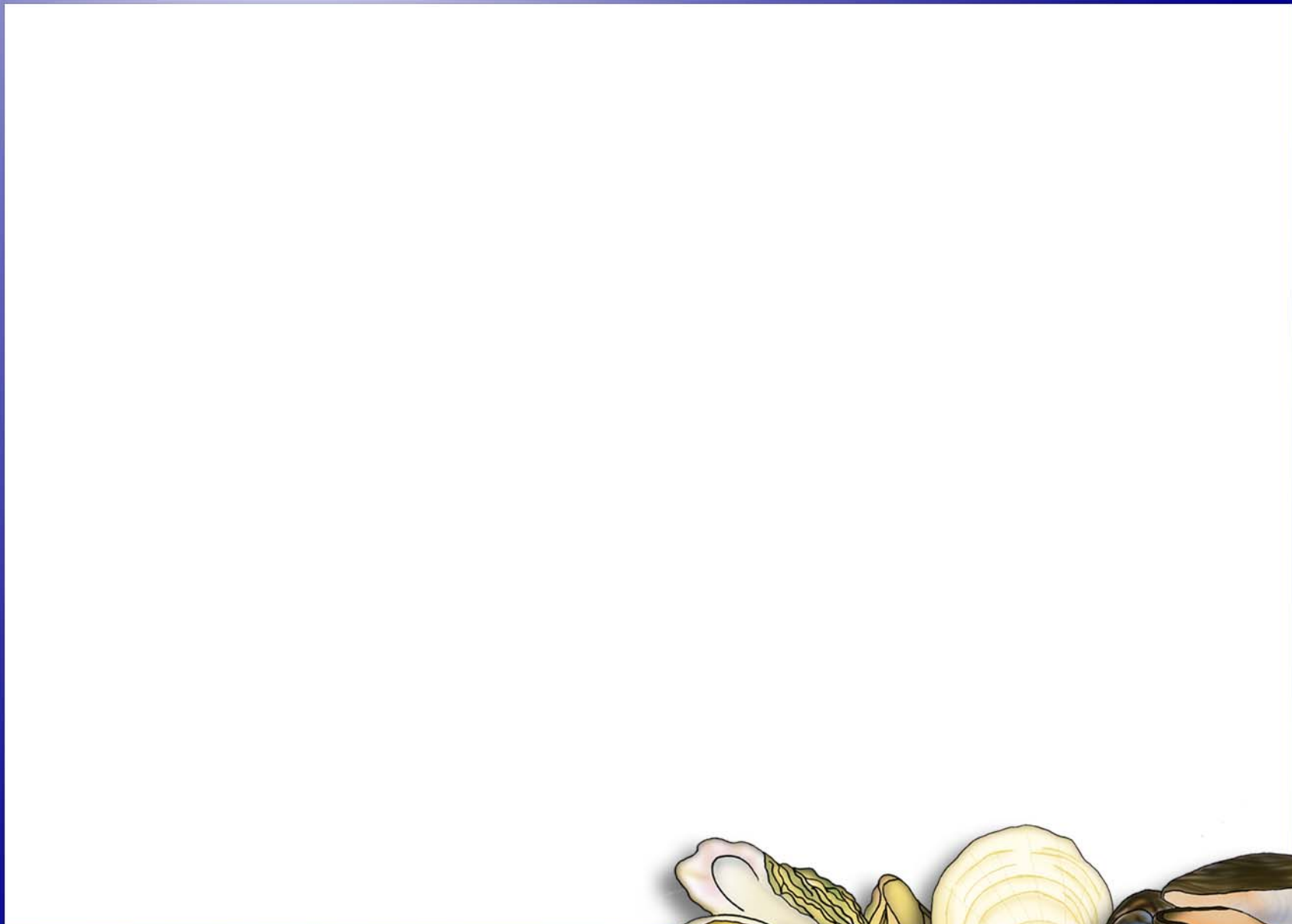


## *Molluscan Section / Section des Mollusques* **Future directions / Directions futures**

- 
- Increase collaborations.
  - Multidisciplinary approach.
  - Improve data management.

- 
- Augmenter les collaborations.
  - Approches multidisciplinaires.
  - Amélioration de la gestion des données.







# SHELLFISH HEALTH UNIT

## L'UNITÉ DE SANTÉ DES MOLLUSQUES

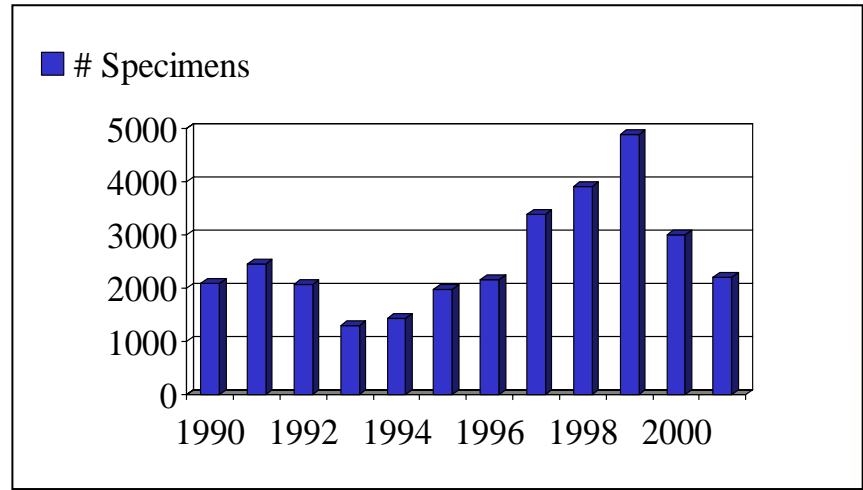
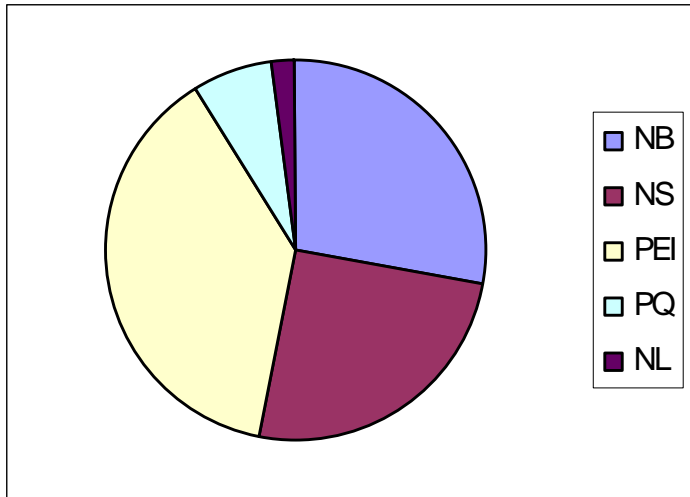


Monitoring Workshop

Miramichi Dec. 3, 2003







- Base line research
  - Oyster, mussels
  - Quahaugs, soft-shell clams, scallops
- Introduction & Transfers

- Recherche de base
  - Huîtres, moules
  - Palourdes, myes, pétoncles
- Introduction & Transfert



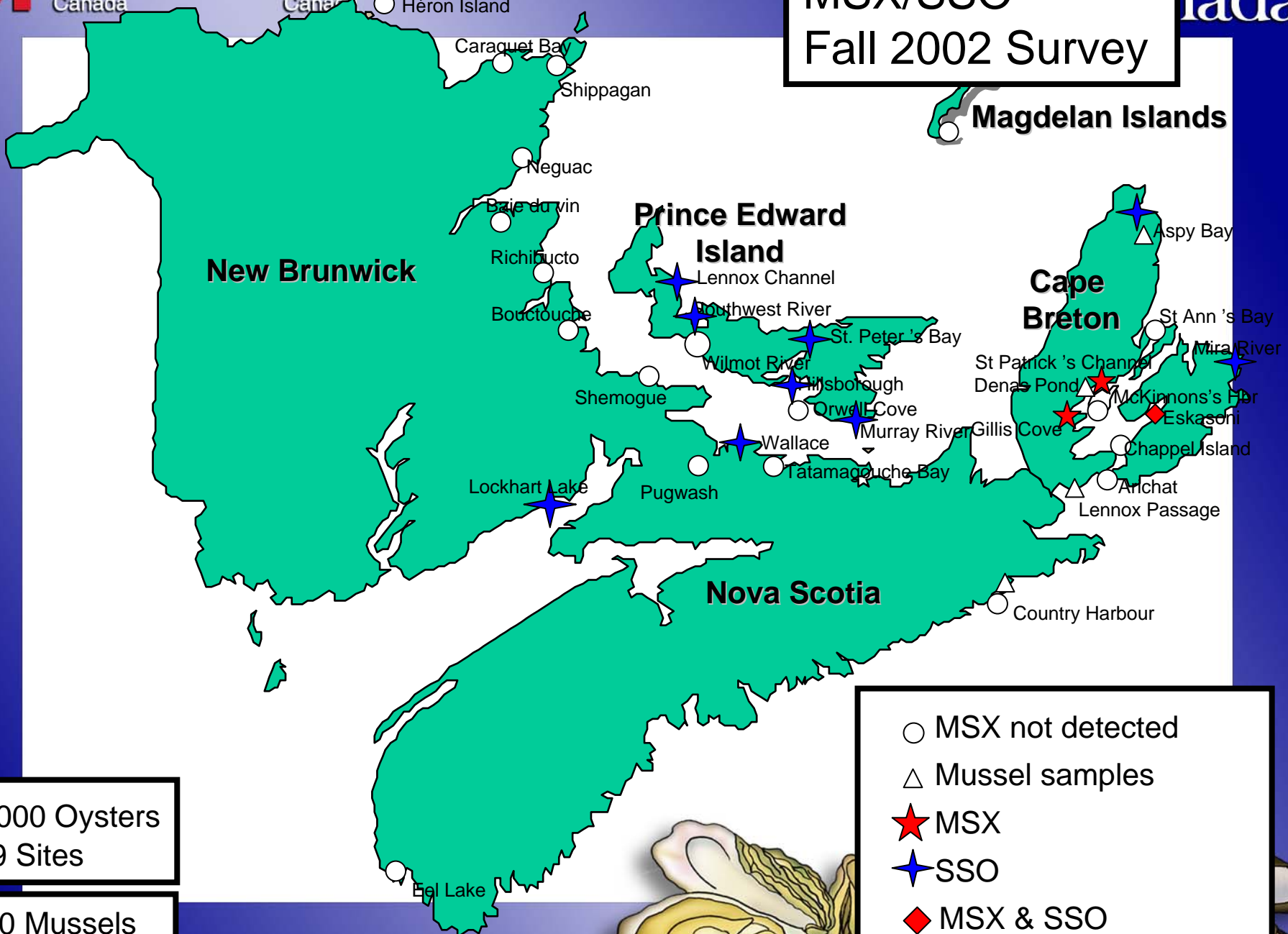


## Mortality / abnormal growth investigations Mortalité / Investigations de croissances anormaux

- Rule out the presence of disease
  - Does not address environmental parameters, Husbandry, genetics
  - Compare to known profiles
    - Haemic neoplasia in soft-shell clams
    - QPX in hard clams
    - MSX in oysters
- Confirmé l'absence de maladies
  - Ne s'adresse pas aux paramètres environnementaux, gestion, génétiques
  - Comparaison de profils connus
    - Néoplasie chez les myes
    - QPX chez les palourdes
    - MSX chez les huîtres



# MSX/SSO Fall 2002 Survey



- 3000 Oysters
- 39 Sites

- 360 Mussels
- 4 Sites

- MSX not detected
- △ Mussel samples
- ★ MSX
- ★ SSO
- ◆ MSX & SSO







Environmental  
Interactions  
Environnementales

Culture &  
Enhancement  
Culture et  
amélioration



## Health/Santé...

### Histo

Mary Stephenson

Michelle Maillet

Anne Veniot

Marie-Line Cournoyer

### Bio-Tech

Nellie Gagné

Jeannette Arsenault



# Toxic phytoplankton monitoring

Stephen S. Bates

Fisheries and Oceans Canada

Gulf Fisheries Centre

Moncton, N.B.



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

# Phytoplankton bloom: P.E.I.

---



May 3, 1999 (SeaWiFS satellite)



# Phytoplankton bloom: GSL

---



Aug. 11, 1999 (SeaWiFS satellite)

# How shellfish become toxic

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*Pseudo-nitzschia*

Domoic Acid

*Alexandrium*

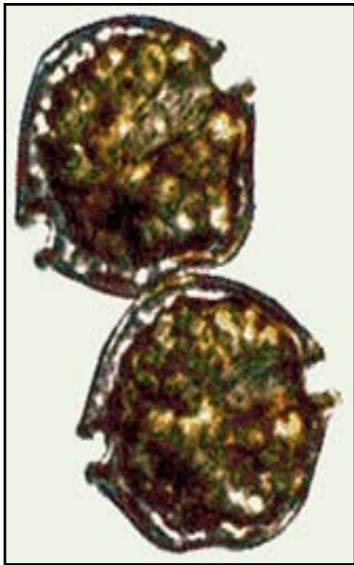
PSP Toxins

*Prorocentrum*

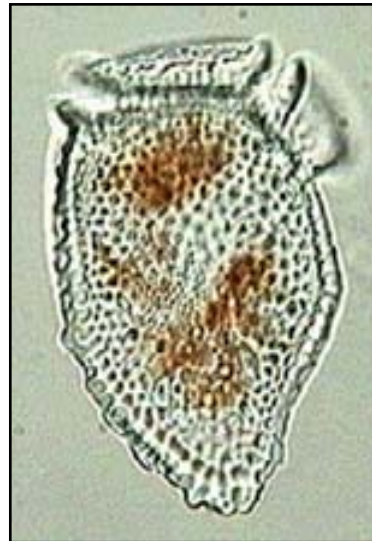
DSP Toxins

# Examples of toxic phytoplankton

## Dinoflagellates



*Alexandrium* spp.  
PSP toxins  
Saxitoxin



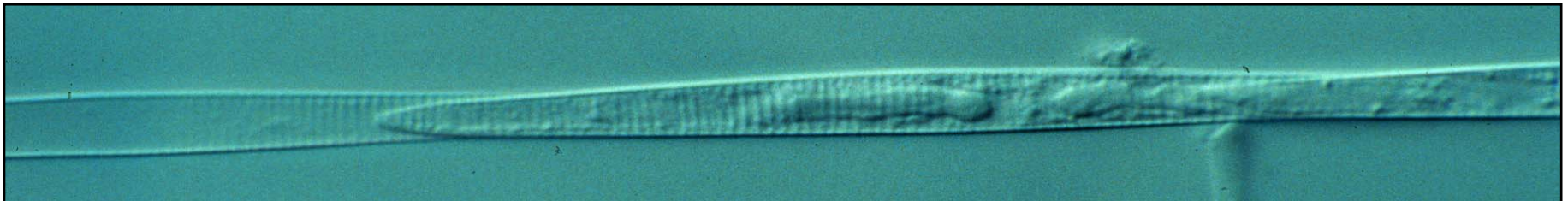
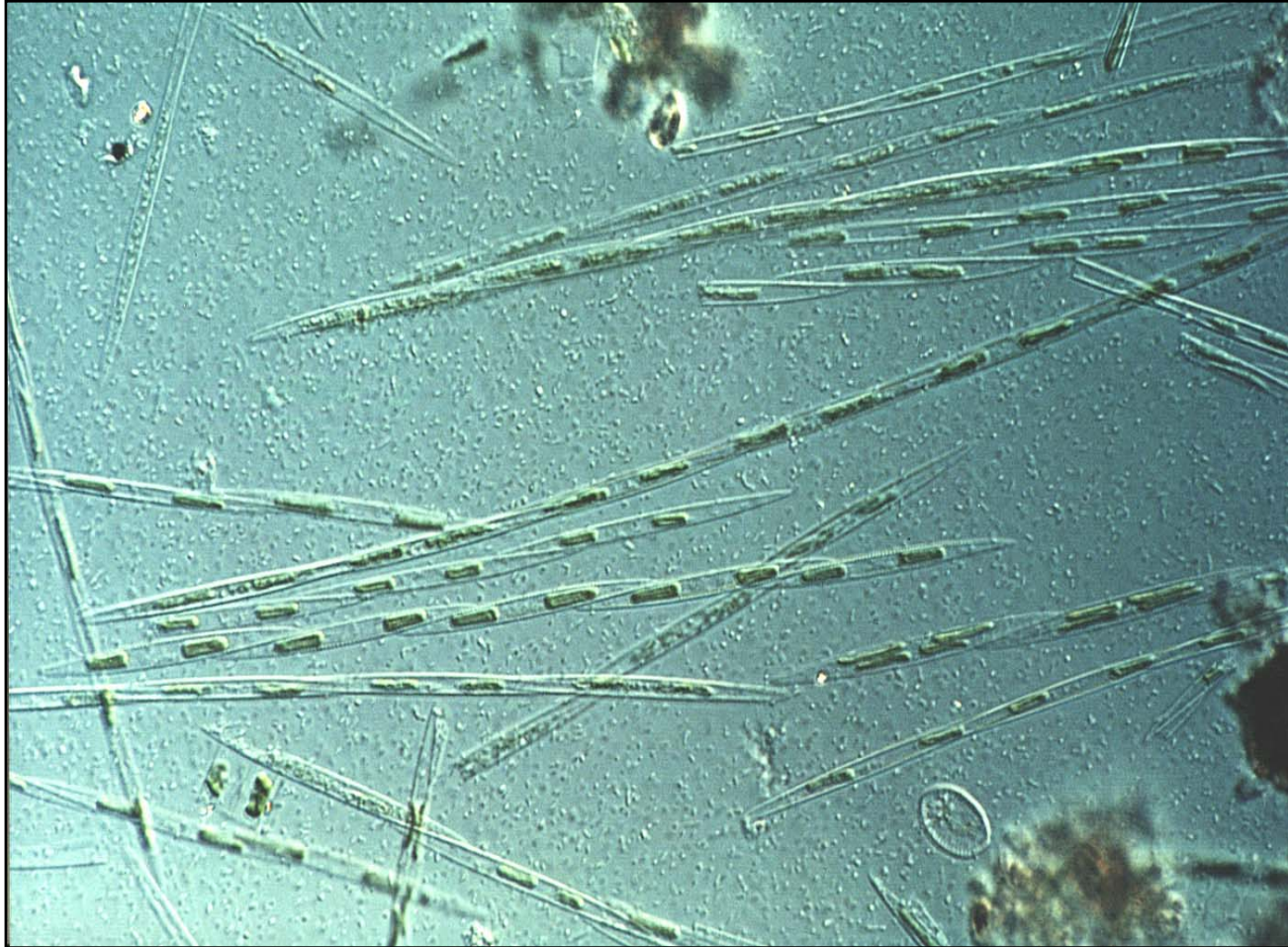
*Dinophysis* spp. *Prorocentrum* spp.  
DSP toxins  
Okadaic acid, DTX-1





# *Pseudo-nitzschia multiseries*

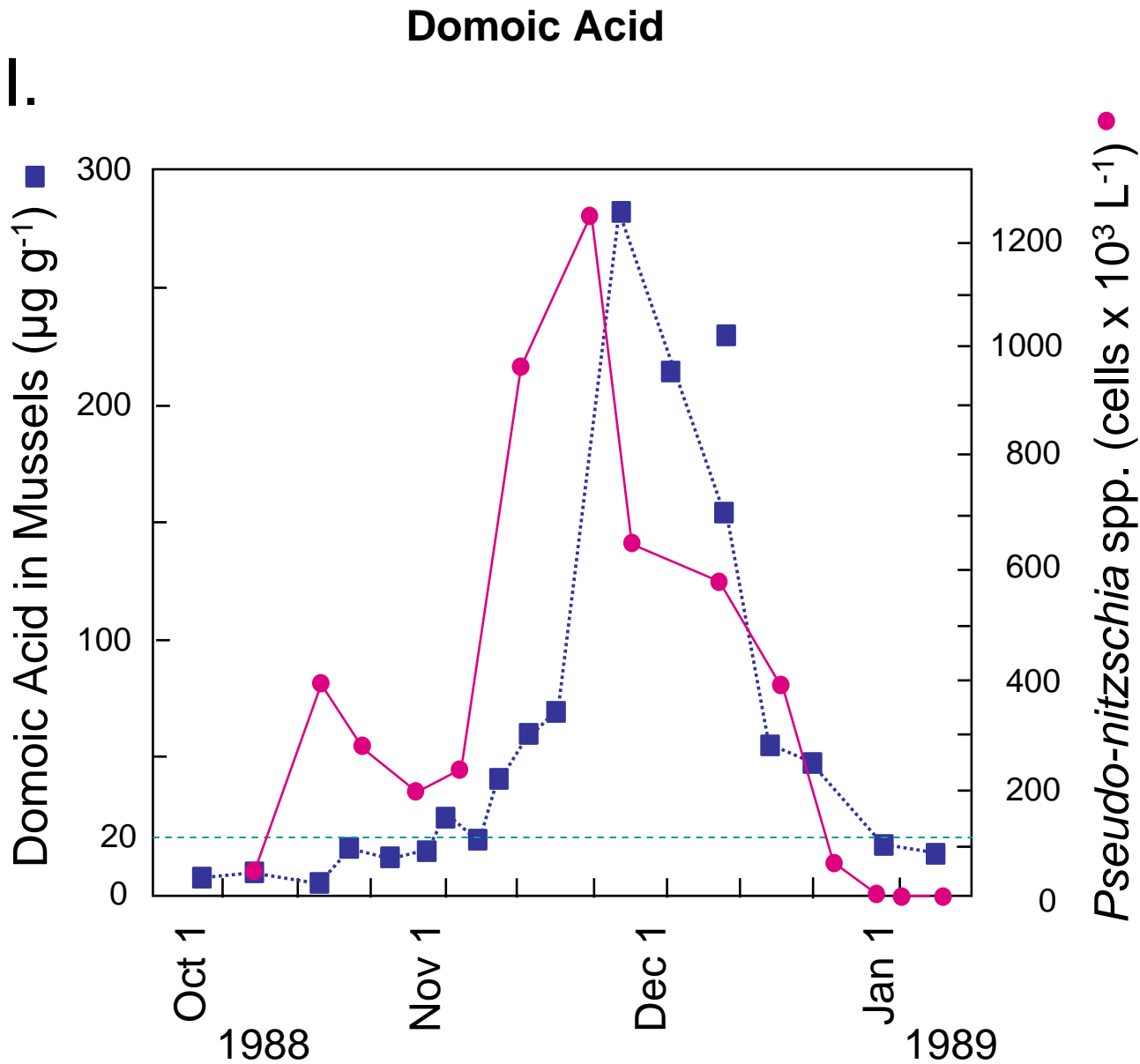
---



Cardigan, P.E.I.  
Canada

1988

Closure limit:  
 $20 \mu\text{g DA g}^{-1}$  wet wt



# Advantages

---

- Indicates if a phytoplankton bloom contains toxic phytoplankton cells or not
- Provides an early warning to CFIA and the Industry about an impending toxic bloom
  - Industry can make management decisions re: when and where to harvest
  - CFIA can optimize sampling re: location and frequency



# Advantages

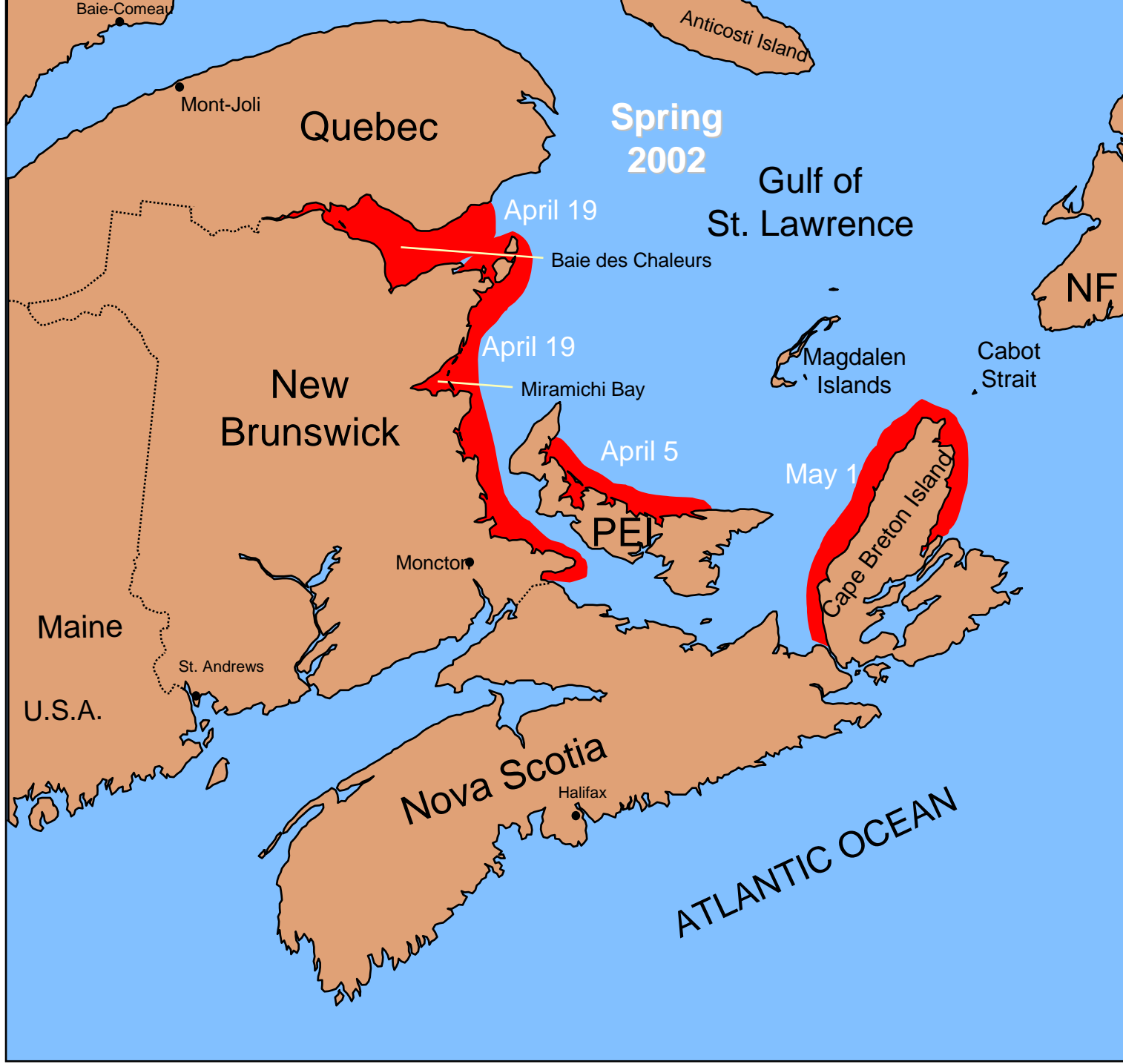
---

- Provides information about the progression of a toxic bloom
  - Indicates when a bloom starts to decline
  - Industry and CFIA will therefore know when toxin levels can expect to decrease in the shellfish

# Disadvantages

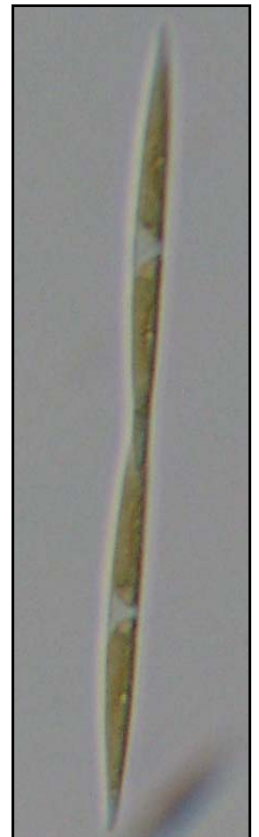
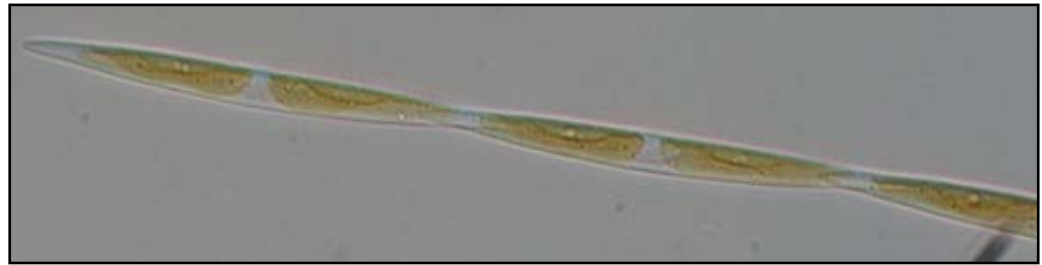
---

- Sampling may miss a bloom if:
  - Sampling frequency is not often enough
  - The bloom originates offshore, is advected into the bay by the tides, and then is rapidly moved offshore before it can be sampled





# *Pseudo-nitzschia seriata* in culture

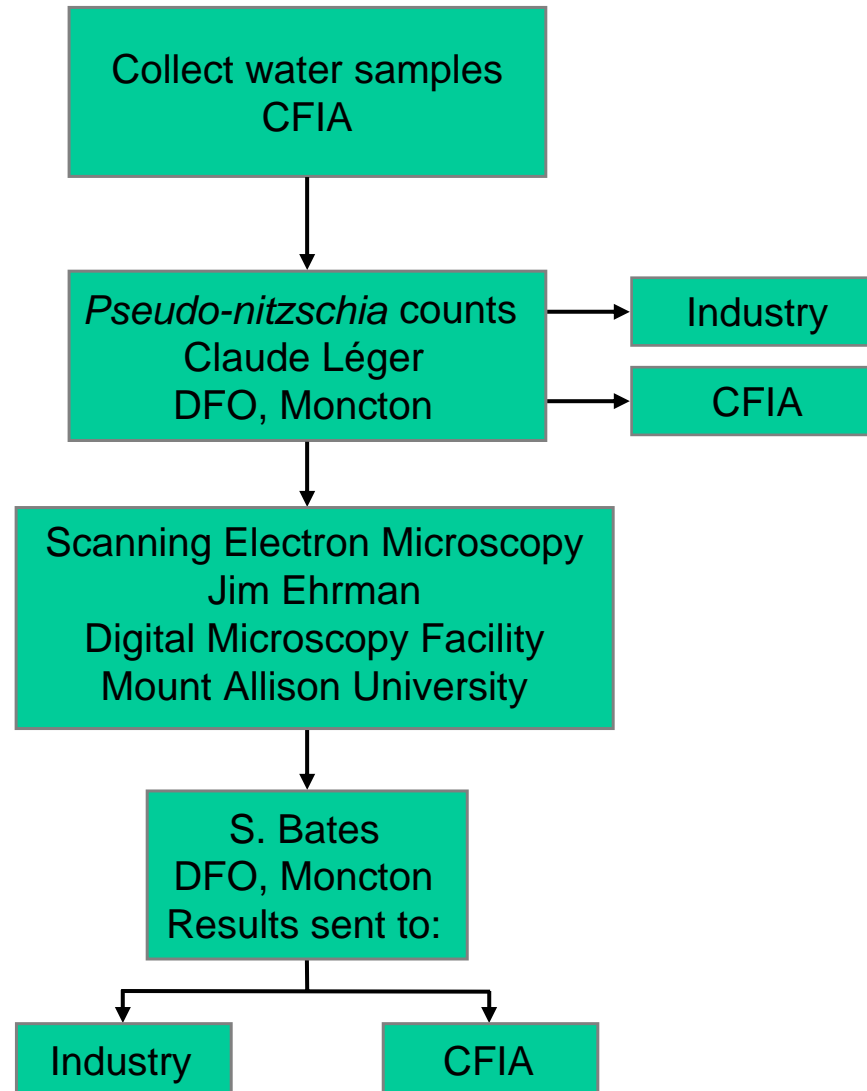


# CFIA sampling stations, eastern N.B.

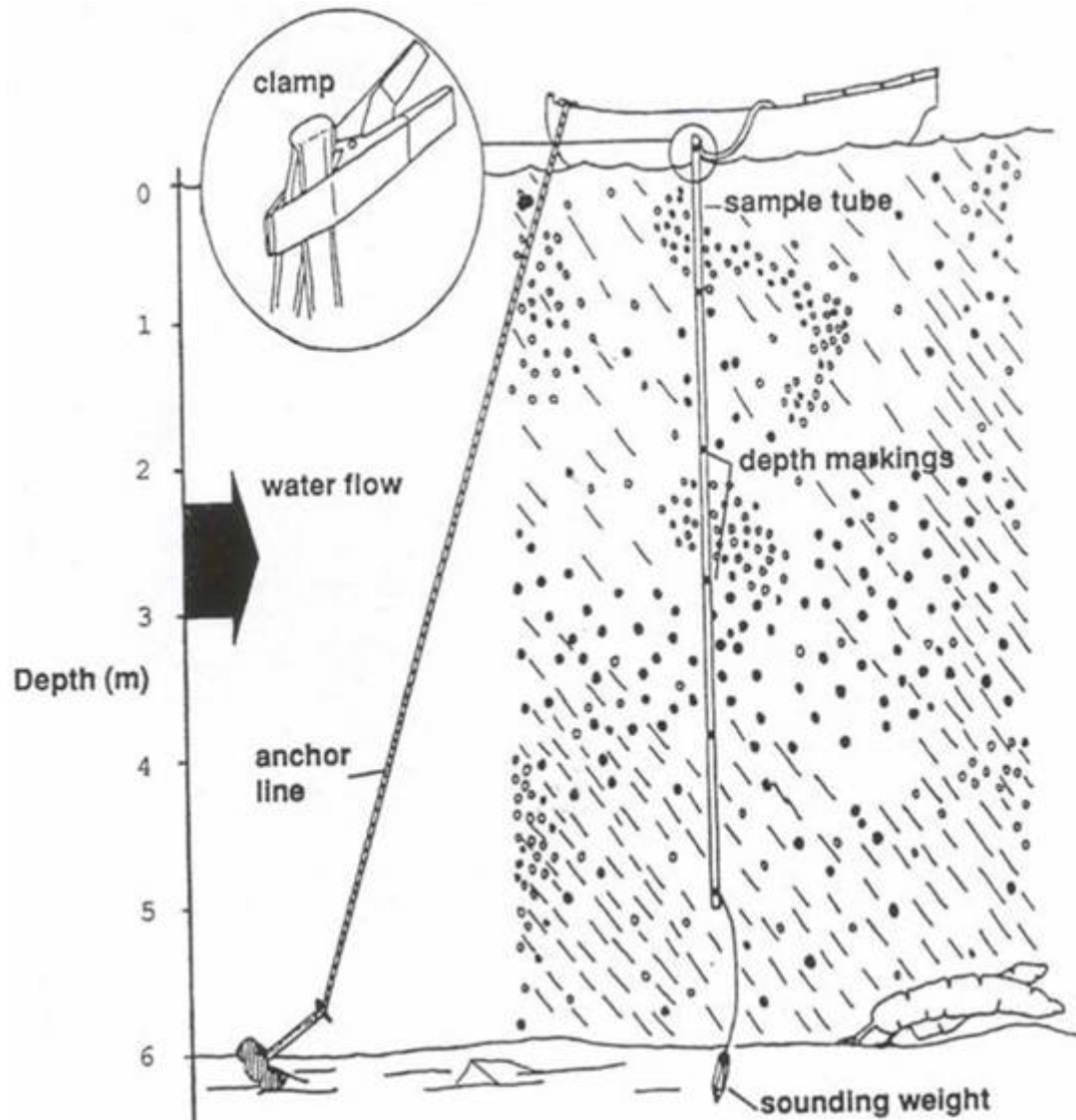


# Phytoplankton monitoring: NE N.B.

---



# Integrated water sampling tube





# Phytoplankton counts: Claude Léger

---



# Miramichi Bay, NB (2002)

Baie Sainte-Anne

Date	<i>Pseudo-nitzschia</i> Cells per Litre
Sept. 17	26,000
Sept. 23	44,200
Oct. 1	309,000
Oct. 8	1,487,000
Oct. 15	3,220,000

# Miramichi Bay, NB (2002)

Baie Sainte-Anne

was called *P. pseudodelicatissima*

Date	% <i>P.mult</i>	% <i>P.pun</i>	% <i>P.calliantha</i>
Sept. 17	30	63	7
Sept. 23	57	20	23
Oct. 1	3	13	83
Oct. 8	3	0	97
Oct. 15	0	0	100

Toxic

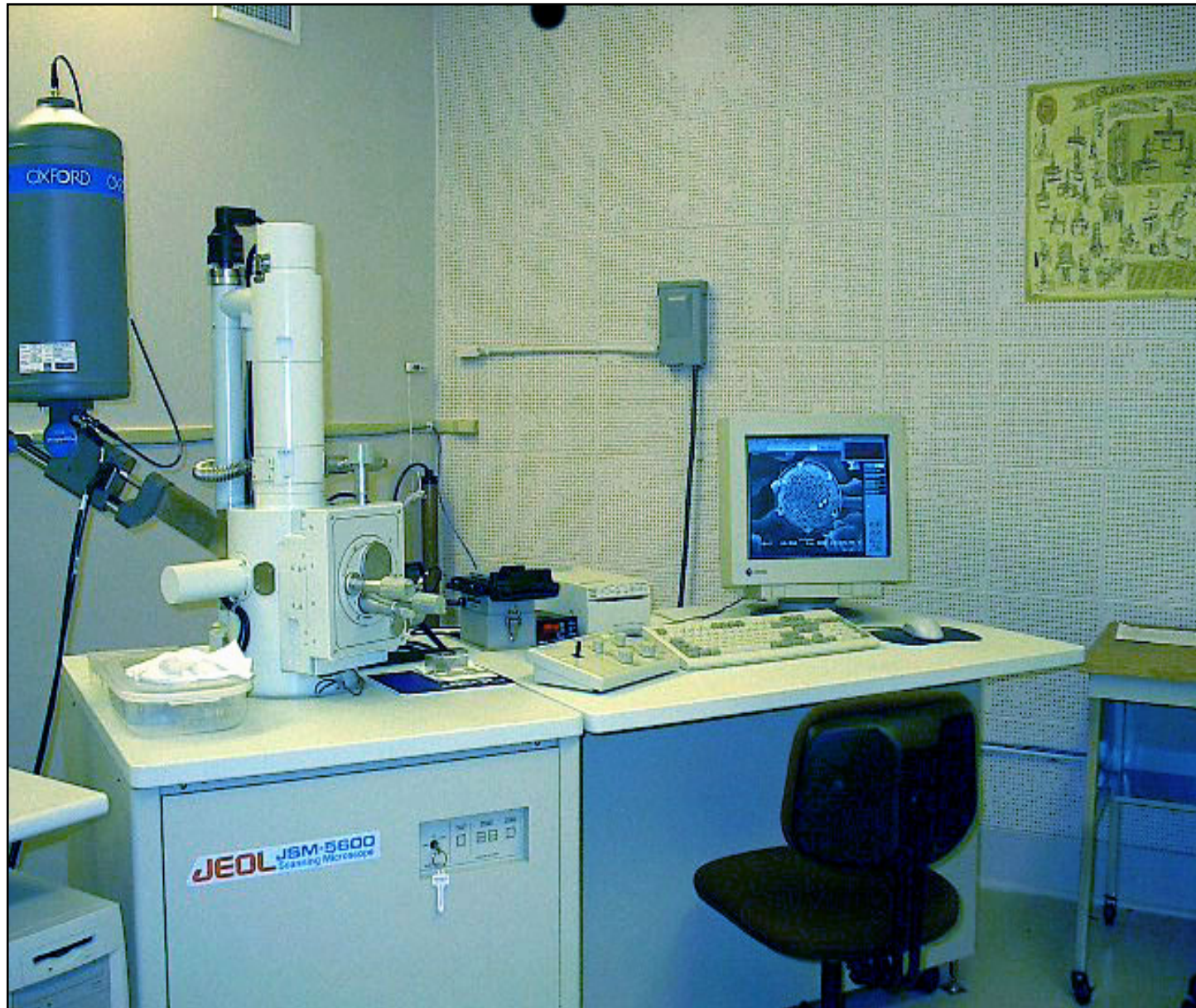
Non-toxic

No domoic acid was detected.



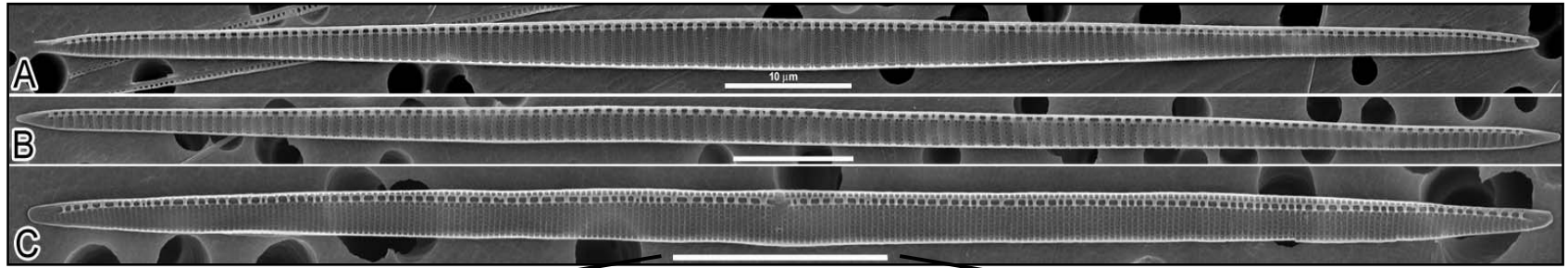
# SEM at Mount Allison University's DMF

---

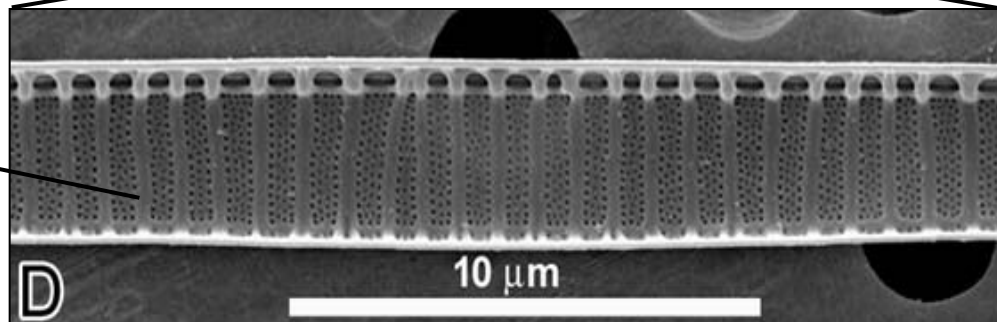




# SEMs of *Pseudo-nitzschia* species



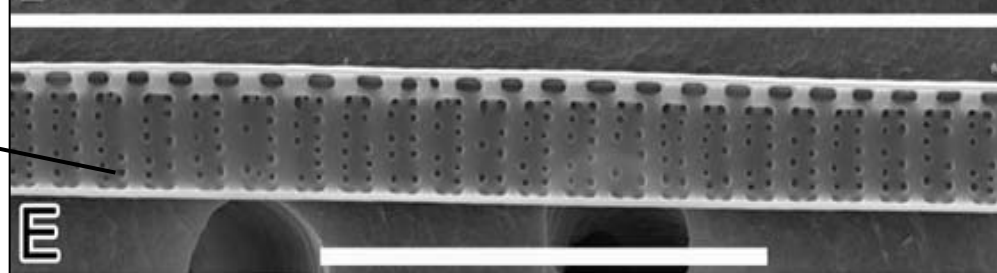
Interstriae



*P. multiseriata*

Toxic

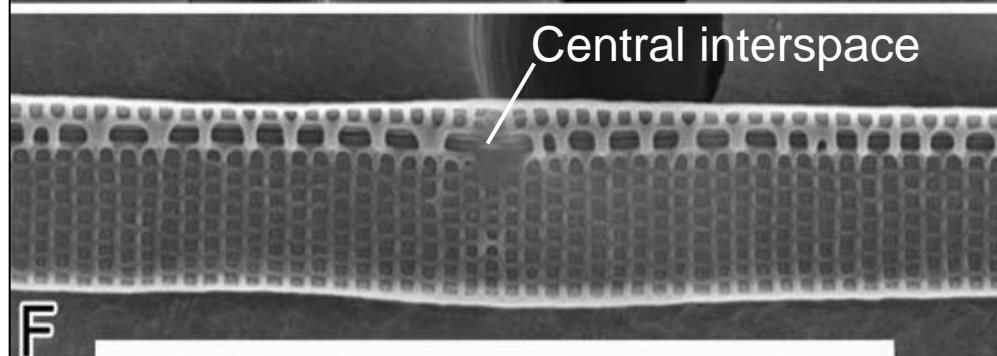
Poroids



*P. pungens*

Non-toxic

Central interspace



*P. calliantha*

Non-toxic

# Other monitoring programs

---

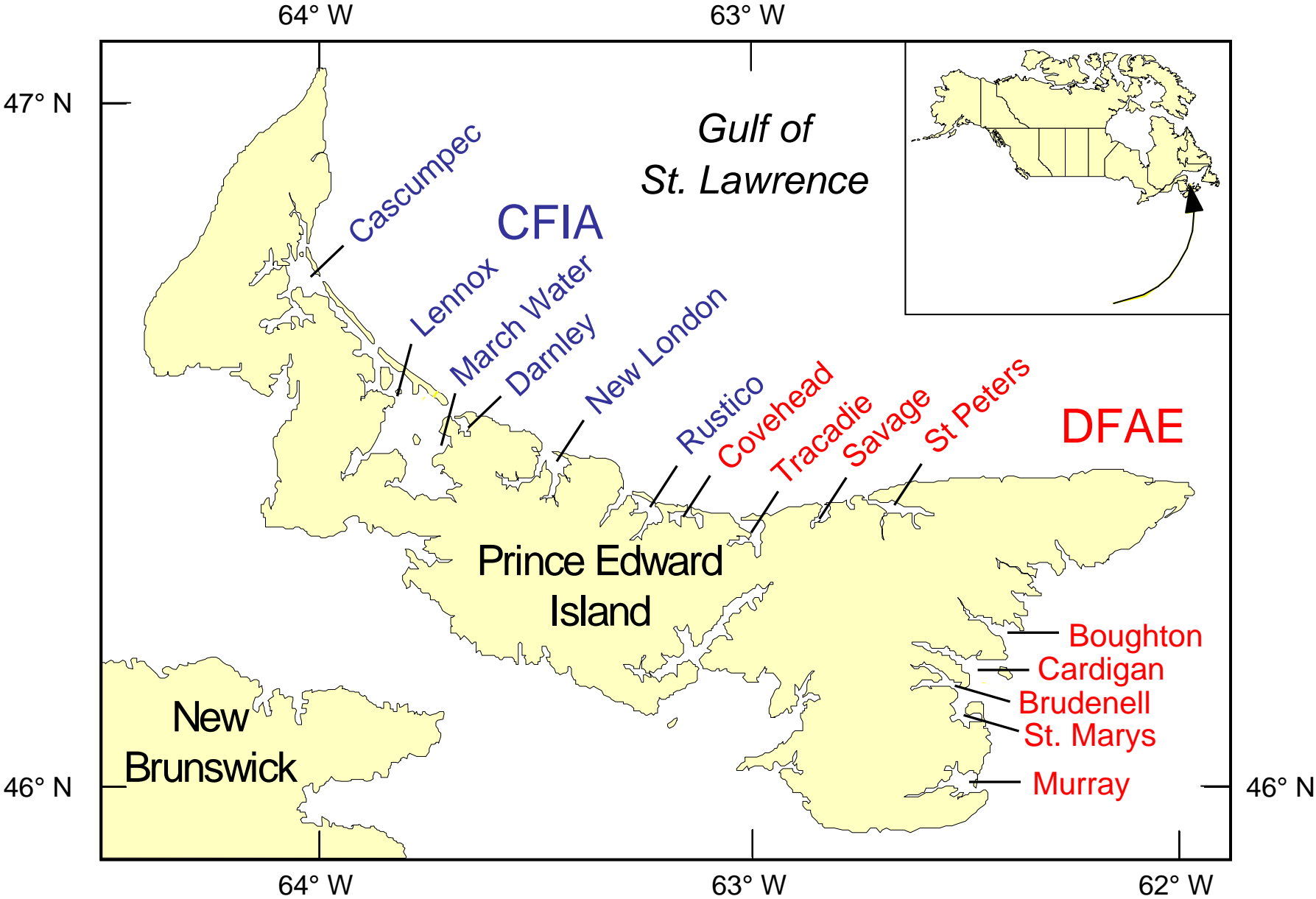
- Prince Edward Island
- Newfoundland
- Bay of Fundy
- Quebec
- (but none currently in Nova Scotia)

# Other monitoring programs

---

- Prince Edward Island
  - Samples collected by the CFIA and the P.E.I. DFAE; 15 sites
  - Early September to late November
  - Cell counts done by the P.E.I. DFAE
  - *Pseudo-nitzschia* identified by DFO, using SEM
  - Results distributed to Industry

# Water sampling: Prince Edward Island





# Other monitoring programs

---

- Quebec (estuary and Gulf of St. Lawrence)
  - Samples collected by the DFO (Mont-Joli) at 11 stations
  - Started in 1987
  - May to October
  - Count major phytoplankton species
  - Used for long-term research and modelling, but results also given to industry

# Other monitoring programs

---

- Bay of Fundy, N.B.
  - Samples collected by DFO (SABS; Jennifer Martin) at 5 sites
  - Started in 1987
  - Weekly, from May to October
  - Identify all phytoplankton
  - Used for long-term research, but results also given to industry

# Other monitoring programs

---

- Newfoundland
  - Funded by ACRDP
  - Collaboration between the NF Aquaculture Industry Association, DFO Science, and the NRC (IMB, Halifax)
  - Harmful algae warning system in 5 mussel aquaculture sites

# Other monitoring programs

---

- Nova Scotia
  - No longer any program; lack of funds
  - From 1992 – 1999, funded by the AANS
  - Claire Carver carried out the work



# Need to standardize methods

---

- Sample collection
  - Integrating tube
- Sample concentration
  - “freeze-transfer” technique
- Identification of species
  - *Pseudo-nitzschia* (by SEM)
  - *Alexandrium*
  - *Prorocentrum* / *Dinophysis*

# Thank you!

---



# Shellfish Growth Monitoring Network for the Southern Gulf of St. Lawrence

Luc Comeau

Department of Fisheries and Oceans

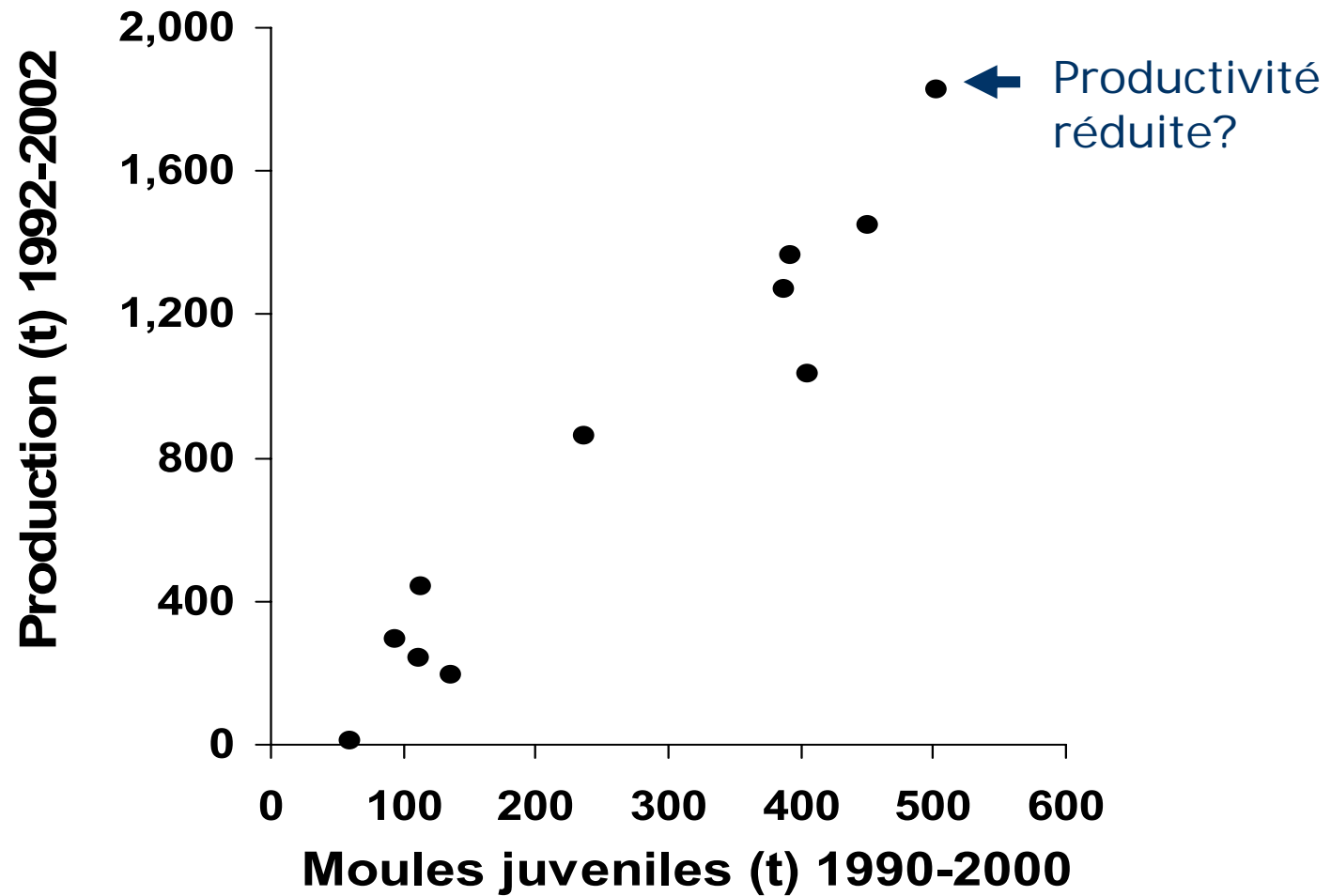
Moncton, New-Brunswick

# Presentation plan

- Objectives of the network
  - support capacity (yes)
  - Shellfish salubrity (no)
  - Research plat forme (yes)
- Standardized approach
  - REMORA (France)
  - REMOCA (Canada)



# Support capacity



# Standardized monitoring

 **REMORA**

Réseau Mollusques des Rendements Aquacoles.

P.G. Fleury, E. Le Ber, S. Claude, F. Cornette, F. d'Amico, P. Guilpain, H. Palvadeau, S. Robert, P. Le Gall, M. Ropert, C. Simonne & C. Vercelli

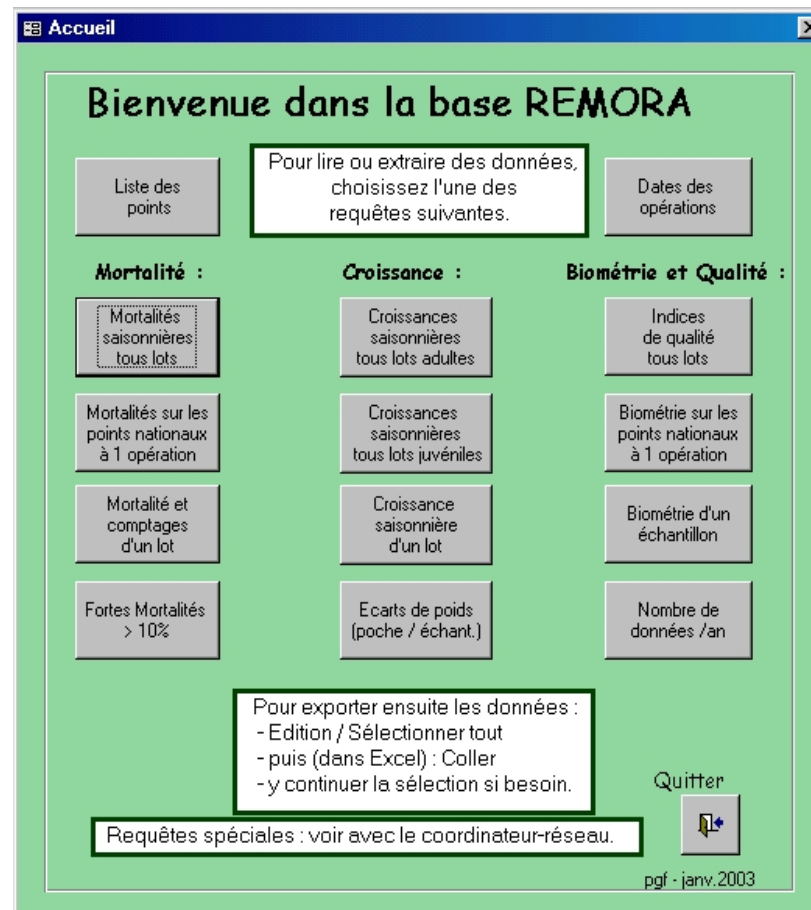


<http://www.ifremer.fr/remora>

# REMORA

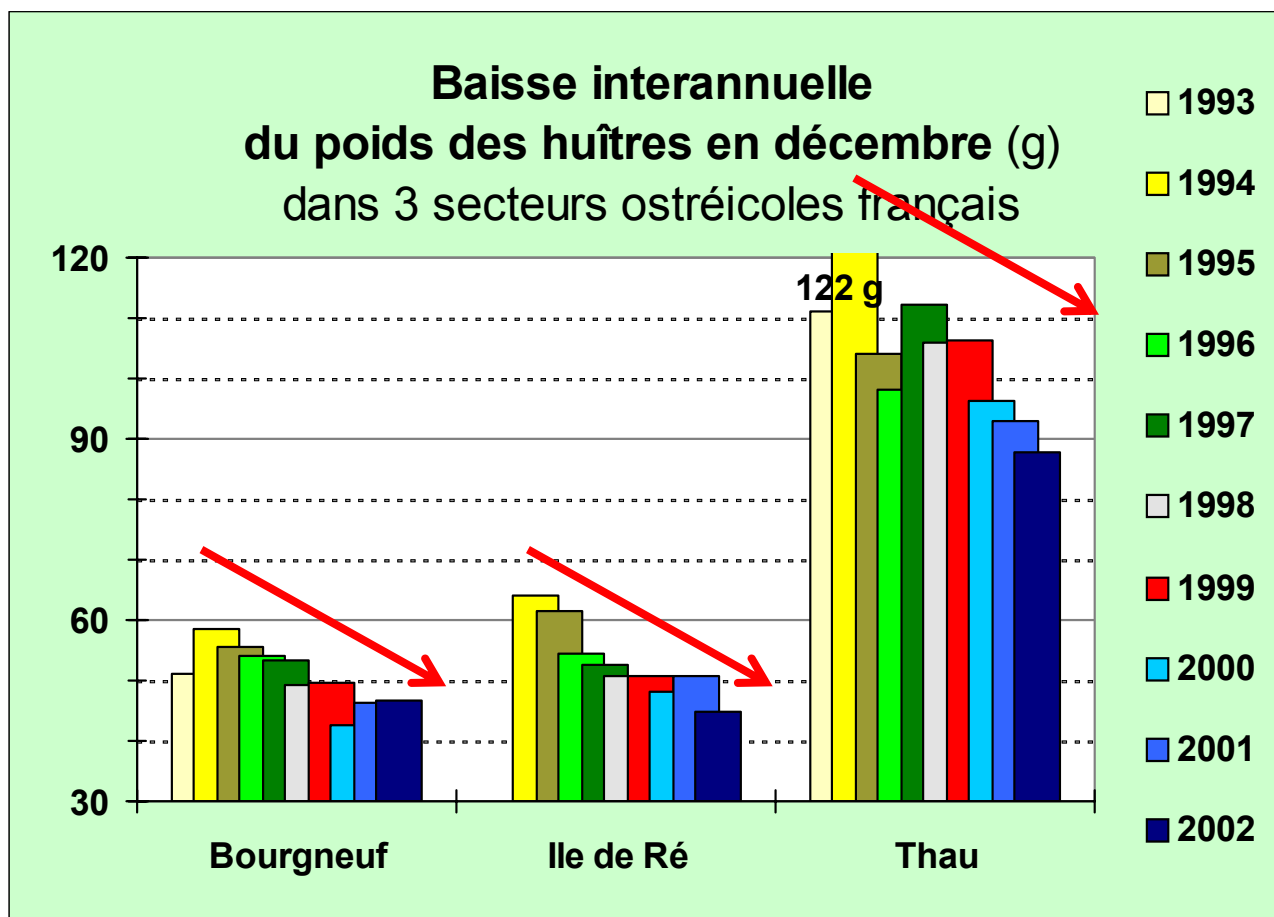


# REMORA





# REMORA

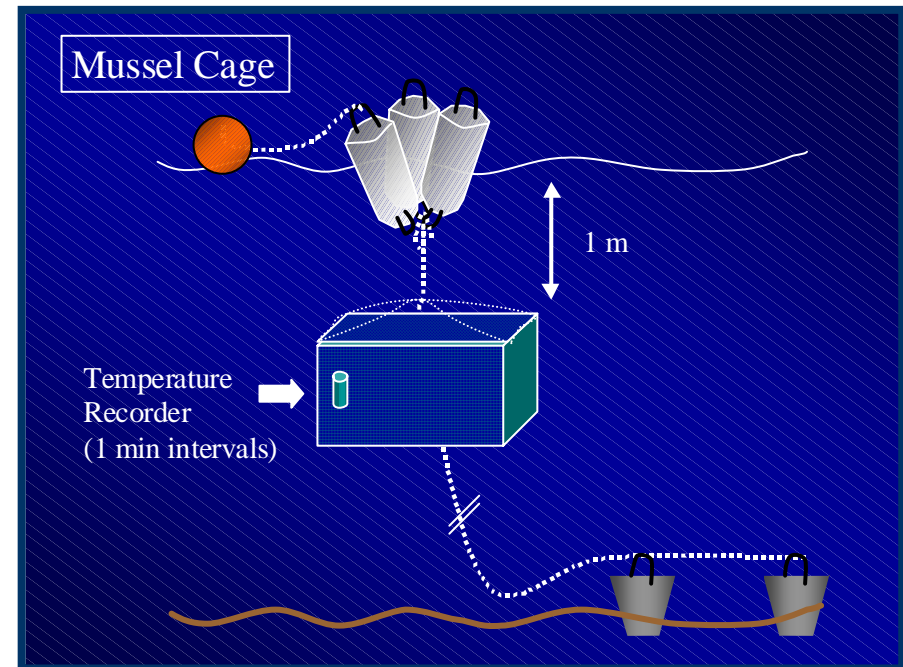


P.G. Fleury

Ifremer

# REMOCA

- Started in 1996
  - oysters
  - 8 stations
- Expansion in 2002
  - oysters
  - mussels
  - 56 stations



# REMOCA

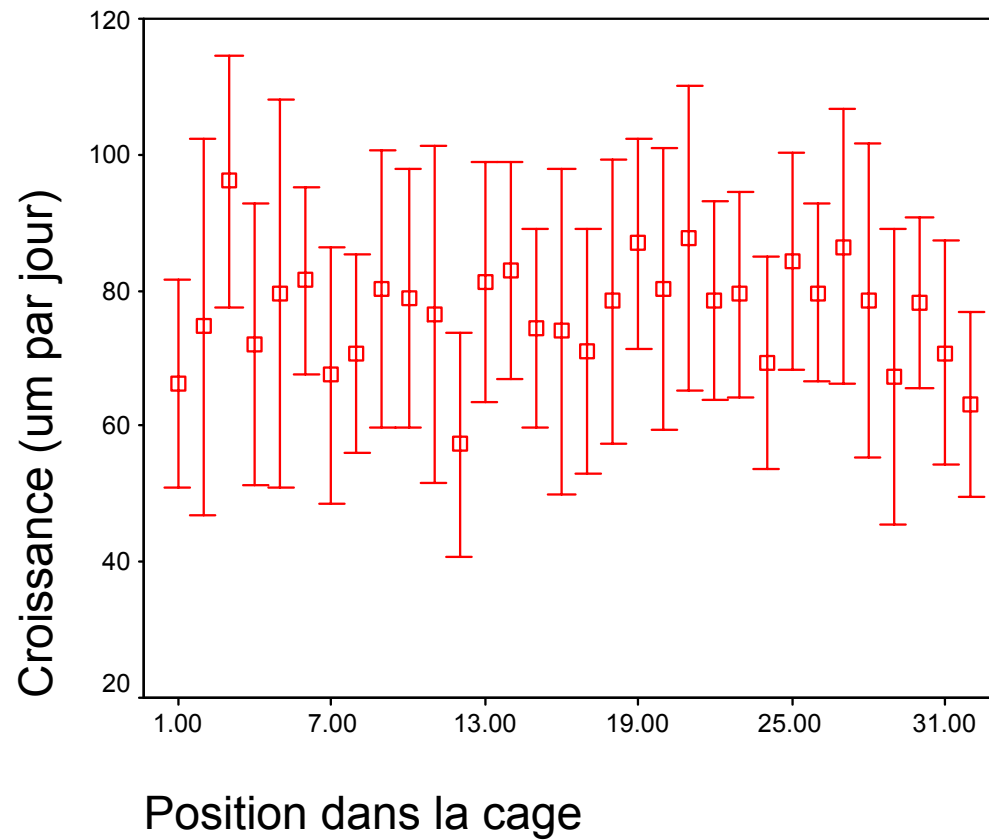






# REMOCA

## Huîtres



# REMOCA





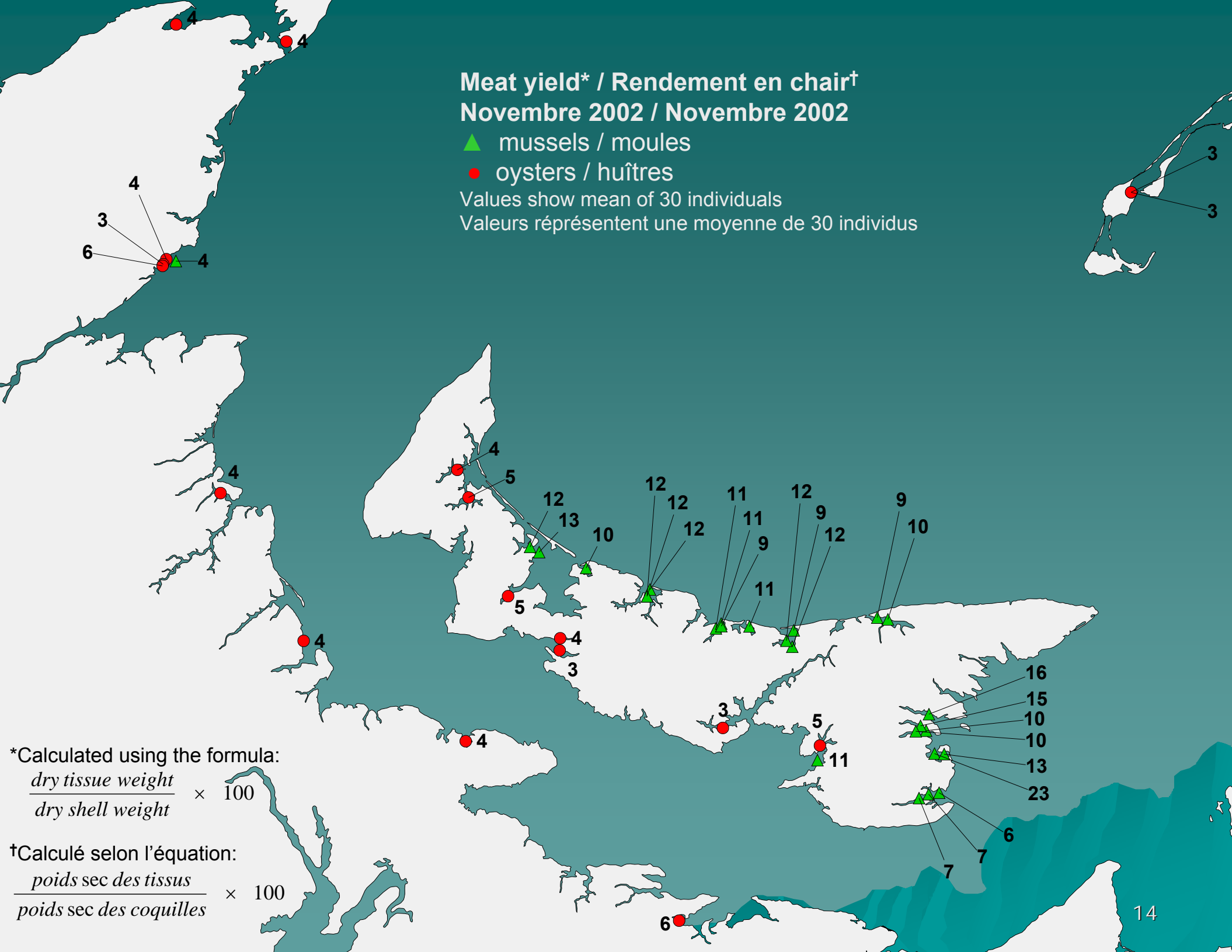
**Meat yield\* / Rendement en chair†**  
**Novembre 2002 / Novembre 2002**

▲ mussels / moules

● oysters / huîtres

Values show mean of 30 individuals

Valeurs représentent une moyenne de 30 individus



\*Calculated using the formula:

$$\frac{\text{dry tissue weight}}{\text{dry shell weight}} \times 100$$

†Calculé selon l'équation:

$$\frac{\text{poids sec des tissus}}{\text{poids sec des coquilles}} \times 100$$

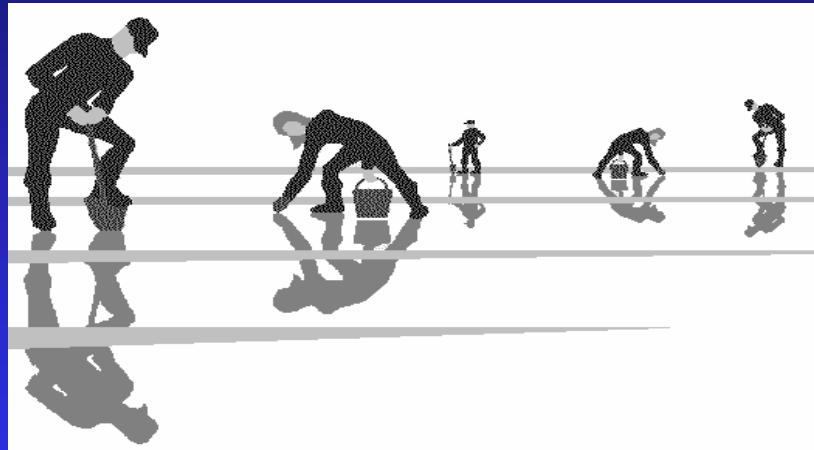


# Conclusions

- REMOCA is a reference tool.
- Allows for the comparison of aquaculture sites and years.
- Can become a platform for research for questions related to shellfish salubrity

# PCCSM

Programme canadien de contrôle et de salubrité des mollusques



# CSSP

Canadian Shellfish Sanitation Program



# History of the programme

- 1924-25: 1500 case of typhoid in the USA after consumption of contaminated oysters. Total: 150 deaths
- 1925: Canada adopts regulations under the **Fish Inspection** law. Imported oysters accompanied by a **Innocuité** label.
- 1948: Bilateral accord between Canada and the USA aims at improving salubrity practises in the shellfish industry of both countries. Le PCCSM (CSSP) et le NSCP are created.

# Filtration

Molluscs feed by filtering the water in their vicinity

- Mussels: Filter ~ 4 L/hour
- Oysters: Filter ~ 2-4 L/hour





# Water quality is important

- The molluscs can accumulate:
  - Pathogens (bacteria, viruses)
  - Chemicals (pesticides, Hg)
  - Bio-toxins (red tides)

# Objective of the CSSP

- Protect the public against consumption of contaminated bivalve molluscs by controlling harvest, handling/ treatment and distribution of molluscs

# The Program

- CSSP is jointly administered by:
  - ◆ Canadian Food Inspection Agency (CFIA)
  - ◆ Environment Canada (EC)
  - ◆ Department of Fisheries and Oceans (DFO).

# Responsibilities

- EC: responsible of classifying shellfish harvesting waters according the presence of pollution sources and water quality of waters affecting the region.
- ACIA: responsible of the handling, transformation, marketing (importation /exportation) of molluscs, and of the monitoring of bio-toxins.
- MPO: legislative power to close or open shellfish harvest areas and enforcement of the law.



## **Responsibilities of Environment Canada**

- Evaluate the classification shellfish harvest zones by identifying coastal pollution sources and by leading water quality studies in the shellfish harvest areas.
- Recommends the appropriate classification for areas of shellfish growth
- Promote prevention/ cleaning of pollution and of areas of shellfish growth.

# Study protocol:

## ■ Initial classification:

- ◆ Global sanitary study including a sanitary study of the coast line and of the bacteriological quality of the waters.
- ◆ Minimum of 15 water sampling outings.

## ■ Frequency of the study

- ◆ Annual revision of pollution sources.
- ◆ Re-evaluation of the classification every 3 years based on the 15 most recent outings and a minimum of 5 samplings in 3 years.

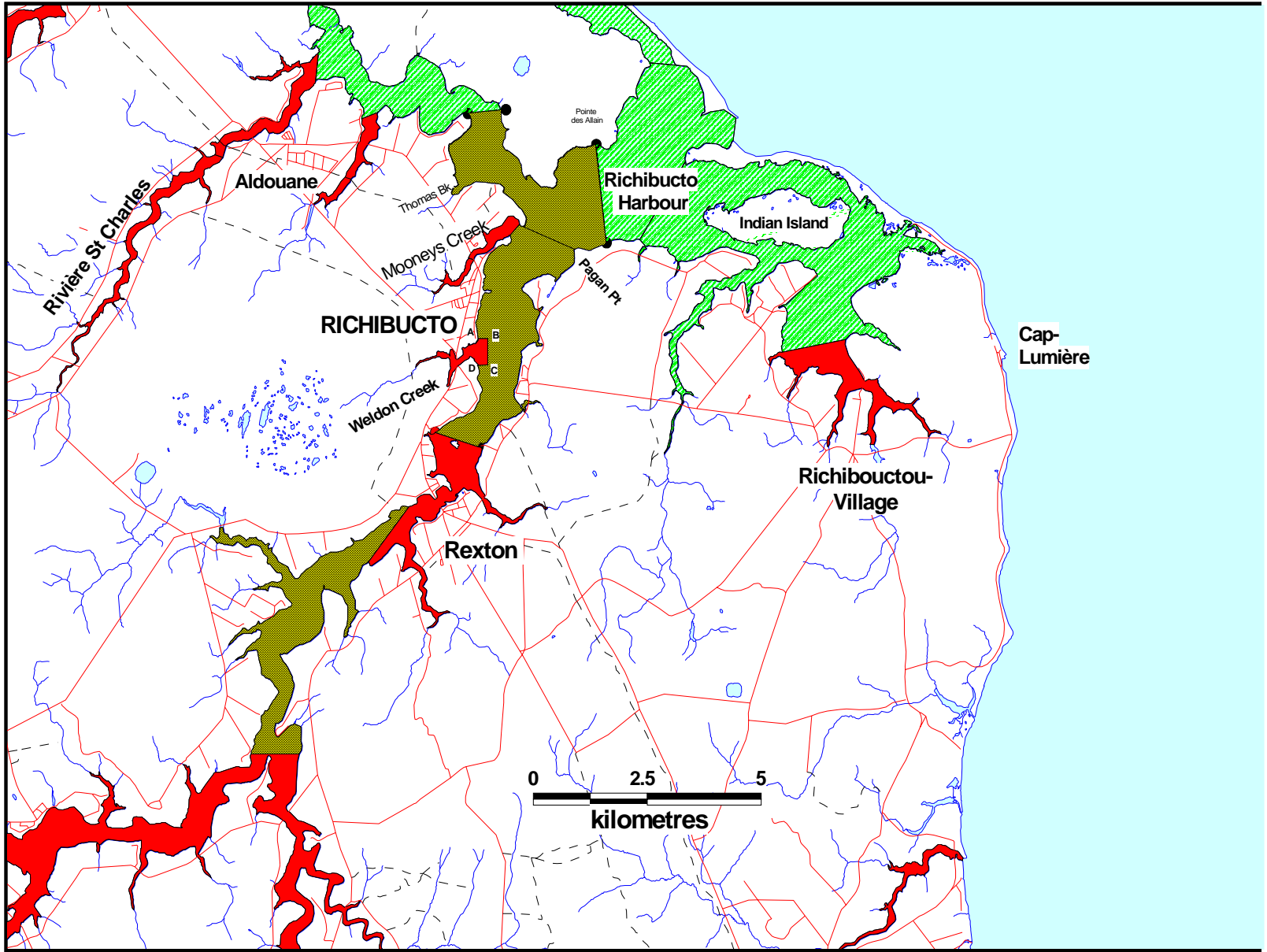


First Nations officers

# Classification

- Classification categories under the CSSP:
  - Open
  - Conditional opening
  - Closed
    - Restricted
    - Prohibited





# Conditional areas

- Creation of a management plan
- Agreement protocol (MoU)
- Sampling:
  - ◆ 2 pre-season samples – water and molluscs
  - ◆ 1 sampling per month -- water and molluscs
  - ◆ After failure of conditional opening: closure min. 7 days  
2 water samplings and 1 mollusc sample after 5 days to  
reopen conditional zone.

# Role of the CFIA

# Responsibility of the CFIA

- Control handling, storage, transportation, treatment (including depuration and relocation for depuration), certification & labelling
- Control of bio-toxins
- Make recommendations to DFO for closing or opening harvest areas based on results from bio-toxin and bacteriological analyses



# Product control

- Register, certify and inspect mollusc treatment facilities
- Conformity verification of the Quality Management Program which includes requirements of the CSSP, regulations and control elements of the HACCP.
- Product certification of products for exportation

# Micro-biological analysis of shellfish in sectors

- Appendix III of the CSSP
  - ◆ Policy to be applied towards shellfish which exceed established bacteriological levels
- Conditional sectors
- Emergency closures

# N.-B. statistics

- Number of registered shellfish plants - 35
- Number of shellfish plants under the ICSSL - 25
- Number of registered shellfish plants exporting live shellfish to the EU - 6

# Bio-toxins control

- The CFIA regularly collects and analyses shellfish samples for marine bio-toxin testing.
- When toxins are present in the shellfish, sampling frequency is increased.
- The goal is to assure the the sectors are eliminated in a reasonable delay when toxins exceed Canadian tolerance levels.

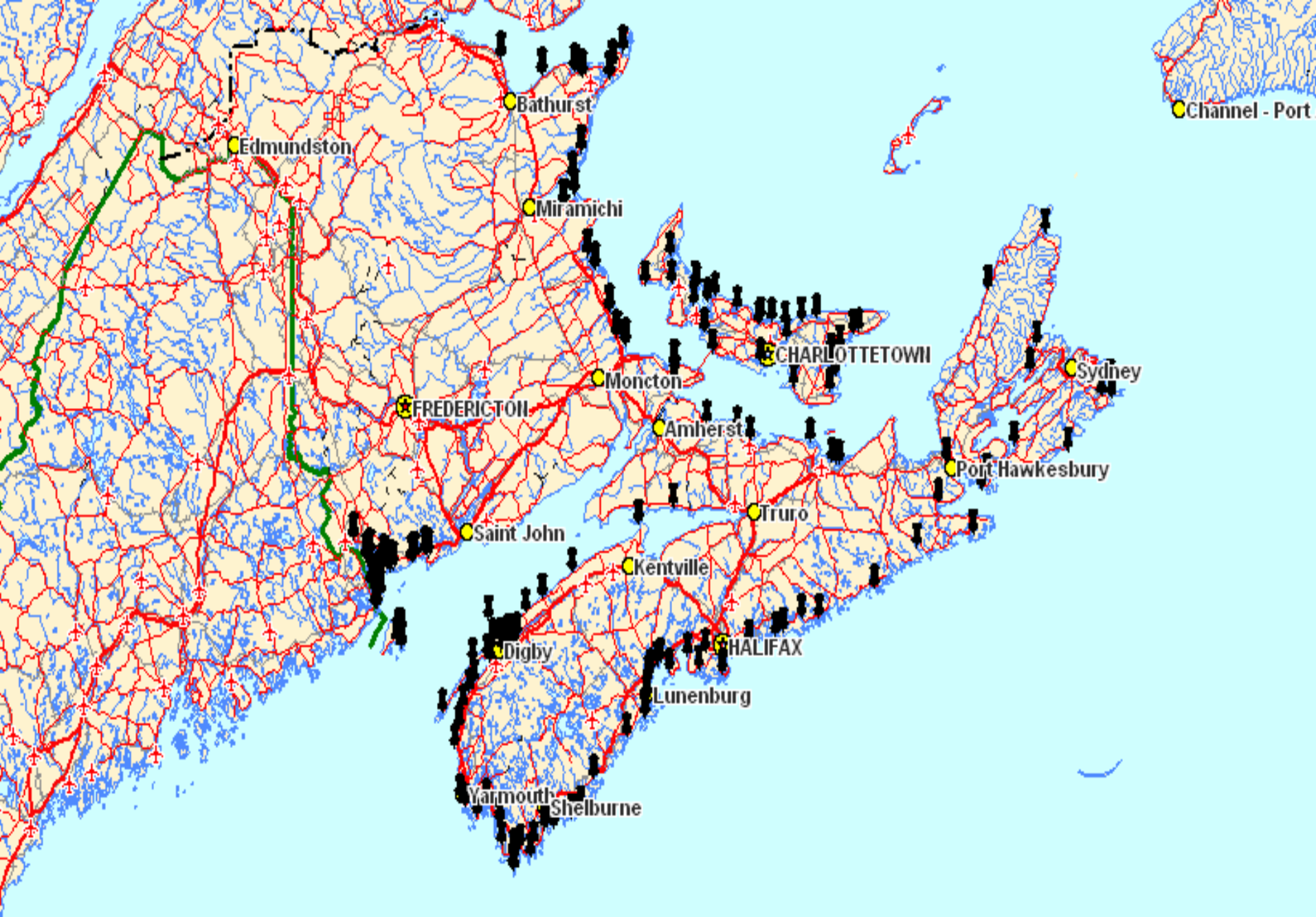


# Bio-toxins

- Paralytic Shellfish Poisoning (PSP) - Bio assay ( $80\mu\text{g}/100\text{g}$ )
- Amnesic Shellfish Poisoning (ASP) – Liquid chromatography ( $20\mu\text{g}/\text{g}$ )
- Diarrhetic Shellfish Poisoning (DSP) – Interim directive ( $1\mu\text{g}/\text{g}$  hepato-pancreas) – Liquid chromatography

# Bio-toxins (cont.)

- IDM
  - ◆ Pectenotoxins
  - ◆ Yessotoxins
- INM (NSP) - Brevetoxins
- Spirolides
- Azaspiracide
- Ciguatera
- Tetramethyl Ammonium
- Microcystin



# N.-B. statistics

- Number of site indicators - 47
- Number in 2002
  - ◆ 1839 shellfish samples
  - ◆ 1178 analyses for PSP
  - ◆ 942 analyses for domoic acid





# Appendices PCCSM

# Regional Committee Structure:

- The ASACC committee is chaired by Environment Canada and meets twice per year
- Representation:
  - ◆ Environment Canada - 4 ( including chair, secretariat and 2 program managers),
  - ◆ DFO - 6 ( 3 members from C&P and 3 from Res. Mgmt.)
  - ◆ CFIA- 4 ( 1 member from each Atlantic province),
  - ◆ Provincial Government- 4 ( 1 member from each province ( NF, NS, NB and PEI).
  - ◆ Industry and other stakeholder may attend to make presentations to the Committees on specific issues.

# Regional CSSP Roles

## Terms of Reference ( ASACC )

- To review shellfish growing area survey reports and make final decision on shellfish classification recommendations in Atlantic Region,
- To review the policies, procedures, criteria and regulations affecting the implementation of CSSP and including making recommendations to the Interdepartmental Shellfish Committee
- To develop procedures to address specific regional issues
- To advise RDG of DFO ( through the Regional Director of Environment Protection) pertaining to the classification of shellfish growing areas
- To make recommendations to the senior managers of EC, DFO and CFIA regarding regional shellfish growing area survey needs and priorities
- To review submissions from interested parties for potential referral and/or presentation to the Interdepartmental Shellfish Committee
- To establish working groups as required.

# Partnerships

## Atlantic Region

- Cooperative water quality monitoring program with PEI Dept. of Fisheries and Environment since 1975
- In 1998, the Atlantic Regions Shellfish Program signed two new partnership agreements in support of the CSSP
- Eastern Charlotte Waterways ( ECW )
- Eskasoni Fish and Wildlife Commission ( EFWC )



# First Nations

- A cooperative shellfish water quality monitoring program has been established with the Eskasoni First Nations in the Bras d'Or Lakes
- Improved water quality monitoring program in the Bras d'Or Lakes
- Transfer of technical knowledge and capacity building has occurred with the Eskasoni First Nation Guardians.
- Net increase of approved shellfish growing areas within the Bras d'Or Lakes since 1998.
- Increased awareness of water quality issues in the Lakes amongst local community groups

# Pollution Prevention and Remediation

- A cooperative shellfish water quality monitoring program has been established in SWNB.
- Co-management of local shellfish resources.
- In Oak Bay N.B., 950 ha of clam flats were reopened in 1999.
- An additional five productive clam flats are were conditionally opened under management plans
- The number of available clam harvesting areas in SWNB has seen a 32% increase compared to 4 years ago
- A coordinated clean up of additional shellfish habitat areas is continuing through the Fundy Flats Remediation plan

**MINISTÈRE DE L'AGRICULTURE,  
DES PÊCHES ET DE L'AQUACULTURE**

---

**DEPARTMENT OF AGRICULTURE,  
FISHERIES AND AQUACULTURE**

**DIRECTION DE L'AQUACULTURE DE  
LA CÔTE EST**

**EAST COAST AQUACULTURE  
BRANCH**

**Présenté par / Sylvio Doiron  
Presented by**

**New  
Nouveau  Brunswick**

# TRAVAIL DE TERRAIN

# FIELD WORK

---

- **QUATRE VOLETS D'ACTIVITÉS**

- Services à l'industrie
- Développement technologique
- Santé des mollusques
- Suivi des croissances

- **FOUR AREAS OF ACTIVITIES**

- Services to the industry
- Technological development
- Shellfish health
- Growth monitoring



# SERVICES À L'INDUSTRIE

- Prévion du captage du naissain d'huître *Crassostrea virginica*
- Prévion du captage de moules *Mytilus edulis*
- Autres

# SERVICES TO THE INDUSTRY

- Oyster spat fall monitoring program *Crassostrea virginica*
- Mussel spat fall monitoring program *Mytilus edulis*
- Others



# DÉVELOPPEMENT TECHNOLOGIQUE

# TECHNOLOGICAL DEVELOPMENT

---

- Élevage sur corde  
*Crassostrea virginica*
- Moule bleue *Mytilus edulis* en haute mer

- Rope culture technique  
*Crassostrea virginica*
- Blue Mussel *Mytilus edulis* in open water







# DÉVELOPPEMENT TECHNOLOGIQUE

# TECHNOLOGICAL DEVELOPMENT

---

## ESPÈCES ALTERNATIVES

- Huître plate  
*Ostrea edulis*
- Quahog  
*Mercenaria sp*

## NEW SPECIES

- European flat oyster  
*Ostrea edulis*
- Quahog  
*Mercenaria sp*

# SANTÉ DES MOLLUSQUES

# SHELLFISH HEALTH

---

- MSX, SSO
- Génétique
- Introduction et transfert
- Mortalités hivernales

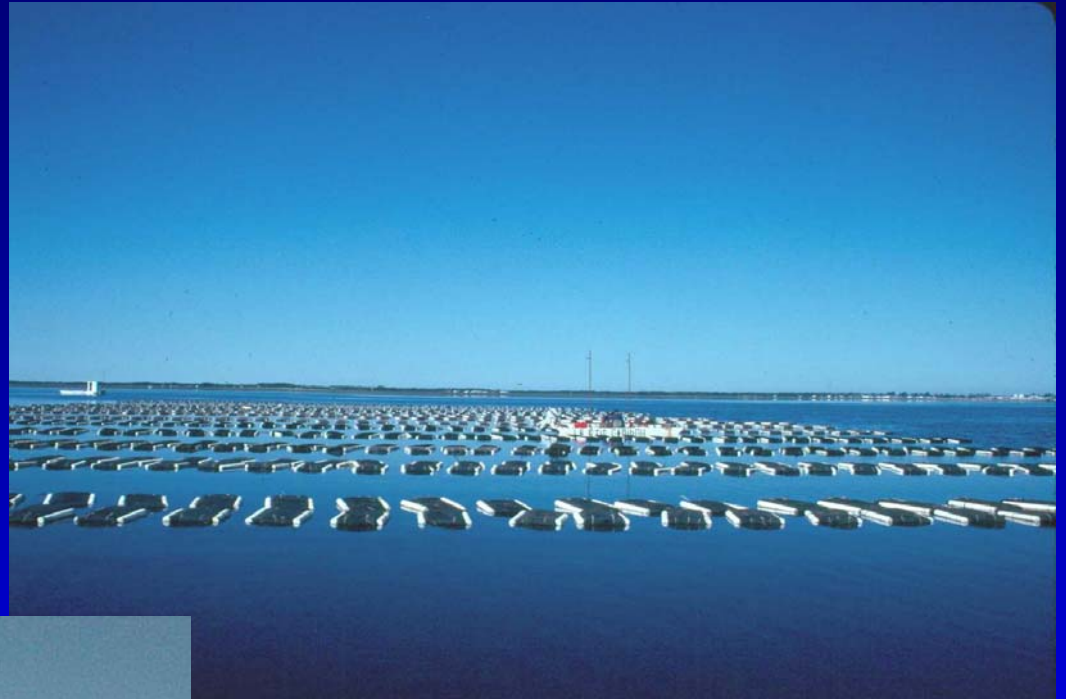
- MSX, SSO
- Genetics
- Introduction and transfer
- Winter mortalities

# SUIVI DES CROISSANCES

# GROWTH MONITORING

- 
- 22 sites suivis sur la côte est du NB
  - Paramètres mesurés:
    - longueur, largeur, épaisseur, poids, qualité, distribution des tailles
  - Rapport aux aquaculteurs
  - Amélioration des techniques d'élevage
  - Meilleure compréhension de l'élevage en général
  - Statistiques
- 22 sites surveyed on the east coast of N.-B.
  - Measured parameters:
    - Length, width, thickness, weight, quality, size distribution
  - Report to aquaculturists
  - Improvement of rearing techniques
  - Better understanding of rearing dynamics
  - Statistics gathering

FIN



THE END



***Comparative Uptake and  
Depuration of Marine Biotoxins  
in Sentinel and Commercially  
Cultured Shellfish Species***

***Canadian  
Aquaculture  
Industry  
Alliance***

***Brian Kingzett, Debbie Paltzat  
Kingzett Professional Services Ltd.  
Claire Carver, Andre Mallet  
Mallet Research Services Ltd.***



# Objectives

**To monitor the uptake and depuration of marine biotoxins in sentinel and commercially cultured shellfish in a comparison setting for the first time in Canadian waters**

**Increase the understanding of the nature of biotoxin contamination in shellfish**

**Provide additional information necessary for improvements in the monitoring and management of HABs in Canadian waters**



# Materials and Methods

**Maintain stocks of sentinel species and commercially cultured shellfish at industry sites**

**East and West Coasts of Canada**

**Wait for Harmful Algal Blooms!**

**Industry partners submit weekly samples during toxicity event**

**CFIA mouse Bioassay testing for PSP**

**Lantern net**





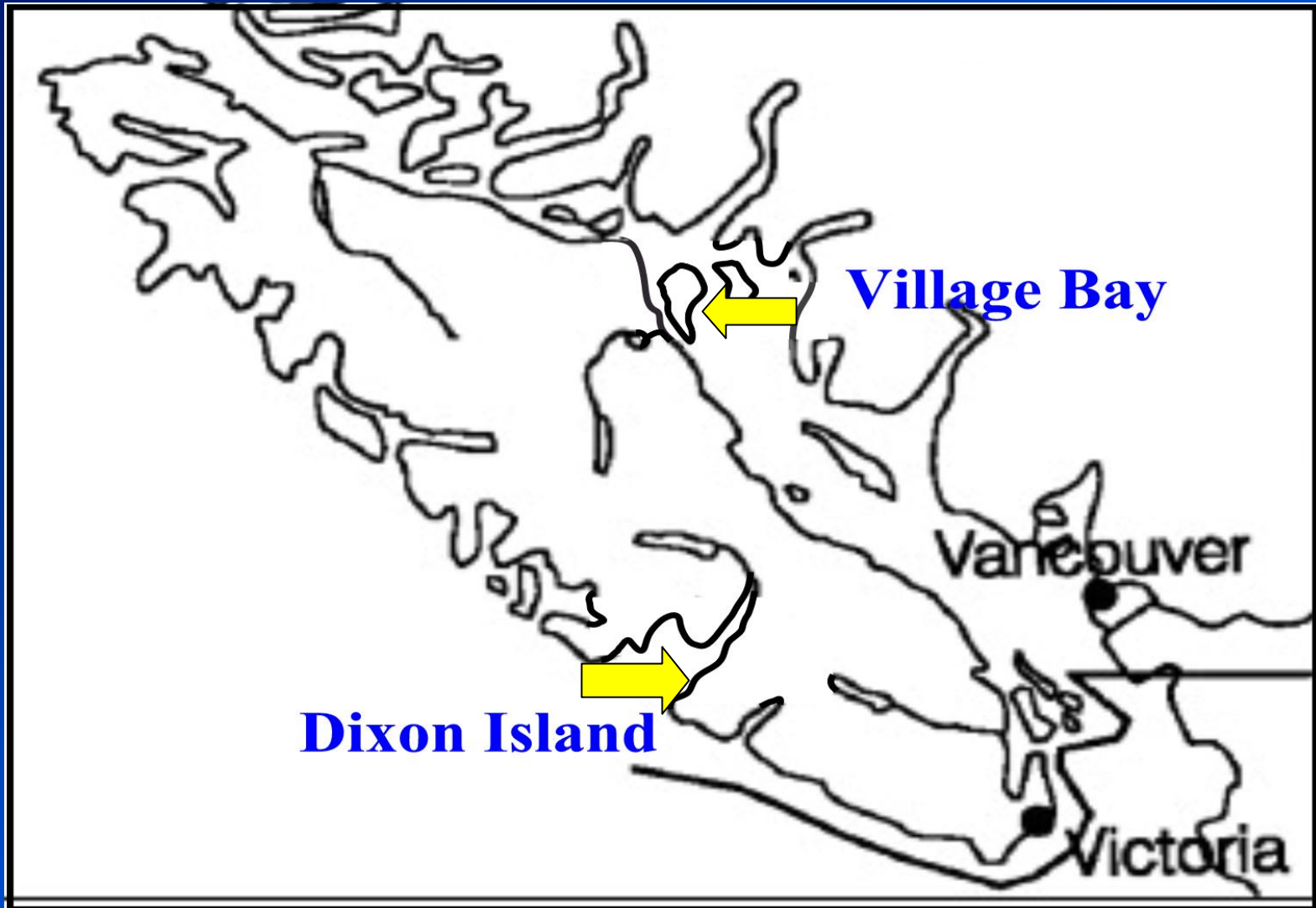
# West Coast: Species Comparison

- ☑ **California Mussels** (*Mytilus californianus*)
- ☑ **Pacific Oysters** (*Crassostrea gigas*)
- ☑ **Manila Clams** (*Venerupis philippinarum*)
- ☑ **Japanese Scallops** (*Patinopecten yessoensis*) adductor muscle and viscera





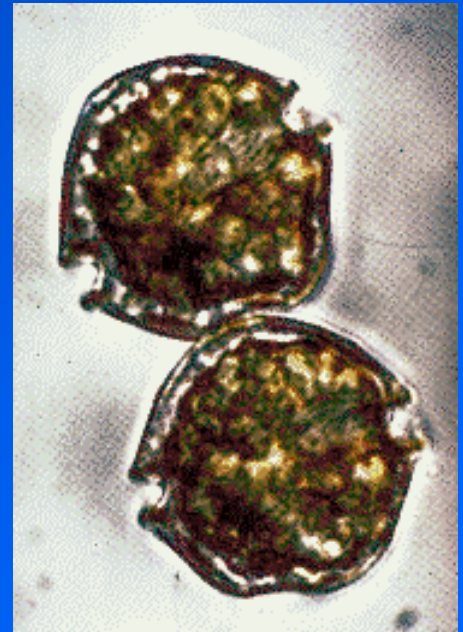
# British Columbia Study Sites: Sep-Dec 2000



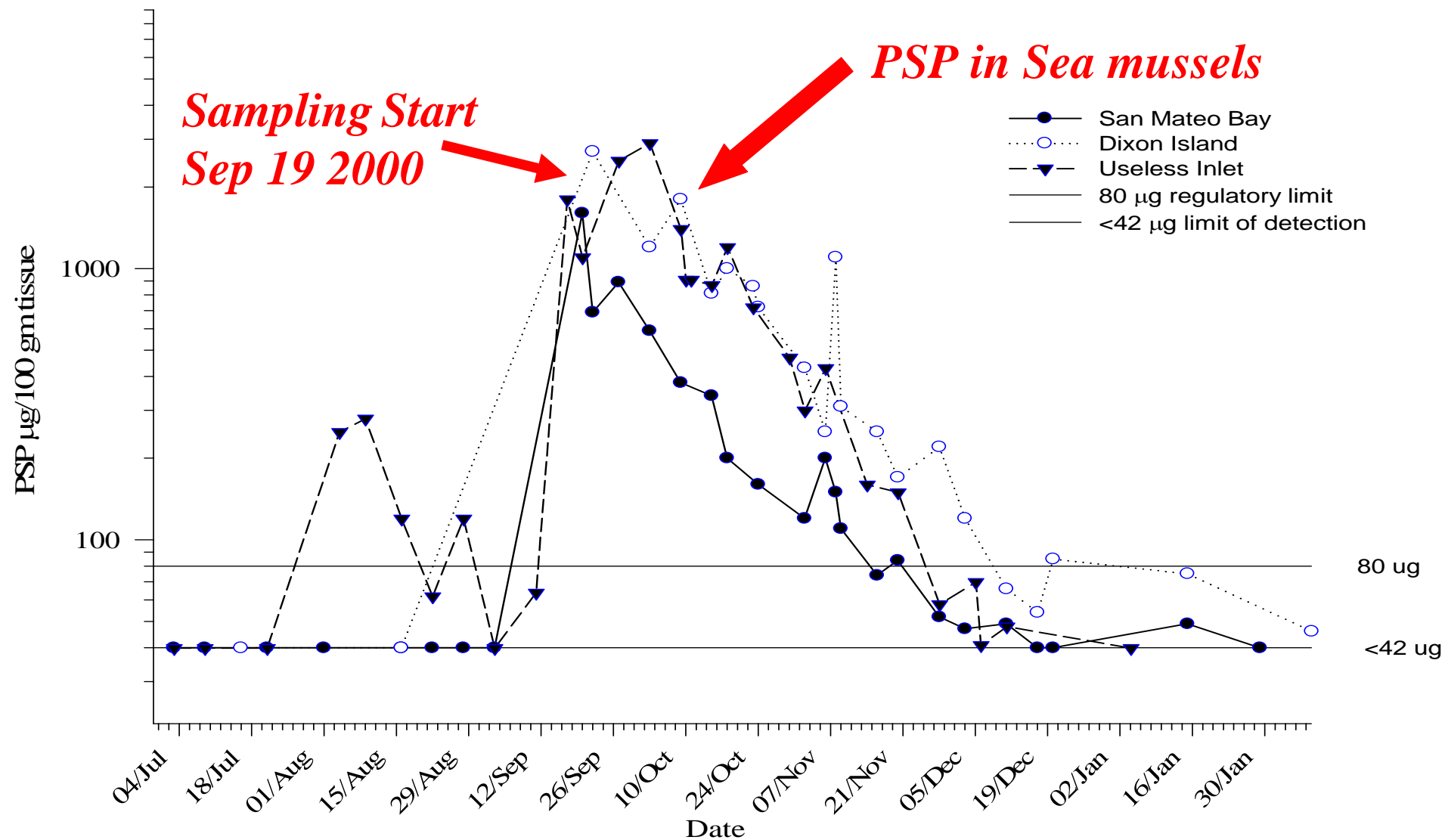
# West Coast: Barkley Sound

## PSP Event Sep–Dec 2000

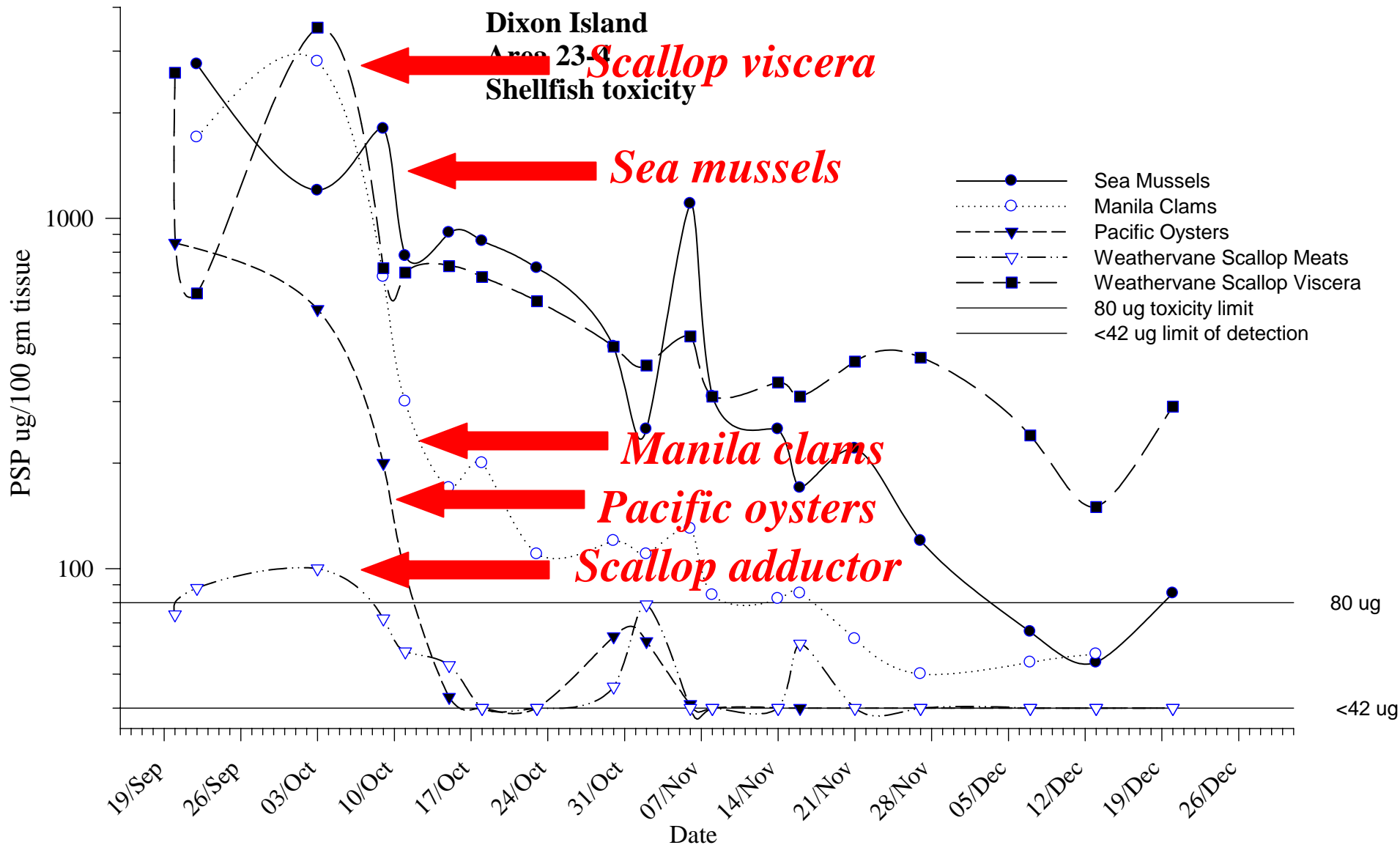
- ✓ Significant toxicity in all bivalve species - max PSP 3500  $\mu\text{g}/100\text{g}$
- ✓ Harmful Algal Bloom lasted several weeks – suspect multiple peaks in HAB activity
- ✓ No verification with phytoplankton monitoring
- ✓ Ancillary information suggested *Alexandrium catenella*



# West Coast, Barkley Sound: PSP event Sep-Dec 2000

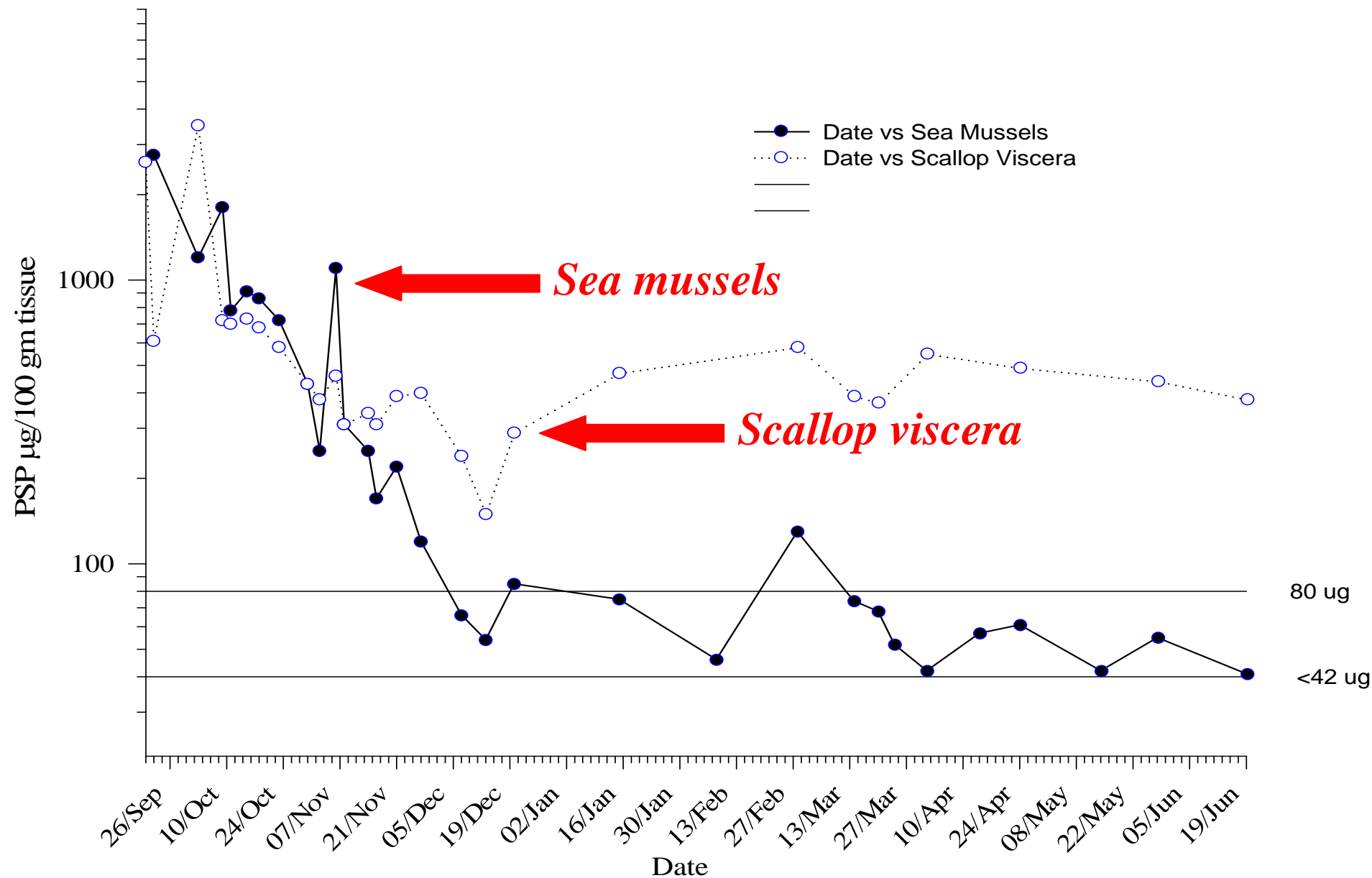


# West Coast, Dixon Island: PSP event Sep-Dec 2000





# Will scallop viscera ever clear? Sep 2000 – Jun 2001



# West Coast: PSP Event Sep–Dec 2000

## Comparative Species Depuration Summary

- ☑ **Scallop adductor muscle - low levels only**
- ☑ **Pacific Oysters – 3.6 weeks**
- ☑ **Manila Clams – 7.0 weeks**
- ☑ **Sea Mussels – 10.9 weeks**
- ☑ **Scallop viscera - > 24 weeks**

*Scallop viscera > regulatory levels through following June when no more commercial samples submitted.*

# East Coast: Species Comparison



✓ **Blue Mussels** (*Mytilus edulis*)

✓ **American Oysters** (*Crassostrea virginica*)

✓ **European Oysters** (*Ostrea edulis*)

✓ **Northern Quahog** (*Mercenaria mercenaria*)

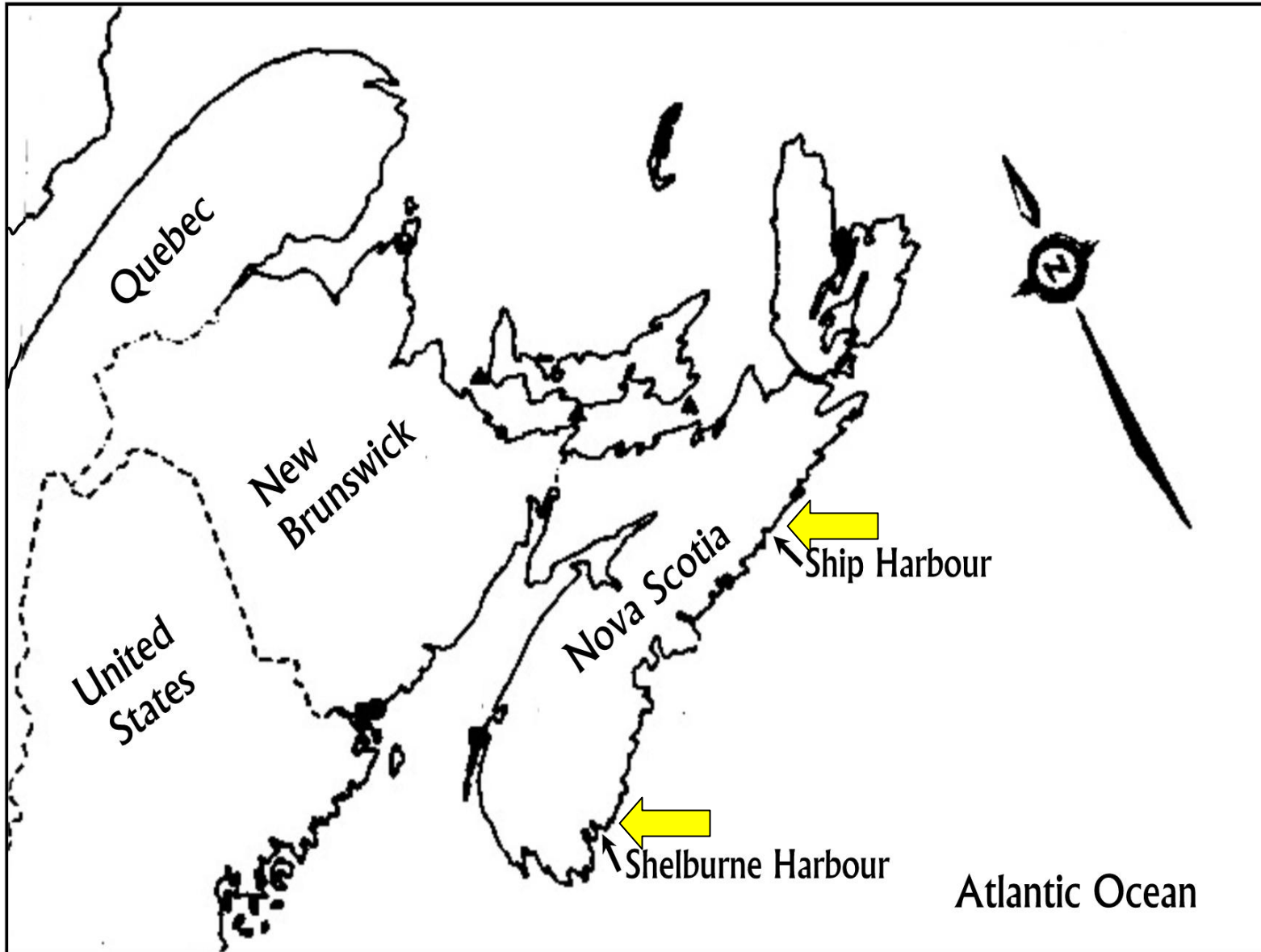
✓ **Sea Scallops** (*Placopecten magellanicus*)



**Whole scallop and digestive gland**



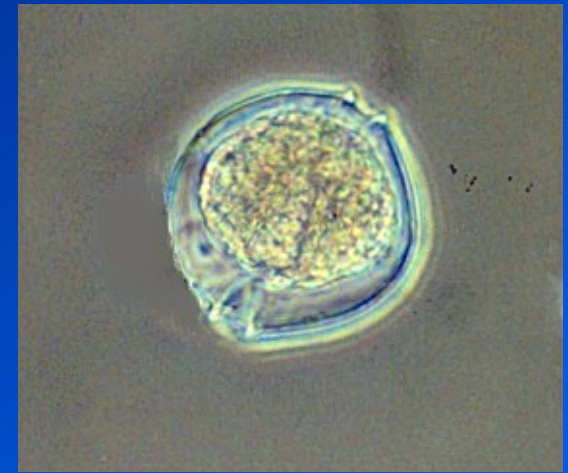
# Nova Scotia Study Sites: May-Oct 2001



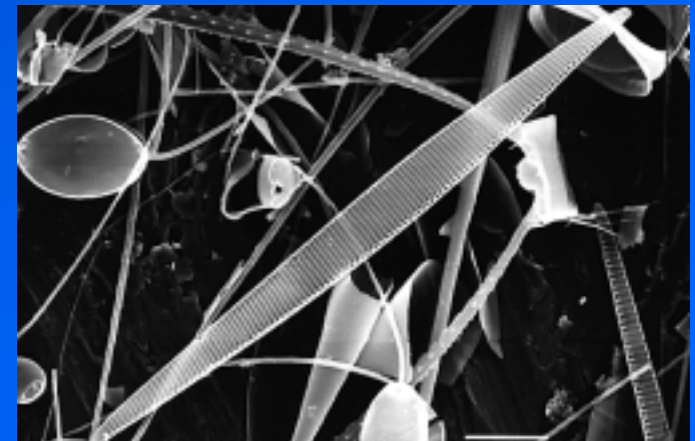


# East Coast: PSP/ASP Events May-Oct 2001

- ✓ PSP event – Shelburne Harbour  
max 5500  $\mu\text{g}/100\text{ g}$  in June
- ✓ ASP event – Ship Harbour  
max 130  $\mu\text{g}/\text{g}$  in August
- ✓ Phytoplankton monitored at both sites
- ✓ Other potentially harmful  
species (eg. *Dinophysis sp*)

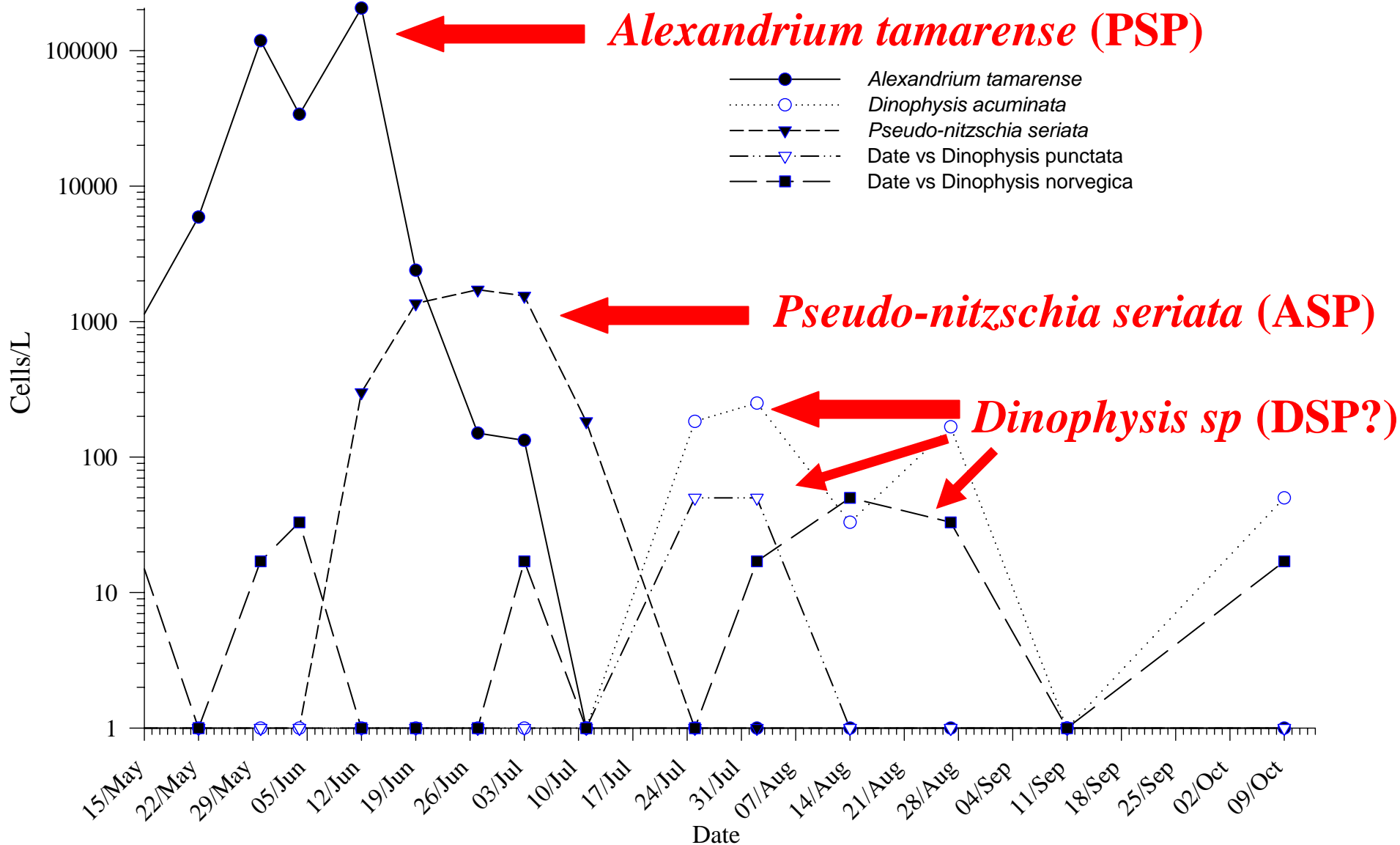


*Alexandrium*

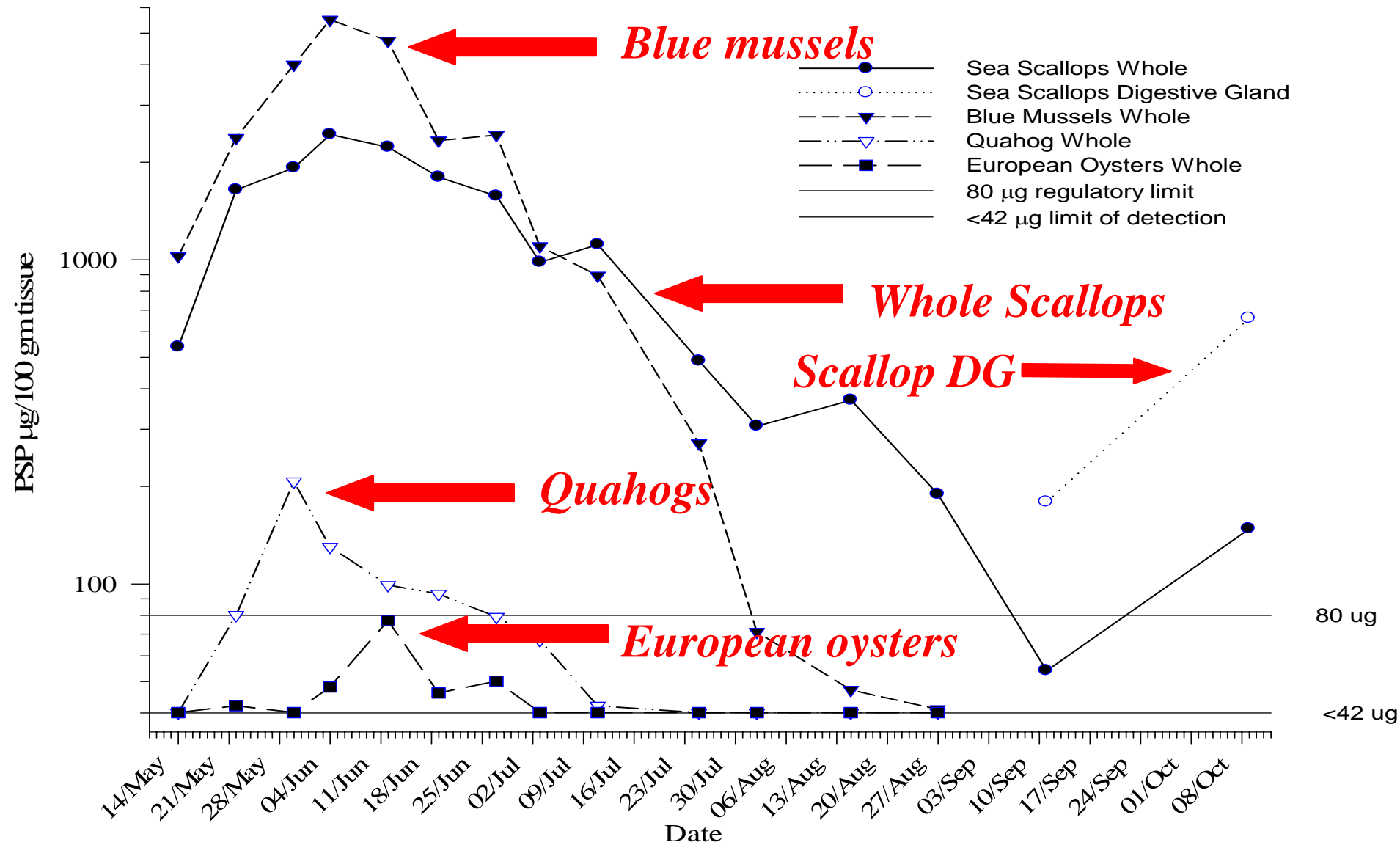


*Pseudo-nitzschia*

# Shelburne Harbour: Phytoplankton May-Oct 2001



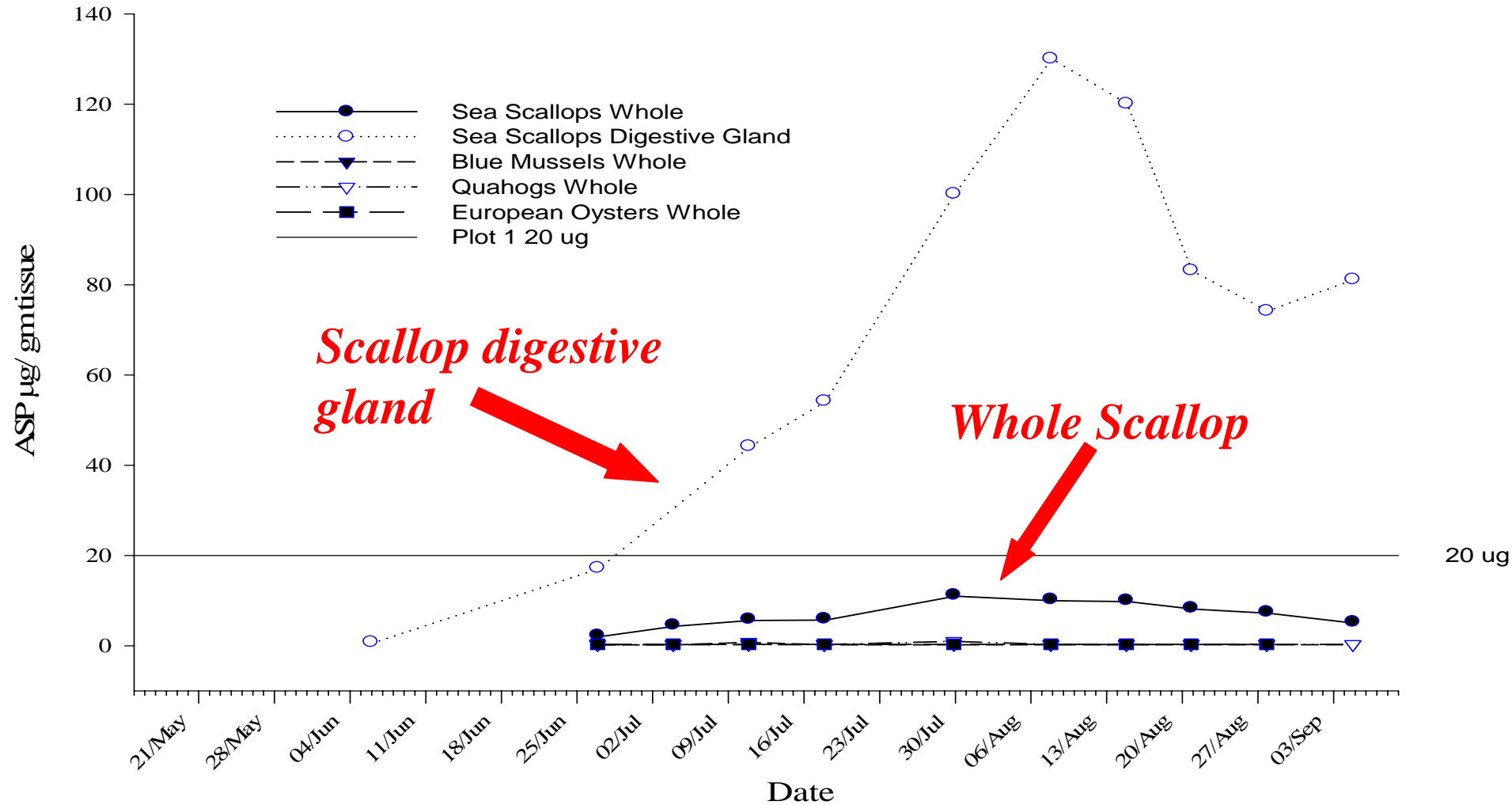
# Shelburne Harbour: PSP event May-Oct 2001







# Ship Harbour: ASP event May-Sep 2001



# East Coast: PSP/ASP events in 2001

## Comparative Species Depuration Summary

- ☑ **PSP toxins: high levels in mussels, whole scallops**
  - low levels in Quahogs and European oysters
- ☑ **PSP Depuration: Quahogs 4.3 weeks**
  - Blue mussels 7.3 weeks**
  - Sea scallops >18 weeks**
- ☑ **ASP toxins: notable accumulation in scallop digestive gland only**

# Conclusions and Recommendations

- ☑ **Undertake further research into comparative species uptake/depuration rates**
- ☑ **Incorporate phytoplankton monitoring into regulatory programs**
- ☑ **Develop species-specific management plans for commercial species**
- ☑ **Improve growers access to regulatory data**