



CANADA

Standing Committee on

Fisheries and Oceans

AQUACULTURE

MINORITY REPORT

April 8, 2003

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EXECUTIVE SUMMARY

To ensure sustainable recreational and commercial fisheries the Department of Fisheries and Oceans must be divested of its illegitimate mandate to act as a promoter of aquaculture and reassert itself as the protector of wild fish and their habitat.

The Constitution, Parliament and the Courts have all recognized the leading role and responsibility the Fisheries Minister and his Department must play to ensure the preservation of our marine heritage.

Nevertheless in spite of ample evidence that fin fish aquaculture is not a benign activity the Department of Fisheries and Oceans has never undertaken enforcement actions and prosecutions under the *Fisheries Act*. There is documented evidence that the Department has no idea of the extent or location of fish farm activity in our coastal waters and that it has misled the Minister, encouraged him to mislead Parliament and lied to the public in an effort to minimize problems associated with the aquaculture industry.

In an effort to demonstrate “responsibility” and allay public concerns aquaculture advocates within the Department of Fisheries have suggested that all that is needed to “fix” the problem is a new *Aquaculture Act* or at the very least a rewriting of the *Fisheries Act*.

This is patent nonsense. The *Fisheries Act* bestows on the Minister of Fisheries all the powers he

needs to protect wild fish and their habitat while allowing for the proper development of a viable aquaculture industry. The call for new legislation represents nothing more than a demand that aquaculture be given priority over wild fish and their habitat, a concept few Canadians will buy into.

We recognize that the aquaculture industry can provide economic opportunity for residents of coastal communities but these opportunities can only be legitimate if the Minister of Fisheries and his Department exercise their responsibility to protect wild fish and their habitat.

AQUACULTURE MINORITY REPORT

The aquaculture industry has expanded to provide a significant number of jobs and economic growth in coastal communities on Canada's East and West Coasts.

However to ensure sustainable recreational and commercial fisheries a stable and transparent regulatory environment must govern the interaction of the aquaculture industry with wild fish and their environment. These regulations must reflect the constitutional and primary responsibility of the Minister of Fisheries and Oceans to protect wild fish and their habitat. Both the Pacific Fisheries Resource Conservation Council and the Auditor General of Canada question the commitment of the Minister of Fisheries to his role as protector of Canada's fisheries resource from the effects of salmon farming.

“Aquaculture presents a threat to the salmon fisheries. The Council concludes that sea lice originating from net pen aquaculture operations were the most likely cause of the decline in Broughton Archipelago pink salmon stocks... The government needs to emphatically state that wild salmon come first and manage its aquaculture industry in a precautionary manner.”

**Pacific Fisheries Resource Conservation Council Brief
to the Standing Senate Committee on Fisheries and Oceans**

March 18, 2003

“The Department is not fully meeting its legislative obligations under the *Fisheries Act* to protect wild Pacific salmon from the effects of salmon farming. We found the Department is not fully carrying out its current regulatory responsibilities to enforce the *Fisheries Act* with respect to salmon farming operations.”

**The Effect of Salmon Farming in British Columbia
on the Management of Wild Salmon Stocks
Report of the Auditor General of Canada - December 2000**

The challenge posed by aquaculture, that is the potential environmental risks to fish and fish habitat from fish farm operations, was outlined in a 1999 paper by P.W. MacKay, entitled *Perspectives on the Environmental Effects of Aquaculture*. The risks included:

- (1) organic loading of the sea-bed;
- (2) use of anti-foulants on structures and nets;
- (3) interaction between escaped farmed salmon and wild stocks and wild salmon by genetic contamination;
- (4) pressure on wild stocks from increased parasitism (sea lice) arising from farmed fish;
- (5) environmental effects of chemical therapeutants used to control parasites;
- (6) combined effects of numbers of fish farms in partially enclosed bays potentially posing risks, as follows:
 - natural biological processes being distorted by raised nutrient levels
 - enhanced possibility of blooms of toxic algae

- more rapid spread of disease
- depletion of dissolved oxygen

Aquaculture - Whose Responsibility is It?

In its report on aquaculture the job of the Standing Committee on Fisheries and Oceans was to satisfy itself that the Department of Fisheries and Oceans (DFO) has fulfilled the mandate and responsibilities established by the Constitution and by Parliament with regard to its management of aquaculture.

What Does the Constitution Say?

“The federal Parliament has exclusive constitutional authority over all aspects of fisheries management in tidal waters.”

*Guide to Fisheries Resource Use Considerations
in the Evaluation of Aquaculture Site Applications*

Department of Fisheries and Oceans, February 15, 2002

The Constitution gives the federal government complete authority for fisheries in coastal waters where fish farms are located. Section 91(12) provides that Parliament has authority over “Sea Coast and Inland Fisheries.” It further provides at 91(10) that Parliament has authority over “Navigation and Shipping.”

When British Columbia joined Confederation in 1871, the Terms of Union left no doubt that the federal government was assuming responsibility for fisheries and navigation. Section 5A provided that, “Canada will assume and defray the charges for the ... Protection and Encouragement of Fisheries.” Newfoundland’s Terms of Union in 1949 also recognize the federal authority over fisheries.

What Do the Courts Say?

Between 1871 and 1949 the courts responded to several fisheries constitutional references. In the *British Columbia Fisheries Reference* in 1914 they found that “by s. 91 of the *British North America Act, 1867*, the exclusive legislative authority of the Parliament of Canada extends to all matters coming within ‘sea coast and inland fisheries’. ... the object and the effect of these legislative provisions were to place the management and protection of the cognate rights of navigation and fishing in the sea and tidal waters exclusively in the Dominion Parliament.”

The decisions since 1914 have consistently held that the power over fisheries in coastal waters is exclusively within the competence of Parliament. In *Interprovincial Co-operatives* the Supreme Court of Canada said the federal fisheries power “is concerned with the protection and preservation of fisheries as a public resource, concerned to monitor or regulate undue injurious exploitation, regardless of who the owner may be, and even to the suppression of the owner’s right of utilization.” In 1996 in *Nikal* the Supreme Court held that it is the federal government

which is, “required to manage the fishery and see to the improvement and increase of the stock.”

The Supreme Court has determined that the federal government has exclusive jurisdiction to regulate marine pollution. In the 1988 *Crown Zellerbach* decision the Court held that “marine pollution, because of its predominately extra-provincial as well as international character and implications, is clearly a matter of concern to Canada as a whole.”

What Has Parliament Said?

Parliament has enacted two key statutes that authorize the federal government to protect the public rights of fisheries and of navigation – the *Fisheries Act* and the *Navigable Waters Protection Act*. The need to protect the right of navigation and fisheries does not change from year to year. Both the *Fisheries Act* and the *Navigable Waters Act* date back to the 1800's and have been amended from time to time but the underlying rights of navigation and fisheries are embedded in our Constitution, reaching back to the *Magna Carta*.

An obstacle to navigation is an obstacle to navigation. A fish farm might be new, but its novelty is not the problem. The only matter to be considered is whether the fish farm is an obstacle to navigation. Section 5 of the *Navigable Waters Act* requires that any work placed in a navigable water must be approved by the Minister of Fisheries.

Similarly, a threat to the right to fish, fish stocks, or fish habitat is still a threat. That a net pen fish farm might be a recent invention is not a problem for the *Fisheries Act*. The only matter to be considered is the impact of the fish farm on the public fishery, fish stocks, and fish habitat. The advent of fish farms do not so much demand a change to the Act as they do the active enforcement of the Act.

The *Canadian Environmental Assessment Act*, while not restricted to fisheries matters, has become fundamental to the protection of fish habitat. This Act was passed in 1992 but not proclaimed until 1995. Its mandate is to require assessment of potential adverse environmental effects associated with works or undertakings. The *Law List Regulations* enacted under the Act in 1994 provide that approvals for certain works or undertakings regulated by the *Navigable Waters Act* and the *Fisheries Act* will trigger an environmental assessment.

Finally the *Oceans Act* identifies the Minister of Fisheries and Oceans as the lead Minister to develop policies involving Canada's coastal waters. The potential of the Act to endow the Fisheries Minister with the responsibility and authority to pursue and develop an integrated oceans policy has yet to be realized. Regrettably Parliament failed to set out a clear policy in the statute as it had done in the *Fisheries Act*, the *Navigable Waters Protection Act*, and the *Canadian Environmental Assessment Act*.

Environmental Assessment - the Triggers

Section 5 of the *Navigable Waters Act*: An environmental assessment is triggered by any application under section 5 of the *Navigable Waters Act*. Section 5 requires that when any work or undertaking is placed in navigable waters an approval under the Act is required. An environmental assessment would be triggered by the placing of a fish farm in navigable waters. The Department exempted fish farms from assessment until late 1999. After considerable trial and error a workable process to undertake assessments was established in late 2002 with the Church House farm assessment.

Section 35 of the *Fisheries Act*: This section prohibits destruction of fish habitat. An environmental assessment is triggered under section 35(2) of the *Fisheries Act* when the Minister authorizes the alteration, disruption or destruction of fish habitat by any means, or under *Fisheries Act* regulations. Section 35 would normally trigger an assessment after the destruction of habitat has occurred or when the Minister has authorized the destruction. The Department in a briefing for the Minister explained section 35's application to fish farms in the following manner:

“Finfish farms often result in the accumulation of organic matter – fish food and faeces, in the vicinity of net pens, which could cause harmful alteration of fish habitat, requiring an authorization under section 35(2) of the Act. This would likely occur only after some period of ongoing operation.”

The Law Ignored

The Minister advised Parliament on December 9, 2002 that fish farm operators “require an authorization if a harmful alteration, disruption or destruction of fish habitat is expected to occur. To date, no aquaculture proponent has requested an authorization.” The Minister has never enforced section 35 against habitat destruction by fish farms, nor has he caused regulations to be enacted to govern fish farms. The Pacific Fisheries Resource Conservation Council advised the Fisheries Committee that the Department of Fisheries has never undertaken enforcement actions or prosecutions under the *Fisheries Act*.

As a result of having never used or enforced section 35 of the *Fisheries Act* to protect fish habitat, the *Canadian Environmental Assessment Act's* environmental assessment trigger has never been activated.

An Attitude Problem - We Don't know and We Don't Care

The Department exempted farms from assessment under the *Navigable Waters Act* until late 1999. To date out of the eighty to ninety farm sites operating on the West Coast, only six have successfully completed an assessment

With the exception of the six farm sites approved since 1999, virtually all the other farms on the

West Coast should be assessed under the *Navigable Waters Act*. The initial exemption was for the period of the provincial lease and for the original configuration of nets and anchor lines. A significant number of the initial licences issued by British Columbia have expired, the farms have moved to new locations or are to be moved, have reconfigured their nets and anchor lines or have expanded or intend to expand at their present site beyond what had been exempted prior to 1999.

Similar problems exist on the East Coast.

A July 25, 2002 internal document, dealing with a May 16, 2002 question in Parliament on “the establishment of salmon farm operations in Canada’s coastal waters and the requirements of the *Fisheries Act* and *Navigable Waters Protection Act*,” states:

“As for John Cummins’ ministry inquiry for all kinds of regulatory approval information, it doesn’t look like there’s a lot of information that’s going to be forthcoming, as it seems DFO either doesn’t collect or retain a lot of the information that he’s looking for (this is what Programs seems to be discovering). It doesn’t look as if the Habitat Referral Tracking System or the Navigable Waters Database System is turning up much in the way of information pertaining to Mr. Cummins’ request. ... for aspects of this request where this is the case, Mr. Cummins is going to be referred to the appropriate provincial contact.”

A September 11, 2002 internal document states:

“Mr. Cummins asks a number of questions regarding details around the number of salmon net pens ... with Navigable Waters Protection approvals, the number without

While our first instinct was to just tell him to ask the provinces, we thought it would be inappropriate.

“We will still refer him to the provinces for a lot of the detail and for confirmation of what we tell him, but can you give me the current number of approved sites for each province and the number we think are in operation?”

A September 17, 2002 internal document states:

“We believe there are approximately 16 that are in the water without authorization, that we are aware of [in the Maritimes]. There is a potential to be several more that we are not aware of since in the recent past there have been several in the water that we have never received applications for.”

These and other related documents, together with the previously mentioned farms operating outside the laws established by Parliament, paint a picture of a Department having little or no idea what is happening in our coastal waters and with no idea if approvals have been sought or

given under the *Navigable Waters Act*. This creates a gnawing sense that the Department lacks either the interest or will to enforce the *Fisheries and Navigable Waters Acts* and to undertake the required environmental assessments. It is an indictment of a Department that has forgotten why it even exists. It is not new legislation that is needed, it's a wholesale departmental house cleaning from top to bottom that is required.

A Growing Backlog

Out of the several hundred fish farms existing on both the Pacific and Atlantic coasts, only a handful are operating under authorizations from the *Navigable Waters Act* following a successful environmental assessment as required by Parliament. On the Pacific Coast there are several dozen applications under the *Navigable Waters Act* facing environmental assessment. The backlog on the East Coast is nearly as long.

The back log in British Columbia is likely to grow. The initial leases given in the eighties were for 20 years and most of them are coming up for renewal, thus triggering applications and environmental assessments under the *Navigable Waters Act*. In addition, many of the farms wish to expand at their present site, have expanded without authorization, or are no longer in conformity with the original lease and therefore have triggered environment assessments.

There are eight new applications in British Columbia, none of which have been approved. There are four "pilot projects," only one of which has been approved.

Out of the seventeen farms that have completed relocations in British Columbia, only five have completed environmental assessments and site approvals under the *Navigable Waters Act*: Jackson Passage, Hardwicke “B”, Marsh Bay, Doctor Islet, and Humphrey Rock. The rest operate illegally.

The Minister advised Parliament on December 9, 2002 that “as provincial tenures for existing sites come up for renewal, DFO will review these sites pursuant to the appropriate section of the *Navigable Waters Protection Act*,” yet not a single approval or environmental assessment under the Act was done prior to the expiry of provincial tenures in British Columbia. As a result, the Province simply renewed some forty to fifty farms without approvals under the *Navigable Waters Act*. These farms continue to operate outside the law.

The Department routinely ignores the section 35 *Fisheries Act* prohibition against the harmful alteration, disruption or destruction of fish habitat. In addition, with virtually every farm site in British Columbia operating without an authorization under the *Navigable Waters Act* consistent with their present activities, the backlog has reached a crisis stage.

Flaunting the Law

As a result of the backlog and the general failure to prosecute those who ignore the law, farms are not waiting for approval before expanding or establishing a new site farms, or undertaking new or expanded operations on their present sites.

In early 2002 Omega Salmon Group relocated salmon pens to Kent Island, British Columbia without a *Navigable Waters Act* approval and related environmental assessment. On March 13, 2002, they placed fish at the Kent Island site. Omega also expressed its intent to stock a site at Masterman Island without the required approval and environmental assessment.

Navigable Waters staff conducted a site visit at Kent Island on May 7, 2002.

On June 3, 2002 the Department advised the Minister that the farm was operating illegally at Kent Island and that the Province was complicit in the problem. They reported:

- “A scuba reconnaissance of the shallow sub-tidal fish habitat determined that the productive capacity and bio-diversity of this area is high.”
- “The site supports populations of abalone (a threatened species), red, purple and green sea urchins and sea cucumbers....”
- “In addition to navigational safety concerns and potential impacts on the habitat, Omega has deviated from its proposed management plan.”
- “The Kent Island site is currently stocked with [DELETED] Atlantic salmon instead of the [DELETED] fish proposed in its management plan....”
- “MAFF [BC Ministry of Agriculture Fish and Food] has submitted a brief to Crown Counsel regarding the unauthorized stocking at Kent Island. MAFF has since issued the licence.”

The Department never took enforcement action and claims to be still studying the matter for possible prosecution under either the *Fisheries Act* or the *Navigable Waters Act*. The farm has since ceased operations at the Kent Island site.

Pressure on Department to Circumvent Environmental Assessment

Departmental briefings for the Minister alert him to the pressure staff are being put under even where there are acknowledged environmental concerns:

“The Oscar Passage site is still undergoing *Canadian Environmental Assessment Act* review and there is considerable pressure from Marine Harvest to expedite the process. DFO staff did a quick visit and identified what they considered to be very high habitat values in the area, including a potentially significant abalone population.” [June 2002]

Aiding and Abetting an Illegal Activity?

When DFO refused to enforce habitat protection provisions of the *Fisheries Act*, former B.C. Member of Parliament Lynn Hunter initiated a private prosecution against Stolt Sea Farms operations in 1999. Based on the evidence presented by Ms Hunter the Court agreed to consider the case. It became clear that Stolt operations had lead to the destruction of fish habitat. Department of Justice lawyers acting on behalf of the Department of Fisheries took over the prosecution. Instead of moving to convict Stolt the Crown sought a stay of proceedings. It was

claimed that the Crown believed they could not successfully convict Stolt as the Department of Fisheries had been aware of the likelihood of the alleged habitat destruction, yet encouraged the aquaculture operation. DFO was now precluded from prosecuting what they had been a party to.

At the moment the *Fisheries Act* is not being enforced and no regulations have been issued under this Act that would trigger an assessment. If the *Navigable Waters Act* were enforced, it might well lead to the shut down of the majority of existing farms as they are not operating in conformity with the Act.

The Sierra Legal Defence Fund's senior legal counsel, Angela McCue, advised the Fisheries Committee that she had "reached the inescapable conclusion that aquaculture, as it is currently carried on in the province of British Columbia, is illegal and places already vulnerable wild Pacific salmon stocks at serious risk."

It is difficult to argue with Ms McCue's conclusion. Most of the fish farms in British Columbia would appear not to be in conformity with either the habitat protection provisions of the *Fisheries Act* or the *Navigable Waters Act*.

Stocks Pushed Toward Extinction in the Broughton Archipelago

A December 2000 report prepared for DFO, entitled *An Evaluation of Knowledge and Gaps Related to Impacts of Freshwater and Marine Aquaculture in the Aquatic Environment*, warned

of the danger that salmon farms can act as incubators of disease and of possible transfer to wild stocks:

“Concerns exist regarding the effects of farmed species on wild stocks, especially with respect to natural salmonid populations. The incidence and transfer of disease is a key concern. A higher incidence of disease within farms often arises as a result of increased holding densities conditions and other conditions suitable for propagating pathogenic organisms. In addition to necessitating the use of antibiotics and therapeutant ..., there is concern about the potential for disease propagation and transfer from cultured fish to wild stocks. (Noakes et al. 2000)”

A serious sea lice infestation was observed in 2001 in the Broughton Archipelago, the area with the highest concentration of farms in British Columbia. In 2002, the Hon. John Fraser, Chair of the Pacific Fisheries Resource Conservation Council, declared that a crisis existed in the Broughton with returns of pink salmon having declined in some inlets to “between a hundredth and thousandth.” A 99.9 percent decline is not merely precipitous, it means that some runs of pink salmon border on extinction.

Mr. Fraser recently advised Parliament that “based on the evidence given by senior fisheries biologists in the Department of Fisheries and Oceans, we concluded that the inference could properly be drawn that there was a connection between lice on farmed fish and lice we were getting on the smolts, and that was killing them.”

Dr. Jeff Marliave, a marine biologist, Vice President of Marine Science at the Vancouver Aquarium and member of the Pacific Fisheries Resource Conservation Council, advised Parliament as to why baby pink salmon are so vulnerable. He noted that unlike coho, steelhead, chinook or Atlantic salmon, the smolts of sockeye, chum and pink are exceptionally small. “The pink salmon are the smallest... that is what results in fatality, they are just too small to be able to handle this kind of infection, it is not normal for it to occur.”

Dr. Marliave stated, “with the salmon farms being situated in the protected waters like the Broughton Archipelago, you have millions of adult salmon supporting the life history of sea lice right near the river estuaries where the salmon smolts come out,” making it very clear that DFO allowed the fish farms to be sited in the wrong location

Mr. Fraser reminded the Department of the “European experience and research on sea lice, and its effect in areas such as Ireland, Scotland and Norway.” Sea lice, he said, were found to be a threat to young salmon smolts in areas of intense salmon farms, such as the Broughton and he noted that in Norway up to 50 percent mortality occurred near the farms. While research has been conducted in Europe, Mr. Fraser lamented that DFO has yet to undertake the necessary research.

Mr. Fraser believes that there is a risk of “irreversible harm” to salmon runs in the Broughton and called for the removal of salmon from all farmed sites by the end of February 2003. The Department refused.

DFO has sometimes argued that fish farm operators will adequately control sea lice levels because uncontrolled lice infestations harm the profitability of the farm. Yet the control of lice necessary to maintain the profitability of farms may not be enough to protect wild stocks.

Recent Norwegian research by P.A. Heugh, *Public Management of the Salmon Louse Problem in Norway: Where Are We Heading?*, indicates that control over the level of sea lice infestation necessary to protect wild stocks exceeds that required by farm operators purely on economic grounds. This is, of course, why John Fraser and others have faulted DFO's failure to respond to sea lice infestations emanating from farms and effecting young migrating salmon. Ridding fish farms of sea lice so as to protect young salmon is not a private problem that can be left to the farm operators to handle.

Dithering and Denial

Fish farms operations lay waste to the fish habitat in the vicinity of a farm, with food and fish wastes. Chemical therapeutants contained in the fish food are regularly introduced into the marine environment without any real knowledge of their impact and without any regulatory framework established under the *Fisheries Act*. For example, sea lice are a serious problem for farm operations on the Atlantic and Pacific Coasts, yet no drug has ever been licensed for general use. Emergency Drug Release procedures have been continually relied upon in the absence of a licensed drug.

The current drug of choice, emamectin usually marketed under the trade name Slice, can legally be acquired for emergency use only. In Canada the Emergency Drug Release procedures were used 156 times in 2001 and 170 times in 2002. In British Columbia alone hundreds of millions of fish have been treated under the emergency procedures by a drug that has never undergone an environmental assessment with regard to its effect on wild fish and shell.

Very little information is available on the environmental fate and ecological effects of the drug in the marine environment. The organisms most likely to be affected by emamectin are those closely associated with the sediments below the net pens as the drug has low water solubility and a high potential to be absorbed and bound to suspended particulate material. Much of the emamectin reaching the sediments will be associated with particulate material in the form of fish faeces and uneaten fish food. It remains in the sediments for a considerable period of time, having a half life (i.e. the time taken for the concentration to diminish by 50 percent) of around 175 days. It is likely to prove hazardous to shellfish.

A 2002 paper by DFO scientists, *Emamectin Benzoate Induces Molting in American Lobster*, revealed what many fishermen had long feared: the drug has severe side effects on lobsters. Seventy-eight percent of lobster molted after ingesting the chemical and eighty-nine percent of female lobster aborted their eggs. The scientists concluded: “Our results provide conclusive proof that emamectin benzoate is disrupting the endocrine system that controls molting in the American lobster.”

Prawn fishermen in British Columbia have noted problems that may well be linked to emamectin or related drugs used by fish farms. A Ladner, British Columbian prawn fishermen, Jeff Mikus reports that:

“Anytime we get close to a fish farm, we don’t catch anything... I used to pull up small crab, shrimp, prawns, starfish, the occasional octopus, now we get absolutely nothing.

Another fishermen Bob Cameron observed that:

“It has been my experience that the closer I fish to a salmon farm the less yield I will get from my traps. I think that this is significant because salmon farms are typically located at the mouths of creeks and small rivers - these are normally areas one would expect high prawn habitat.”

The *Material Safety Data Sheet* prepared by the Sche ring-Plough, the manufacturer of the drug, states that emamectin is toxic to mysid shrimp at 0.043 parts per billion and warns that this product is “very toxic to aquatic organisms.”

The Oxford University’s “*Safety Data for Emamectin Benzoate*” states:

“Very toxic to aquatic organisms’. Toxic to bees. May cause long-term adverse effects in the environment. This material does not move rapidly through the environment, as it tends to absorb on soil particles. Half-life in the environment estimated at 8-15 months.”

The report by the Veterinary Medicines Evaluation Unit of the European Agency for the Evaluation of Medicinal Products, an agency of the European Union, indicates that “clinical signs of toxicity together with degeneration of the brain, spinal cord, sciatic nerve were observed at all dose levels” in rats. While farms are supposed to withdraw the chemical from the salmon sixty days prior to slaughter, it is not clear how the Department enforces this prohibition as it has failed to enact regulations under the *Fisheries Act*. Nor is it clear how the Department can protect those who might catch and consume lobster or prawns in the vicinity of fish farms while the chemical is present in the nearby marine environment. The Committee heard evidence that DFO had advised aboriginals who normally relied on prawns for food not to eat those caught in the vicinity of fish farms. The European Union report indicated that “no data concerning the potential effects in humans were available.”

As this drug is toxic to prawn, lobster and other shell fish, its use would be prohibited by section 35 of the *Fisheries Act* in areas where there is prawn, lobster or other shell fish habitat. DFO, as regulator and protector of wild fish and their habitat, would be obligated to inform Health Canada of its concerns; yet it seems that DFO as promoter of aquaculture has failed to advise the drug regulator of legitimate fish habitat concerns about the drug.

The drug is only partially effective in eliminating sea lice from caged salmon.

Prostituting Science and Environmental Assessments: The Broughton

Fish density is a key variable in fish health, disease, parasites, and the need for the use of chemical therapeutants. There are no regulations under the *Fisheries Act* to govern this key variable. Nor are there any regulations with regard to the number of fish, cages and the like that may be located in a single bay or waterway, that takes into account the load capacity of the surrounding area.

Given its conflicting priorities of promoting aquaculture and of protecting wild fish and their habitat, the Department has been unable to establish an effective environmental assessment criteria having as its first priority the protection of wild fish and their habitat. Each application is considered in isolation without regard to the carrying capacity or ability of an interdependent area, like the Broughton, to safely handle the number of farms that have been allowed to operate.

For example a farm site at Doctor Islet in the Broughton was approved in September 2001 despite the fact a that serious sea lice infestation was identified in the Broughton in the previous spring. Navigable Waters staff who approved the site had been informed that DFO scientists gave the Broughton a clean bill of health.

The Department expressed public confidence in its scientific studies which contradicted the findings of researcher Alexandra Morton. They claimed their research confirmed that fish farms were not the source of the sea lice infestation. Internal memos tell a different story. The Department knew from the outset that its studies were unreliable, that they had been conducted

in the wrong place, at the wrong time and used the wrong methods.

A July 10, 2001 document advised: “Given the significant amount of scale-loss in the samples and the very tenuous attachment of the juvenile louse to the fish host ... this trawl sample potentially severely underestimates the louse numbers.”

A July 11, 2001 document expressed further doubts: “Had these fish been caught in a scientifically sound manner I would call this a normal parasite load but, given the method that was used, I won’t say anything.”

Fisheries Minister Thibault was advised on April 5, 2002 how to answer questions on this issue. He was advised to say, based on the DFO scientific study, that there was no sea lice problem in the Broughton. In effect, the Minister was advised to mislead Parliament:

“My department conducted two surveys in 2001 in the area where sea lice concerns had been reported. Based on these studies, there was no indication of a threat to the wild salmon population. Juvenile pink, chum, and coho salmon collected in the two surveys were in very good condition and had normal levels of infestation.”

In addition he was advised to say that “there are no studies that indicate transfer of sea lice from farmed to wild salmon.”

However, sea lice studies in Ireland, Scotland and Norway have systematically found that sea lice numbers dramatically increase with the addition of fish farms, often decimating young salmon and sea trout and eventually precipitating the collapse of the stock.

James Butler in *Wild Salmonids and Sea Louse Infestations on the West Coast Of Scotland: Sources of Infections and Implications for the Management of Marine Salmon Farms*, states that “louse infestations in salmon-farming areas of Norway cause the mortality of 30-50% of sea trout smolts and 48-86% of salmon smolts.” Butler further states: “In Norway and Ireland, declines in wild salmonoid stocks in farming areas have been linked to elevated louse infestations emanating from salmon farms. A similar situation is evident in Scotland, where wild salmon and sea trout rod fisheries have declined markedly in the west coast salmon-farming zone.” In Norway, he notes, “escapees are estimated to produce six times as many lice larvae as wild salmonoids, and are a major confounding factor in louse control initiatives.”

The farm at Doctor Islet continues to operate in the Broughton. A thorough review of the initial approval has not been undertaken. In addition, with full knowledge of the potential problems, a new site at Humphrey Rock was approved in March 2003 in the Broughton.

What Compromised the Department?

The Department is compromised by its conflicting obligations to act as both the regulator and promoter of aquaculture.

In 1995, Cabinet endorsed the Federal Aquaculture Development Strategy that committed DFO, the protector and regulator of the public fishery - to become DFO, the aquaculture promoter. To comply with the Aquaculture Development Strategy, the Department has put in place an Aquaculture Policy Framework to ensure DFO would discharge its responsibilities in a manner that adheres to the following policy principles:

- \$ “DFO will ... provide aquaculturists with predictable, equitable and timely access to the aquatic resource base.”
- \$ “DFO will strive to ensure that its own legislative and regulatory frameworks enables the aquaculture sector to develop on an even footing with other sectors.”
- \$ “DFO will make every effort to understand the needs of the aquaculture industry and to respond in a manner that is ... supportive of aquaculture development.”

The aquaculture policy stated that, “creating enabling conditions for aquaculture development is the responsibility of all DFO sectors and regions.” Giving effect to policy would require, “the review of current applicable legislative and regulatory frameworks, policies and programs to ensure they are consistent with this policy.”

The policy made much of “DFO’s reorientation” away from its historic role as regulator and protector of the public fishery: “Achieving DFO’s vision of aquaculture development will require a continued reorientation of departmental values ... and a firm commitment by all DFO

employees to enable aquaculture development.” While constitutionally and statutorily the Department was charged with protecting and enhancing the public fishery and the right of navigation, it was now required to ensure that all of its assessments, regulations, policies and programs promoted aquaculture.

DFO’s Aquaculture Policy is at odds with its constitutional and statutory mandate. No wonder the Department is only now starting to undertake environmental assessments as required by the *Environmental Assessment Act*, and has so far ignored the *Fisheries Act*. No wonder DFO scientists have avoided the problems associated with the interaction of fish farms and wild stocks or have felt coerced to participate in fraudulent investigations that would mislead the public.

The promotion of aquaculture ought to be transferred from the DFO so that the Department can get back to its core mandate, that of protecting the public fishery and fish habitat.

Healing the Beast: Is New Legislation the Solution?

If a crisis is to be averted, the *Fisheries Act* must be enforced and regulations must be developed to assist in the protection of wild fish stocks and their habitat from the impact of fish farms. A stable regulatory framework based on the requirements of the *Fisheries Act* and its underlying requirements to protect wild fish and their habitat would see the Department create regulations that deal with the impacts on the marine environment.

However the Department sees the need for new legislation – either a new stand-alone *Aquaculture Act* or substantive amendments to the *Fisheries Act*. The “key drivers for change” according to the Department are the need to modernize fisheries management and to provide access for the “aquaculture industry.” Internal documents indicate the Department believes that its legislative agenda requires “building relations” with the Fisheries Committee to ensure “success” – in other words, to ensure the Committee is managed as a lapdog to get a report that recommends either a stand-alone *Aquaculture Act* or rewriting of the *Fisheries Act*.

It is vital that the regulatory framework and environment for aquaculture be based on the *Fisheries Act* and be respectful of it. The present regulatory chaos and the crisis that has occurred in our coastal waters has occurred as a result of a failure to utilize the *Fisheries Act* rather than due to any deficiency in the Act. While it is natural that proponents of fish farms within DFO might wish to avoid the strictures of the Act and to join with the Department in advocating an *Aquaculture Act*, to do so is to disregard the fundamental constitutional basis for the Department and for the *Fisheries Act*.

It would be unconscionable to advocate a federal *Aquaculture Act*. One can only assume that those who would have forgotten the reason the Department and the *Fisheries Act* exists and have therefore decided that it is expedient to dispense with the public fishery and the fish stocks upon which the commercial and recreational salmon fishery relies upon.

When Mr. Fraser was asked if new aquaculture legislation would resolve the present problem with regard to aquaculture, he left little doubt as to his position:

“I do not know whether an aquaculture act would be the appropriate approach ... but I can say that there is active concern among people who are paying attention to this issue in British Columbia, that the Department of Fisheries and Oceans has itself in the unenviable position of *pushing aquaculture*, and the impression is that those who are concerned about the interrelationship between aquaculture and its possible negative effects on wild salmon *are being pushed out of the picture*, and that the drive to develop aquaculture ..., that is, jobs, and its activity, has resulted in a situation where, when people turn to DFO for answers or action to protect the salmon, they do not know whether they are dealing with a department which is more interested in an aquaculture development than it is in protecting wild salmon.

There it is in a couple of sentences. ... I think this needs attention because it is a question of confidence in a great federal institution.

... When the appearance among citizens is that the balance has slipped and that there is more attention being paid to promoting aquaculture and not enough being paid to ensure that it is being done in such a way that the wild salmon are considered to be the first priority, then you have a problem in confidence. When we have a lack of confidence in any great federal institution ..., it does a lot of damage to democracy. It does a lot of damage to our political system, but it does something else. It does a lot of damage to the fish.”

Resolution

“In the area of management, we urge DFO to exercise its constitutional conservation responsibilities and not abrogate its stewardship of resources under federal jurisdiction.”

Hon. John Fraser, *Report of the Fraser River Sockeye Public Review Board*

What brought DFO so close to disaster's door?

The Department has been corrupted by an aquaculture development strategy whose mission has turned it into a vehicle for aquaculture promotion.

In its rush to promote aquaculture, the Department has lied to its Minister, advised him to lie to Parliament and lied to the public.

Honestly administering century old statutes and telling the truth only becomes onerous when there is a fundamental and overriding conflict.

Ensuring that fish farms do not harm wild fish and their habitat will be difficult. It has not been easy or always successful in Norway, Scotland and Ireland but they at least no longer deny there is a problem. They are addressing the problem.

The first step to ending the corruption of the Department of Fisheries and Oceans is to remove the aquaculture promotion policy and responsibilities from the Department. These are fundamentally at odds with the mandate given it by Parliament and the Constitution. Protecting the public fishery, wild fish and their habitat must once again become the primary focus of the Department.

The next step is to reject the notion we need a new *Aquaculture Act* or a wholesale rewriting of the *Fisheries Act*. It seems clear from a careful reading of John Fraser and the Auditor General that the problem is a failure to administer the *Fisheries Act* and the *Navigable Waters Protection Act* rather than a failure in these laws. Neither saw new legislation as the solution.

The *Fisheries Act* should be used to establish a stable and transparent regulatory framework for aquaculture operations in the marine environment for the purpose of protecting wild fish and their habitat. Regulations should reflect the following concerns:

- (1) Regulations must be clear, unambiguous, enforceable and able to achieve the desired results. The Pacific Fisheries Resource Conservation Council has advised Parliament against the use of “performance based” or “results based” regulation: “We are concerned about its use in preventing damage to fish habitat ... we do have a results based waste management regulation for net pen aquaculture. That regulation sets standards that fail to protect the ocean bottom from damage caused by fish food pellets and faeces from the farmed salmon.” The Council references a 2002 DFO study, entitled *A Perspective on*

the Use of Performance-Based Standards to Assist in Fish Habitat Management on the Sea Floor Near Salmon Net Pen Operations in British Columbia, that “concludes that the proposed results based standards appear to be insufficient to prevent loss of productive capacity on mud habitats in the vicinity of net pen aquaculture sites.”

- (2) Regulations must prohibit the use of genetically altered farmed fish in the marine environment.
- (3) Regulations must address the density of fish in net pens, as density is the key variable with regard to the spread of disease and parasites and the need for drugs and various chemicals to control such disease and parasites.
- (4) Strict regulations must be enacted to prevent the escape of farmed fish into the marine environment and to provide dependable arrangements for the reporting of escapes. A public registry would be maintained by DFO of the escapes
- (5) Regulations must be enacted with regard to the siting of net pens. Such regulations would establish zones where farms would be prohibited, for example, at the mouth of salmon streams and would allow for fish farms in bays and inlets consistent with the carrying capacity of that body of water.

- (6) Regulations would have as their objective the elimination at farm sites of sea lice from areas known to be frequented by young salmon, bearing in mind the advice from the Pacific Fisheries Resource Conservation Council that “of all the fish health issues considered ... sea lice from fish farms constitute the most serious and immediate risk.”
During the period when young salmon (smolts) are known to be in the vicinity, there will be zero tolerance for such sea lice.
- (7) Regulations would require the reporting of incidences of disease, the presence of parasites and all drugs and chemical treatments used to treat or prevent the same. All such information would be available to the public in a public registry maintained by DFO..
- (8) Regulations would require the monitoring and control of effluents including food and faeces, and chemicals or medical treatments that are released in the marine environment from fish farms,.

The purpose of the regulations would be to ensure the protection of wild fish and their habitat in a manner consistent with the *Fisheries Act*. Such regulations are intended to be consistent with the federal government’s exclusive responsibilities for fisheries and the marine environment under the Constitution.

Science has not been used to its best advantage to inform decision-making. That must change.

In a January 2003 advisory to the Minister, the Pacific Fisheries Resource Conservation Council made a number of helpful observations and recommendations regarding renewing DFO and what a renewed DFO might look like:

- (1) DFO must undertake a wide-ranging research and monitoring program on wild/farmed salmon interaction and develop means and practices to mitigate farming impacts.
- (2) DFO must proceed immediately to formulate and implement a comprehensive wild salmon policy that explicitly states that wild salmon will be given priority in government decision making.
- (3) DFO's management of the wild salmon resource is hampered by uncertainty about the extent of disease risks and other possible aquaculture impacts.
- (4) DFO ought to redirect the focus of research and monitoring onto issues associated with interactions of salmon farming and wild salmon.
- (5) DFO is obligated to act on its duty and responsibility to protect wild stocks and maintain their habitat.
- (6) DFO should be pro-actively scanning and analysing the issues as they develop, rather than waiting for serious or irreversible harm to be inflicted on wild salmon stocks.
- (7) DFO must be open and transparent in decision-making on salmon farm siting approvals.

These are not simply platitudes for another day, as Gordon Ennis of the Pacific Fisheries Conservation Council said in testimony before the House of Commons Fisheries Committee on February 25, 2003:

“Now is not the time to simply collect more research and do more monitoring. We believe doing more research and monitoring is important, but more than that, at this time, we believe that action has to be taken.”

We agree. Now is not the time to simply collect more research and to do more monitoring; now is the time for action. There must be a house cleaning in the Department that shakes loose those who have undermined DFO’s legitimate work those would prevent a return to a fish-based administration of the *Fisheries Act*.



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April 8, 2003