

Aquaculture



DFO's Aquaculture Policy Framework



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada

Cover Photos:

Dr. Robert R. Stickney
New Brunswick Images

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A MESSAGE FROM ROBERT G. THIBAUT MINISTER OF FISHERIES AND OCEANS



It is my pleasure to release Fisheries and Oceans Canada's Aquaculture Policy Framework. Aquaculture is an increasingly important industry both in Canada and across the globe. As the lead federal agency for aquaculture development, Fisheries and Oceans Canada (DFO) is committed to ensuring the responsible and sustainable development of the aquaculture industry in Canada. This policy framework lays out how DFO will help guide the development of this young industry in Canada.

As the fastest growing food production sector in the world, aquaculture brings with it a great deal of potential for social and economic benefit. Aquaculture currently provides over 14,000 direct and indirect jobs to Canadians and generates economic activity approaching \$1 billion. With increasing demand for aquaculture products, annual employment growth rates of up to 12% can be expected to continue, generating wealth and other important societal benefits for Canadians, particularly in rural and coastal communities.

DFO is working closely with aquaculture stakeholders to identify and address emerging issues. This Aquaculture Policy Framework describes DFO's vision for aquaculture development. It defines in broad terms how we will work with the provinces, territories, aquaculture industry and individual Canadians to create the conditions necessary to enable the responsible growth and sustainable development of this important Canadian industry.

I am confident that, by allowing the principles articulated in the Aquaculture Policy Framework to inform our daily actions and decisions, DFO will help foster the development of an aquaculture industry that will be a model of sustainability for the world.

A handwritten signature in black ink, appearing to read 'R. Thibault'. The signature is stylized and somewhat cursive.

The Hon. Robert G. Thibault, P.C., M.P.
Minister of Fisheries and Oceans





Photo: Sigma Technologies Inc.

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Executive Summary

Aquaculture is the farming of aquatic organisms in marine or fresh water. It implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, and protection from predators and disease.

It also implies individual or corporate ownership of the stock being farmed.

The Government of Canada recognizes the significant societal benefits associated with aquaculture. As a result, it has made sustainable aquaculture development a key federal priority.

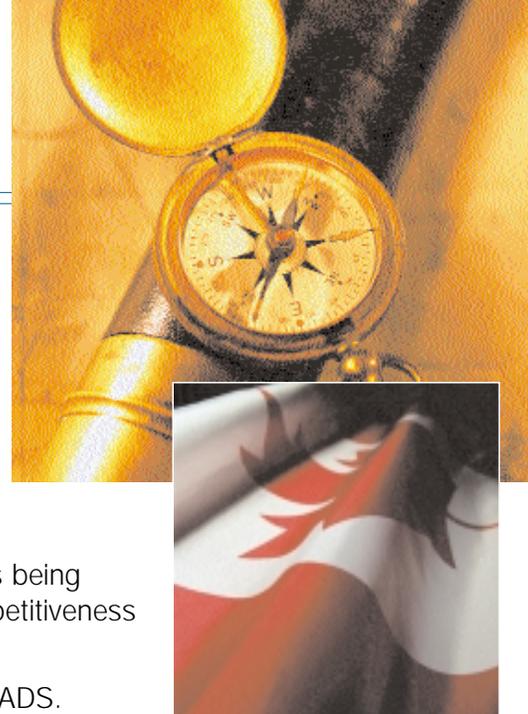
In 1995, Cabinet endorsed the Federal Aquaculture Development Strategy (FADS), invigorating the federal government's commitment to aquaculture development and affirming the role of Fisheries and Oceans Canada (DFO) as the lead federal agency in this regard. As the lead federal agency, DFO is committed to creating policy conditions that increase both the public's confidence that aquaculture is being developed in a sustainable manner and the aquaculture industry's competitiveness in global markets.

DFO's Aquaculture Policy Framework is the department's response to FADS. The objectives of this policy framework are to:

- orient DFO around a common vision for marine and freshwater aquaculture;
- shape the development of future departmental aquaculture policies and programs;
- guide the development of operational policies for the application of DFO's regulatory responsibilities in relation to aquaculture;
- inform any changes to DFO's legal and regulatory frameworks; and
- clearly convey to other federal government departments, the provincial and territorial governments, the aquaculture industry, Aboriginal groups and stakeholders the framework within which DFO is committed to taking action.

DFO's vision for aquaculture development is to benefit Canadians through the culture of aquatic organisms while upholding the ecological and socio-economic values associated with Canada's oceans and inland waters.¹

¹ All references to aquaculture development in this Policy Framework refer to development that is socially, economically and environmentally sustainable.



As the lead federal agency for aquaculture development, and consistent with its departmental mandate, DFO will act and discharge its responsibilities in a manner that adheres to the following policy principles:

- 1 DFO will support aquaculture development in a manner consistent with its commitments to ecosystem-based and integrated management, as set out in departmental legislation, regulations and policies.
- 2 DFO will address issues of public concern in a fair and transparent manner, based on science and risk-management approaches endorsed by the Government of Canada.
- 3 DFO will communicate with Canadians and be informed by their views on issues pertaining to aquaculture development.
- 4 DFO will respect constitutionally protected Aboriginal and treaty rights and will work with interested and affected Aboriginal communities to facilitate their participation in aquaculture development.

Photo:
New Brunswick Images



- 5 Recognizing that aquaculture is a legitimate use of land, water and aquatic resources, DFO will work with provincial and territorial governments to provide aquaculturists with predictable, equitable and timely access to the aquatic resource base.

- 6 DFO will strive to ensure that its own legislative and regulatory frameworks enable the aquaculture sector to develop on an even footing with other sectors.
- 7 In partnership with other federal departments, the provinces and territories, the academic sector and industry, DFO will support responsible development of the aquaculture sector.
- 8 DFO will make every effort to understand the needs of the aquaculture industry and to respond in a manner that is solutions oriented and supportive of aquaculture development.

- 9 DFO will work with other federal departments and with provincial and territorial governments to coordinate policy development, integrate regulatory frameworks, and improve service delivery.

Executive Summary

Through this policy framework DFO has committed itself to being both an enabler and a regulator of aquaculture development, affirming its role as a department of sustainable development. *Enabling* means improving the business climate for aquaculture development, to benefit Canadians. DFO will do this by:

- ensuring that DFO's laws and regulations relating to aquaculture are clear, efficient, effective, consistently applied and relevant to the sector;
- investing in aquaculture science and research and development;
- working in partnership with provinces and territories to develop a proactive siting process; and
- considering support for industry development programs consistent with DFO's mandate and objectives.

DFO will play an important role in aquaculture development by using this policy framework to help increase both sector competitiveness in global markets and the public's confidence that aquaculture is being developed in a sustainable manner. By building on FADS and supporting the department's vision and mandate, DFO's Aquaculture Policy Framework will foster vibrant and sustainable development, generating wealth and opportunities for Canadians.

Creating enabling conditions for aquaculture development is the responsibility of all DFO sectors and regions. Giving effect to the principles identified in this policy framework will require the commitment of resources and the development and implementation of specific sectoral and regional strategies, including the review of current applicable legislative and regulatory frameworks, policies and programs to ensure that they are consistent with this policy. To ensure that the policy framework remains relevant, DFO will engage stakeholders in evaluating the effectiveness of the framework in fostering the sustainable development of the aquaculture sector and will make necessary adjustments as external conditions change.

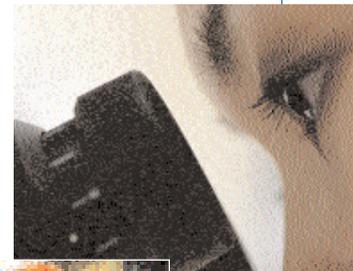


Photo: Danny Kent



Policy Context

Aquaculture is a relatively new commercial activity in Canada and in other parts of the world, but already it occupies a significant position in the seafood production sector. Although aquaculture offers tremendous socio-economic benefits, it has emerged at a time marked by heightened public awareness of the potentially negative impacts of industrial activity and by increased public scrutiny of industry and government actions to mitigate such consequences. While Canadians are interested in realizing the full potential of aquaculture, they are also concerned about issues such as escapes of farmed salmon, food safety, habitat interactions, water quality, navigational safety and aquatic animal health.

In 1995, recognizing both the potential for aquaculture to benefit Canadians and the need to ensure the sustainable use of aquatic resources, Cabinet endorsed the Federal Aquaculture Development Strategy (FADS). FADS was the product of extensive consultations with aquaculture stakeholders and provided a “road map” to help government facilitate the development of the aquaculture industry. FADS also affirmed DFO as the lead federal agency for aquaculture development. DFO’s Aquaculture Policy Framework has been developed in response to FADS and more recent opportunities and challenges associated with aquaculture development.

As the lead federal agency for aquaculture development, DFO is committed to helping increase both the global competitiveness of the Canadian aquaculture sector and the public’s confidence that aquaculture is being developed in a sustainable manner. This policy framework is intended to enable DFO to achieve these two important public policy objectives.

Global Trends

Canadians live in an increasingly connected international community that is undergoing continuous and rapid change. To participate effectively in this community, Canada must anticipate emerging global trends and develop appropriate governance tools. A firm grasp of key international pressures is particularly important to the development of an effective policy framework for aquaculture, given the growing importance of the sector’s contribution to the Canadian and global economy and the world seafood supply. The following global trends shape Canada’s approach to aquaculture development.

Economic Globalization - World trade and economic activity between countries has increased dramatically in recent years. The increased “globalization” of economic activity has been fostered by a combination of factors, including the reduction of domestic trade and investment barriers; the emergence of regional free trade agreements; and technological progress that has significantly reduced the cost of communications, processing and transportation. The resulting increases in international trade, foreign direct investment and capital market flows have created numerous business opportunities, with significant related socio-economic effects. However, the increasing complexity of the global economy has also created more business risk and demands that countries interested in competing internationally provide stable and supportive fiscal, policy and regulatory environments that enable industry to contribute to economic and social development.

The dynamism of the global economy is expected to continue and will require innovative domestic policies. The need for a stable and supportive environment is particularly relevant to the aquaculture sector. Despite its numerous positive developmental attributes, Canada’s contribution to global aquaculture production remains small and static at 0.2%. Increasing



foreign ownership and the mobility of capital require that Canada compete with other jurisdictions that are also well suited for, and supportive of, aquaculture development. A stable and supportive policy and regulatory environment is critical to achieving Canada's potential in marine and freshwater aquaculture.

Pressures on Natural Resources - Population growth and the expansion of the global economy are exerting pressure on the world's natural resources, resulting in environmental and social challenges of global proportion, such as climate change, air pollution, threats to water quality and availability, and declining biodiversity. These challenges are particularly relevant to many of the world's coastal areas that are becoming congested, thus making coastal communities both causes of, and vulnerable to, environmental degradation.

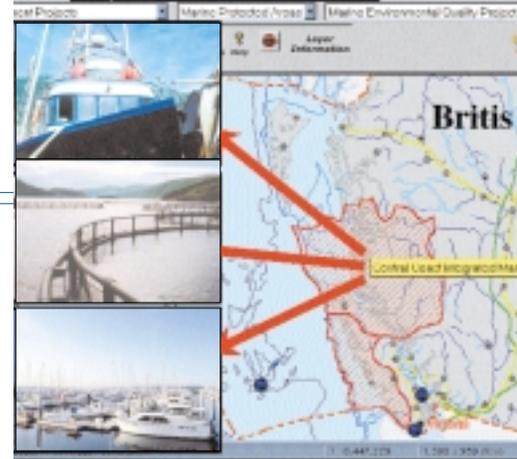
Increased environmental degradation has led to more focussed attention on human health and security issues, including global food production and distribution. The potentially dire consequences of environmental degradation have led to expectations that governments and the private sector will take measures to ensure the long-term sustainability of the world's natural resources through responsible stewardship, sound environmental management and scientific innovation.



Aquaculture has the potential to make a major contribution to wealth creation, food security and other aspects of human development. Policies to achieve this potential must be developed and implemented in the context of sustainability, with a focus on clean water, safe navigation, healthy products and the shared use of resources. These objectives are in the interest of both the general public and the aquaculture sector, the viability of which depends on healthy resources.

Knowledge-based Society - Advances in science and technology, including information technology, have had a profound impact on, and continue to transform, every aspect of human society. The ability to develop, share and apply knowledge has resulted in numerous important breakthroughs, solving many societal problems and dramatically improving the quality of life. Advances in science and technology have also presented society with many new economic, legal, ethical, cultural and environmental challenges. The magnitude and pace of change resulting from scientific and technological innovation are expected to increase with the further development of new and established technologies and greater integration of technological disciplines (e.g., communications, engineering, molecular technologies and materials science).





In the case of aquaculture, recent scientific and technological innovations have resulted in dramatic improvements in production efficiency, increasing competitiveness and significantly enhancing environmental sustainability. Advances are also being made in the identification of new applications for aquaculture products, beyond the realm of food production, in areas such as biomedicine and bioengineering. Government policy for aquaculture must recognize the significant potential for innovation in the aquaculture sector and the benefits such innovation will yield in a variety of disciplines.

Modern Governance - Governance has become increasingly complex as a result of globalization and the convergence of global economic, social and environmental agendas. Increased trade and globalization have brought about greater use of international institutions and agreements to facilitate multilateral negotiations over trade, environmental cooperation and human development. In addition to coping with, and benefiting from, the many facets of globalization, governments must respond to demands from for-profit and nonprofit organizations, and citizens generally, for increased participation in governance activities and for greater government transparency and accountability. These factors are challenging traditional governance models and leading governments to change the way they operate.

In many instances the factors that are challenging traditional governance models are precipitating a diffusion of power away from governments. With this diffusion of power have come new societal expectations directed at non-state actors. This is particularly relevant to private corporations that are being called upon to demonstrate their commitment to corporate social and environmental responsibility.

In addition to supporting the department's regulatory function, this policy framework must set the stage for creative governance approaches in priority areas such as site access (e.g., proactive planning), scientific research and development (R&D), and government programs enabling industry development. These approaches must include mechanisms to engage aquaculturists, Aboriginal groups and stakeholders in decision-making and increase their accountability in relation to key sustainability objectives.



Photo: Sigma Technologies Inc.

Federal Government Priorities

The Government of Canada is responding to both the opportunities and the challenges that these emerging global trends and domestic pressures present. Its overarching goal is to build a stronger Canada and secure a higher quality of life for all Canadians. It will create and share opportunities for Canadians to participate in this collective enterprise. In pursuing this aim the federal government is taking action in the following priority areas:

Innovation - Recognizing that knowledge and creativity are cornerstones of success in the knowledge-based society, the federal government has committed to making Canada

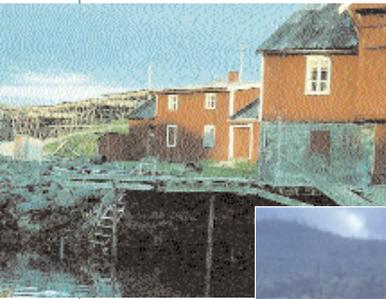


Photo: Margie O'Brien

among the most innovative countries in the world. To achieve this goal, it is working with provincial governments and the private sector to position Canada at the forefront in generating and applying new knowledge. The federal government has committed to doubling its investment in R&D by 2010. In addition to strengthening institutional research capacity, this investment will focus on accelerating Canada's ability to commercialize new technologies and on supporting collaborative R&D initiatives. Its focus also includes support for initiatives aimed at diversification and value-added growth, as well as high standards of environmental stewardship.

The Government of Canada views aquaculture as an important part of the knowledge-based economy and is investing in a variety of R&D initiatives. These include DFO's Aquaculture Collaborative Research and Development Program (ACRDP) and Aquanet, the Network Centre of Excellence for aquaculture, both aimed at enhancing sector innovation and competitiveness. In addition to new technologies and practices aimed at eliminating escapes and incidence of disease, exciting new pharmaceutical and medical applications are

on the horizon. Through these and other technological innovations, the federal government is taking steps to harness the full potential of aquaculture, increasing sector competitiveness, contributing to sustainability and building public confidence in the process.

Strong Communities - The development of stronger, more vibrant Canadian communities is critical to protecting our country's core values. The federal government is committed to making Canadian communities more prosperous and attractive places to live and work. Through strategic investments in infrastructure and community development, the federal government is helping Canadians participate more fully in the knowledge-based economy while preserving traditional ways of life.

Aquaculture is critical to the growth of the seafood industry and is therefore vital to the future of many coastal communities. As an economic activity generating many direct and indirect benefits, aquaculture can enable rural and coastal Canadians to remain in their communities, strengthening Canada's social fabric and its identity in the international community. Commercial aquaculture - both freshwater and marine - can also contribute to interested Aboriginal communities by offering an opportunity to participate in the knowledge-based economy and by reducing economic disparities.

Healthy Environment - The federal government recognizes its responsibility for protecting Canada's endowment of natural resources and views a healthy environment as an essential part of our economy and high quality of life. The federal government's focus is on clean water, clean air and the conservation of natural space. Clean water is particularly important in the context of finfish and shellfish culture and is critical to the sustainability of the aquaculture sector.



Recognizing the economic, social and environmental importance of Canada's oceans and fresh water, the federal government is working with provincial and territorial governments, local communities, Aboriginal groups, industry and public interest groups to increase the effectiveness of environmental protection and conservation measures through more integrated approaches to aquatic resources management.

A Strong International Voice – Canada's industry operates in a truly global environment. In this environment, competitive advantages are found through collaborative and innovative partnerships - partnerships that enable new governance models to emerge, scientific research and technological development to flourish, communities to benefit, and the environment to be nurtured.

The Government of Canada is working with other orders of government to position Canada as a world leader in aquaculture development. It is doing this 1) by ensuring that Canada's policy instruments are efficient, fair and appropriate and reflect Canadian values and sustainable development principles; and 2) by fostering innovation in key developmental areas. In addition to working with other governments domestically, the Government of Canada will work with other countries to set the conditions for vibrant and responsible aquaculture development. Not only will Canada comply with strong international standards pertaining to aquaculture production, it will lead the way in their development.

Aquaculture: Opportunity for Canadians

Aquaculture is one of the fastest growing food production industries in the world and is an important part of the seafood continuum. Together, the aquaculture and fishing industries and related service sectors generate significant wealth and socio-economic benefits for Canadians in all regions of the country.

The contribution of aquaculture to world fisheries production has been growing steadily over the last decade and now accounts for a full third of total fish supplies for human consumption. The Food and Agriculture Organization of the United Nations projects that by 2030, aquaculture will dominate fish supplies, with more than half of the fish being consumed originating from aquaculture operations. Indeed, by 2025, annual demand for seafood will outstrip the capacity of wild fisheries by some 55 million tonnes, presenting tremendous opportunities for the aquaculture sector.

With global demand increasing and natural stocks already largely at or exceeding their maximum capture potential, it is clear that aquaculture will play an important role in satisfying future global demand and in contributing to the security of the global food production system. In addition to the opportunities relating to the production of fish supplies and to all

the related services supporting the aquaculture industry, important contributions can be made in the areas of biomedicine, pharmacology and bioengineering.

Photo:
New Brunswick Images



Aquaculture operations can be found across Canada in every province and territory, producing diverse species under a variety of culture methods. The extraordinary range of species under culture is representative of the ingenuity and drive inherent in the industry. In 2000, 22.8% of the total value harvested from living aquatic resources in Canada came from aquaculture. With historical average industry growth rates of almost 30% per year, this proportion is increasing annually.

Already in Canada, the aquaculture sector employs in excess of 14,000 people and approaches \$1 billion annually in direct and indirect economic activity. Specific benefits for Canadians currently include the following:

- job creation and contribution to economic growth;
- increased social cohesion through diversification and wealth generation in rural and coastal areas;
- opportunities for Aboriginal communities;
- reduced pressure on wild fish stocks, helping to sustain and enhance the wild fishery;
- the assurance of high-quality, safe, competitively priced and nutritious seafood; and
- expansion of domestic and export markets for Canadian fish and seafood products.

Based on recent aquaculture sector growth trends and Canada's significant aquaculture development potential, the sector's contribution to the Canadian economy could reach \$3 billion by 2010.



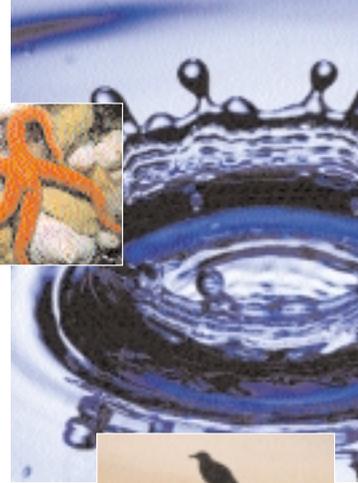
DFO: Lead Federal Agency for Aquaculture Development

Recognizing the tremendous potential of aquaculture, and consistent with federal priorities, the federal government has identified the development of the sector as an important element of its strategy to create opportunities for Canadians.

In 1984, the Prime Minister named DFO as the lead federal agency for aquaculture development. DFO's role as lead federal agency was reaffirmed in 1995, when Cabinet endorsed FADS, and again in 1998, when the Prime Minister appointed the Commissioner for Aquaculture Development to advise the Minister of Fisheries and Oceans on the development of the aquaculture industry.



Photo: Danny Kent



In 2000–01, DFO took a number of important steps in recognition of the ever-growing significance of the aquaculture sector and its role as lead federal agency:

- DFO identified aquaculture development as one of only four policy renewal priorities in its five-year departmental strategic plan, articulating its policy objectives for the sector as (1) increasing public confidence in the sustainability of aquaculture development and (2) increasing industry's competitiveness in global markets;
- DFO established the Office of Sustainable Aquaculture, with a view to bringing increased policy and program coherence to aquaculture initiatives within the federal government; and
- DFO launched its six-point Aquaculture Action Plan, involving the development of enabling policy and regulatory frameworks for aquaculture development; a \$75 million Program for Sustainable Aquaculture; a National Aquatic Animal Health Program; increased intergovernmental harmonization; and a communications initiative aimed at improving the public's understanding of aquaculture development.

These recent steps confirm DFO's commitment to enabling the responsible development of the aquaculture sector and to strengthening its role as the lead federal agency for aquaculture development.

Recognizing the significant provincial role in aquaculture development (e.g., in siting, economic development, environmental protection), DFO's role is to create policy, program and regulatory conditions in its areas of responsibility that will enable aquaculture development. These responsibilities include the following:

- Administering, monitoring and enforcing compliance with its important regulations, and carrying out its ocean management responsibilities relating to conservation and protection, environmental and habitat protection, navigational safety for all mariners and fish health in a clearly defined, reasonable and consistent manner;
- Positioning Canada as a world leader in aquaculture development through investments in science, R&D and industry development programs aimed at improved regulatory decision-making and industry competitiveness;
- Coordinating and bringing increased coherence to federal aquaculture program and policy development;
- Facilitating harmonization of federal and provincial aquaculture regulatory frameworks and coordination of intergovernmental aquaculture program and policy development; and
- Facilitating increased dialogue between aquaculture stakeholders on issues of mutual interest.

Contributing to DFO's Sustainable Development Agenda

DFO is changing the way it does business, to respond to emerging global and domestic sustainable development trends. In recent years, DFO has moved from being a department focussed largely on the management of the wild fishery to one that is increasingly concerned with integrating and managing a broad range of ocean and inland water uses, including aquaculture. This transition accelerated significantly in 1997 with the proclamation of Canada's *Oceans Act*, which provides a framework for oceans management initiatives and calls for the Minister of Fisheries and Oceans to lead and facilitate the development of a national oceans management strategy.

Photo:
New Brunswick Images

DFO's policy agenda and this policy framework support DFO's reorientation as a department of sustainable development. Without question, understanding the ocean and freshwater environments, including the conservation of aquatic resources and their habitat, remains a cornerstone and key responsibility of the department. In addition, consistent with its corporate vision and mandate, DFO has broadened its focus to include the sustainable development of our ocean and freshwater environments, including consideration of socio-economic objectives such as the generation of wealth and other societal benefits.

DFO is demonstrating its commitment to sustainable development through its departmental sustainable development strategy and policy renewal initiatives, including Canada's Oceans Strategy and Fisheries Management Renewal. This policy framework is also playing an instrumental role by confirming that the department is both a regulator of the aquaculture industry and an enabler of its development. Through these initiatives DFO is committed to supporting a number of key sustainability themes:

- integrated and ecosystem-based management;
- transparent decision-making approaches based on science;
- risk-management approaches endorsed by the Government of Canada (including the precautionary approach where appropriate);
- socio-economic considerations; and
- stakeholder engagement.

By ensuring consistency in approach in these and other areas, DFO has created strong cohesion across its policy renewal initiatives, thereby being well positioned to respond effectively to external pressures and trends. This in turn will further build public confidence in, and the credibility of, the department.



Photo: Danny Kent

Aquaculture in the Context of Sustainable Development

The Government of Canada has accepted the definition of sustainable development as first proposed by the World Commission on Environment and Sustainable Development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

It is recognized that governments, private sector organizations, public interest groups and individual citizens all have a role to play in achieving sustainable development.

Aquaculture in the context of sustainable development incorporates the following elements:

- maintaining or enhancing the quality of life and the environment for present and future generations;
- adopting an ecosystem approach and respecting the interests and values of all resource users and considering those interests and values in decision-making;
- identifying, planning, developing, operating, harvesting, processing, and when necessary disposing of aquacultural products in the most efficient, competitive and environmentally responsible manner, using best practices;
- respecting constitutionally protected Aboriginal and treaty rights;
- creating and sharing knowledge to promote innovation, continuous learning and efficiency;
- securing the participation of stakeholders, individuals and communities in decision-making to ensure best use of aquatic space; and
- making decisions in a fair, transparent and inclusive manner.



Purpose of DFO's Aquaculture Policy Framework

Given its close proximity to the world's largest market, a reputation for high-quality, safe seafood products, excellent biophysical potential and a highly knowledgeable labour force, Canada is well positioned to benefit from aquaculture development. Yet strikingly, Canada's share of the international market for aquaculture products remains very small. Indeed, in the absence of both enabling regulatory and policy frameworks, and with other countries favourably embracing aquaculture development, Canada's share of the international market now risks being further diminished, resulting in lost opportunities for Canadians.

As identified in DFO's Strategic Plan (2000), DFO has committed itself to help increase (1) the aquaculture sector's competitiveness in global markets and (2) the sector's environmental and social sustainability, thereby enhancing public confidence in the sector. This policy framework is intended to:

- orient DFO around a common vision for marine and freshwater aquaculture;
- shape the development of future departmental aquaculture policies and programs;
- guide the development of operational policies for the application of DFO's regulatory responsibilities in relation to aquaculture;
- inform any changes to DFO's legal and regulatory frameworks; and
- clearly convey to other federal government departments, the provincial and territorial governments, the aquaculture industry, Aboriginal groups and stakeholders the framework within which DFO is committed to taking action.

Although industry is responsible for its commercial success, DFO does have an important role to play, along with the provinces and others, in addressing key impediments to the sustainable development of the aquaculture sector. As identified in DFO's Aquaculture Action Plan, a balanced, clear and consistently applied DFO Aquaculture Policy Framework will help establish the conditions necessary for the aquaculture sector to bolster competitiveness, and position Canada as a model of sustainable development.



Photo: Charlie Gibbs



DFO's Vision of Sustainable Aquaculture Development

Achieving DFO's stated strategic objectives for aquaculture development will pave the way for reaching our ultimate vision for aquaculture development in Canada. This vision is "to benefit Canadians, now and in the future, through the culture of aquatic organisms, while upholding the ecological and socio-economic values associated with Canada's oceans and inland waters."

DFO's Vision of Sustainable Aquaculture Development

DFO's vision of sustainable aquaculture development is consistent with the department's strategic vision of safe, healthy and productive waters and ecosystems for the benefit of present and future generations. Further, it supports DFO's mandate, which states that DFO is responsible for policies and programs:

- in support of Canada's economic, ecological and scientific interests in oceans and inland waters;
- for the conservation and sustainable utilization of Canada's fisheries resources in marine and inland waters;
- for leading and facilitating federal policies and programs on oceans; and
- for safe, effective and environmentally sound marine services responsive to the needs of Canadians in a global economy.

Within the realm of food production, DFO views aquaculture development as part of a continuum of activities that define the seafood production sector and therefore as complementary to the wild fishery. As such, DFO's vision encompasses full life-cycle activities and other activities, such as the rearing of aquatic organisms for marine and freshwater enhancement and live holding in sea pens, which add value to the wild fishery and present opportunities for better integration within the seafood production sector. Moreover, DFO views the scope of aquaculture development as extending beyond the realm of food production and encompassing broader societal benefits related to human health and quality of life. These include benefits that can be derived through innovative biomedical and bioengineering applications of aquaculture products.

Achieving DFO's vision of aquaculture development will require a continued re-orientation of departmental values, within DFO's existing mandate, and a firm commitment by all DFO employees to enabling aquaculture development. As an organization with core competencies in the areas of fish habitat protection, environmental and biological science, fisheries management, navigational safety and oceanography, DFO is well suited to address several important environmental and social aspects of aquaculture development. However, achieving DFO's vision will also require that the department continue to broaden its approach and, where relevant, increase the level of importance it places on the socio-economic benefits of aquaculture development. This is provided for in DFO's legislation, vision and mandate and is of fundamental importance in achieving DFO's vision for aquaculture development. Achieving DFO's vision will also require that DFO work collaboratively with the aquaculture and wild fisheries industries to identify common interests and opportunities for mutually beneficial cooperation.





Policy Principles

DFO will, through its legislation, regulations, policies and programs, seek to support industry competitiveness in global markets and increase public confidence in the sustainability of aquaculture development.

DFO's efforts in this regard will be guided by the following principles:



Photo: Dr. Robert R. Stickney



Increased Public Confidence in the Sustainability of Aquaculture Development

PRINCIPLE 1.

DFO will support aquaculture development in a manner consistent with its commitments to ecosystem-based and integrated management, as set out in departmental legislation, regulations and policies.

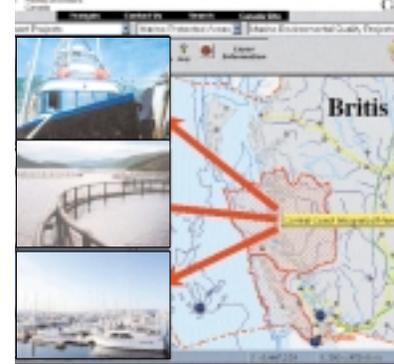
Difficulty gaining access to high-quality production sites has been, and continues to be, a major impediment to the growth and environmental sustainability of the aquaculture sector. This difficulty is related to the sector's recent emergence as a strong commercial reality and an initial reluctance to consider aquaculture on an even footing with more well established aquatic resource uses. Access to sites has also been made difficult because of the limitations of the current federal-provincial siting process, which is based on an application-by-application approach and not long-term, proactive planning.

DFO recognizes that aquaculture is a legitimate use of land, water and aquatic resources and will work with provinces to facilitate access to the aquatic resource base by aquaculturists and other resource users in the context of integrated management and best use. In short, aquaculturists will be treated on an equal footing with other resource users. DFO decisions relating to site access will be made through transparent processes and be informed by other resource users' interests and potential impacts on the ecosystem's integrity and resiliency.

Although conservation of the wild fish stock and DFO's legislative responsibilities for navigational safety and environmental and fish habitat protection will continue to be primary considerations, DFO will, where applicable, consider the social and economic benefits associated with aquaculture development in the course of its decisions.

Within the context of ecosystem-based and integrated management, DFO will encourage provincial and territorial governments, the aquaculture industry, communities and other stakeholders to begin working together to identify regional aquaculture growth objectives and to select biophysically and socially suitable areas for aquaculture development. DFO will actively work with its partners to encourage transparency and the adoption of a more proactively planned and integrated approach for marine and freshwater aquaculture that builds on best practices and is consistent with the planning approach advanced in Canada's Oceans Strategy and the *Oceans Act*.

Such a proactive, planned and integrated approach to the site-selection process should help to address one of the major existing impediments to sustainable aquaculture development in Canada.



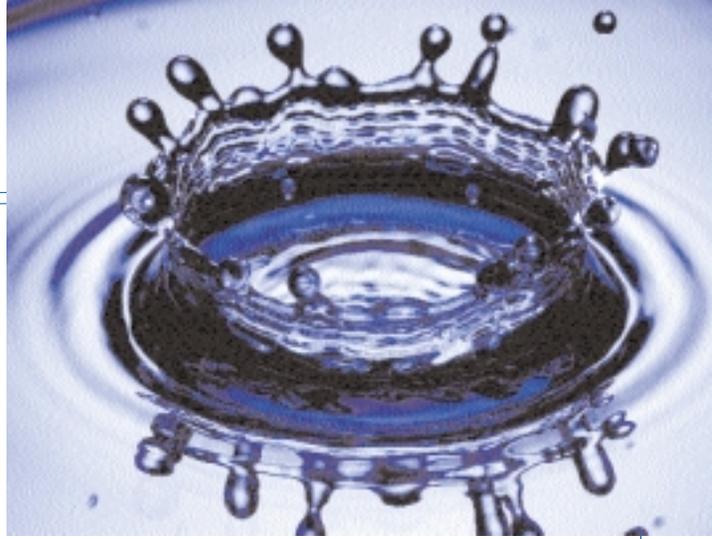
Aquaculture in the Context of Integrated Management

Integrated management (IM) means planning and managing human activities in a comprehensive way so as to reduce conflicts and to consider all factors necessary for the conservation and sustainable use of aquatic resources and the shared use of aquatic space.



IM respects existing divisions of constitutional and departmental authority and does not abrogate or derogate from any existing Aboriginal or treaty rights. However, IM occurs within ecosystem boundaries rather than administrative or jurisdictional boundaries. Using this "ecosystem-based approach," IM examines effects from an ecosystem perspective, recognizing that plants, humans, animals, micro-organisms and their environments interact as part of a dynamic and functional system. IM recognizes that ecosystem sustainability and function are of primary importance and, through ecosystem-based management objectives and reference levels, attempts to address impacts throughout the entire ecosystem, including both intended and unintended exposures.

IM is a key component of Canada's Oceans Strategy. Through this strategy, DFO has committed to involving all interested aquatic resource users in the development of large-scale and local IM plans for Canada's oceans. In addition to ensuring that aquaculture develops on an even footing with other legitimate uses of Canada's aquatic resources, active participation in IM will ensure that the use of aquatic resources takes into consideration the health and viability of ecosystems, thereby contributing to the long-term viability of aquaculture development.



PRINCIPLE 2.

DFO will address issues of public concern in a fair and transparent manner, based on science and risk-management approaches endorsed by the Government of Canada.

Canadians appreciate the significant social and economic benefits currently associated with aquaculture and the tremendous opportunities that the sector presents for the future. At the same time, Canadians want to be assured that their concerns about interactions with wild stocks and fish habitat, water quality, navigational safety, aquatic animal health and food safety, among others, are being addressed.

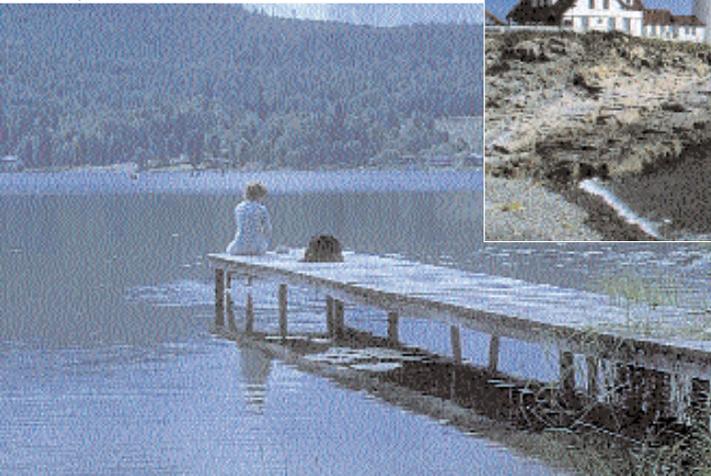
DFO will enable the development of the sector within a legal and regulatory framework that upholds and respects its responsibilities for navigational safety, habitat protection, fisheries management and aquatic animal health. On issues of concern outside of DFO's regulatory responsibilities, such as food safety and the use of therapeutants, DFO will exercise its federal lead agency role and work with other federal partners, orders of government and stakeholders to foster responsible practices and continue building public confidence in the sustainability of the sector.

Rigorous analysis of the potential environmental and biological impacts of aquaculture development is critical to building public confidence in the sustainability of the sector. Accordingly, DFO will build on recent investments in environmental, biological and aquaculture science and will work with other partners, both in Canada and abroad, to further add to the ever-growing body of knowledge of the potential environmental impacts of aquaculture.

In addition to further investments in science, DFO will strengthen its decision-making frameworks by developing specific operational policies and management structures related to its regulatory responsibilities for aquaculture. Such operational policies will improve both DFO's ability to fulfill its regulatory responsibilities and the consistency with which the regulations are applied across the country. Further, DFO's regulatory decisions, supported by enhanced science and improved decision-making and management frameworks, will be based on risk-management approaches endorsed by the Government of Canada, including adaptive management (involving ongoing monitoring) and, where required, the application of the precautionary approach to reduce the likelihood of unacceptable outcomes. Lastly, DFO will ensure that the manner in which information is collected and used and the factors that have been considered in decision-making are apparent to all interested stakeholders.

Through these measures - enhanced science, strengthened decision-making frameworks, risk-management approaches endorsed by the Government of Canada, and increased transparency - DFO will be able to assure Canadians that it is appropriately managing issues of public concern and fulfilling its legislative responsibilities.





Aquaculture in the Context of the Precautionary Approach

Innovation offers tremendous opportunities to improve quality of life, but it is sometimes accompanied by scientific uncertainty and the potential for serious or irreversible harm. In these circumstances, governments are called upon to use the precautionary approach to manage risks while seizing the opportunities that innovation presents.

The precautionary approach is a distinctive approach, within the realm of risk management, to managing risks of serious or irreversible harm where there is significant scientific uncertainty. It recognizes that lack of full scientific certainty shall not be used as a reason to postpone cost-effective measures to prevent environmental degradation. Canada recognizes that decisions are ultimately guided by judgement based on values and priorities.

Canada's *Oceans Act* requires the government to promote the wide application of the precautionary approach to the conservation, management and exploitation of marine resources, in order to protect these resources and preserve the marine environment. Put simply, the *Oceans Act* defines the precautionary approach as erring on the side of caution.

DFO's use of the precautionary approach in the context of aquaculture development will be informed by the *Oceans Act* and federal direction regarding risk management, including the application of the precautionary approach.



PRINCIPLE 3.

DFO will communicate with Canadians and be informed by their views on issues pertaining to aquaculture development.

Access to sound information regarding human health and safety, environmental protection and the socio-economic benefits associated with aquaculture production is key to ensuring public confidence in the sustainability of the sector. Building public confidence also requires that Canadians know that their values and priorities are understood and respected as actions are undertaken.

DFO will ensure effective, clear and transparent communication with Canadians about aquaculture development and will listen to Canadians' views on aquaculture-related issues.

As the lead federal agency for aquaculture development, DFO will contribute to informed dialogue by working with other federal agencies, orders of government, industry, communities and individuals to provide access to sound and credible aquaculture-related information. DFO will make scientific and other important aquaculture information available to Canadians through means deemed most suitable and effective for given audiences. These could include the Internet, e-mail and other forms of electronic communication, as well as more conventional approaches such as publications and the use of local and national media. DFO will also seek the views of Canadians through appropriate methods and processes such as polling, public conventions and direct personal correspondence.

The content of this policy framework is based on input from industry, provincial and territorial governments, communities and individual Canadians. Specifically, it is based on FADS, which, after extensive stakeholder consultation, was endorsed by Cabinet in 1995. The relevance and importance of implementing FADS were emphasized again in 1999 by the Secretary of State for Fisheries and Oceans following further discussion with aquaculture stakeholders. This policy framework has also been influenced by public examination of aquaculture issues as articulated by the Auditor General of Canada and the Standing Senate Committee on Fisheries.

DFO places a high priority on the views of Canadians and will continue to do so in the creation of an enabling policy environment for aquaculture development. DFO will seek the views of interested parties in evaluating the effectiveness of this policy framework and will provide interested parties with opportunities to share their insights on its implementation. By engaging stakeholders in the evaluation of this policy, DFO will benefit from direct operational experience and be well positioned to modify this document over time.



PRINCIPLE 4.

DFO will respect constitutionally protected Aboriginal and treaty rights and will work with interested and affected Aboriginal communities to facilitate their participation in aquaculture development.

Aquaculture development represents an important opportunity for Aboriginal people in all regions to contribute to, and fully benefit from, Canada's economic growth and prosperity. The benefits of greater economic participation through aquaculture and related activities include wealth creation; the development of technical, managerial and entrepreneurial skills; the development of community economic infrastructure; revenue for the community; and the opportunity for Aboriginal people to remain in their communities. Consistent with the Speech from the Throne, DFO's actions in aquaculture development will contribute to the department's efforts to improve its relationship with Aboriginal organizations and to the economic state of Aboriginal communities.

DFO will ensure that its actions in aquaculture development respect constitutionally protected Aboriginal and treaty rights. When making decisions regarding its responsibilities DFO will ensure that the priorities of Aboriginal users of aquatic resources are taken into consideration.

DFO will also work with interested and affected Aboriginal people, Indian and Northern Affairs Canada, funding agencies, provincial and territorial governments, academia and industry to further enable Aboriginal participation in aquaculture development. DFO's role will be to provide aquaculture expertise related to its mandate and to facilitate access to expertise and resources outside DFO.

Aquaculture – Opportunities for Aboriginal communities

Aquaculture is yielding significant socio-economic benefits in many Aboriginal communities across Canada. For example, in one remote coastal Aboriginal community plagued by high unemployment, local people have worked collaboratively with a major aquaculture company to develop a training program and enable community members to work on a fish farm in their traditional territory. In addition to increasing community employment to nearly 100%, the initiative has been instrumental in restoring community confidence and stability.

Consistent with the general trend toward increased Aboriginal self-employment, Aboriginal communities are also playing an instrumental role in the development of Canada's aquaculture sector through the creation of their own community owned and operated aquaculture companies.

Increased Industry Competitiveness in Global Markets

PRINCIPLE 5.

Recognizing that aquaculture is a legitimate use of land, water and aquatic resources, DFO will work with provincial and territorial governments to provide aquaculturists with predictable, equitable and timely access to the aquatic resource base.

Predictable, equitable and timely access to space and aquatic resources such as brood stock and seed stock are key factors affecting the ability of the sector to attract and retain both investment and working capital. These are critical to the development of the Canadian aquaculture sector.

Although access to sites is primarily a provincial matter, as most sites are located on provincial property, DFO plays a significant role in the decision-making process as a result of its statutory obligations under the *Fisheries Act*, the *Canadian Environmental Assessment Act*, and the *Navigable Waters Protection Act*.

Shared governmental jurisdiction over aquaculture activities, together with a complex legal framework and the recent emergence of the sector as a commercial reality, has too often resulted in a site-application review process that is inefficient, unpredictable and costly for all parties involved.

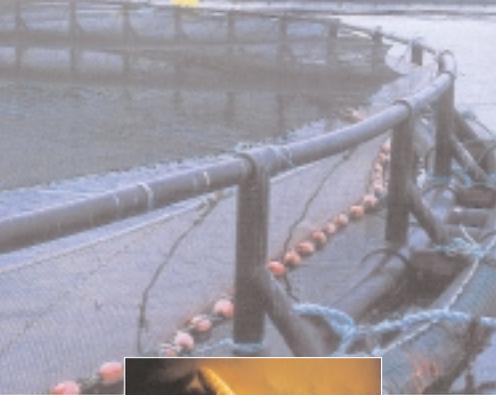
Accordingly, DFO will undertake internal process improvements and will further develop transparent approaches, based on fair criteria and guidelines, upon which its site-application decisions will be made and monitored. Further, DFO will work with other orders of government to harmonize the site-application process, including information and reporting requirements.

In addition to an improved site-application process, DFO recognizes the importance of access to biological materials such as brood stock and seed stock. Accordingly, DFO will develop operational policies aimed at developing or rejuvenating stock supplies for commercial aquaculture production.



Photo: New Brunswick Images

Photo: Dr. Robert R. Stickney



PRINCIPLE 6.

DFO will strive to ensure that its own legislative and regulatory frameworks enable the aquaculture sector to develop on an even footing with other sectors.

Canada's aquatic resource base is an integral component of the Canadian economy, providing numerous opportunities and benefits for Canadians, including direct and indirect employment, recreational enjoyment, and a safe and efficient marine transportation system. Protecting and ensuring the sustainable use of Canada's aquatic resources is central to DFO's regulatory commitments to environmental and habitat protection, navigational safety, fisheries conservation and protection, and fish health. Upholding these commitments is critical to achieving DFO's vision and mandate and to positioning DFO as a leader in aquaculture development.

However, DFO's current legislative and regulatory frameworks were developed before aquaculture emerged as a commercial activity and, in some cases, are not well adapted to the specific needs and challenges of the sector. In addition, because the sector is relatively new, DFO has had less experience in applying its legislative framework to aquaculture; this has resulted in inconsistencies in application within and between regions. Similarly, the industry's familiarity with the federal legislative framework is still developing, and there are occasional difficulties providing the information DFO needs for making timely regulatory decisions. At times, these factors have had a negative impact on the economic viability of the aquaculture sector.

Accordingly, DFO will work to create an enabling regulatory framework for aquaculture development. To be clear, *enabling* does not mean that DFO will "relax" its regulatory requirements. Rather, DFO will develop operational policies for each of its critical regulatory responsibilities relating to aquaculture. These operational policies will serve to clarify information and reporting requirements and the manner by which DFO's regulatory responsibilities will be administered; they will increase transparency and effectiveness in decision-making and increase the consistency of application across regions. Industry will become more aware of DFO's regulatory responsibilities and will be able to position itself accordingly. Further, in recognition of the growth and diversity of the sector and of DFO's ongoing commitment to conservation and protection, environmental and habitat protection, navigational safety and aquatic animal health, DFO will review its laws and regulations and work to modernize them where necessary. Lastly, in recognition that portions of the regulatory framework may impose unnecessary impediments to aquaculture development, DFO will review its laws and regulations and work to amend them where appropriate and necessary. By clarifying the "rules of the game" and working to modernize the regulatory framework, DFO will strive to create an enabling regulatory framework for aquaculture development.

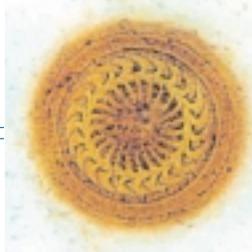


Photo: New Brunswick Images

PRINCIPLE 7.

In partnership with other federal departments, the provinces and territories, the academic sector and industry, DFO will support responsible development of the aquaculture sector.

DFO is committed to creating the conditions for responsible aquaculture development. In addition to providing enabling policy and regulatory conditions, many other countries offer programs aimed at enhancing productivity and increasing competitiveness, thereby attracting investment and stimulating aquaculture growth and development.

DFO recognizes that industry is ultimately responsible for its own commercial success but that DFO can play a valuable role in contributing to this success through innovative government–industry partnerships. The aquaculture industry's role is to identify its developmental needs and to lead in the development of innovative solutions to address those needs. DFO's role is to facilitate the attainment of industry goals in a manner that is consistent with its departmental vision and mandate.

Accordingly, as lead federal agency for aquaculture development, DFO will continue to coordinate and conduct aquaculture research. DFO will work with aquaculture stakeholders and universities domestically and internationally to identify gaps in scientific knowledge and to develop cost-effective approaches to filling these gaps. DFO will also make strategic investments in aquaculture R&D and technology-transfer initiatives aimed at maximizing the economic potential of, and resolving the environmental challenges associated with, the aquaculture sector.

In addition to science and R&D initiatives, and consistent with its mandate respecting Canada's economic interests in oceans and inland waters, DFO will support the future development of the aquaculture sector. DFO will assist the sector by identifying federal programs that address its needs and by facilitating the sector's access to such programs. In addition, DFO will consider the development of new programs that support the viability of the aquaculture sector and create opportunities for Canadians. The development of a National Aquatic Animal Health Program, aimed at supporting the conservation and protection of our fish stocks, reducing the cost of disease management, and maintaining access to international seafood markets, is but one example.





PRINCIPLE 8.

DFO will make every effort to understand the needs of the aquaculture industry and to respond in a manner that is solutions oriented and supportive of aquaculture development.

To help position the Canadian aquaculture sector to achieve its full developmental potential, DFO, as the lead federal agency for aquaculture development, must be willing and able to assume an enabling role. This role demands that DFO be creative, solutions oriented and focussed on understanding the needs of, and building stronger relationships with, representatives of the aquaculture sector.



This policy framework explicitly affirms DFO's recognition of the aquaculture industry as a valued DFO client group. When developing and applying operational policies, laws, programs or any other governance measure affecting aquaculture development, DFO will consider the interests of aquaculturists and will adopt a solutions-oriented approach to dealing with specific challenges.

To build DFO's capacity to take on this new role, DFO will develop management approaches and invest in initiatives designed to improve DFO's ability to support aquaculture development. This could include providing DFO employees with appropriate training and development opportunities and the recruitment of people with skills and knowledge that complement DFO's current capacities and are necessary to properly support aquaculture development.





PRINCIPLE 9.

DFO will work with other federal departments and with provincial and territorial governments to coordinate policy development, integrate regulatory frameworks, and improve service delivery.

As a result of the interdepartmental and intergovernmental jurisdictional nature of aquaculture, and given the recent emergence of the sector as a significant commercial reality, approaches to governance are not yet as harmonized as in other sectors. This creates uncertainty and can impose unnecessary costs on aquaculturists as well as an undesirable investment climate. It can also contribute to federal-provincial and interdepartmental policy and program duplication, placing further strains on government and industry resources.

Accordingly, to further the development of the aquaculture industry and increase opportunities for Canadians, DFO will continue to work with other federal government departments and other governments to develop a consistent policy approach, improve and harmonize regulatory frameworks, and increase the effectiveness of program delivery.

Photo: New Brunswick Images





Conclusion

Through this policy framework DFO has committed itself to being both an enabler and a regulator of aquaculture development, affirming its role as a department of sustainable development.

DFO will play an important role in aquaculture development by using this policy framework to help create the conditions necessary to support sector competitiveness in global markets and increase public confidence in the sustainability of aquaculture development. By building on FADS and living up to the department's vision and mandate, DFO's Aquaculture Policy Framework will help foster vibrant and sustainable development, generating wealth and opportunities for Canadians.

Creating enabling conditions for aquaculture development is the responsibility of all DFO sectors and regions. Giving effect to the principles identified in this policy will require the commitment of resources and the development and implementation of sectoral and regional strategies and actions, including the review of the current applicable legislative and regulatory framework, policies and programs to ensure that they are consistent with this policy. DFO will engage stakeholders in evaluating the effectiveness of this policy in fostering the development of the aquaculture sector and will make necessary adjustments as external conditions change to ensure that it remains relevant and effective.