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***Fisheries Management Focus Area Report***

***Canada***





Government of Canada  
Fisheries and Oceans

Gouvernement du Canada  
Pêches et Océans

**FISHERIES MANAGEMENT  
FOCUS AREA REPORT  
(July 2008)**

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## **PREAMBLE**

### **Purpose of Fisheries Management Focus Area**

Under the Next Steps process, special sessions addressing particular Focus Areas are intended to provide a more in-depth assessment of measures to implement NASCO Agreements, Resolutions, and Guidelines. Reports prepared for the Special session are intended to provide the basis for review of the current management approach and proposed actions and to assess their efficacy in addressing the overall objectives of NASCO and in particular, to conserve and restore salmon stocks.

The Next Steps process identified three focus areas: Fishery Management, Protection and Restoration of Habitat, and Aquaculture and associated activities. The Council agreed that the first focus area to be examined under the Next Steps Process is **Fishery Management**.

These reports are intended to provide the basis for evaluating the extent to which the fisheries management approach is meeting, or expected to meet, NASCO's goal to promote the diversity and abundance of salmon stocks and maintain all stocks above their conservation limits.

### **Fisheries Management Focus Area Report for Canada**

#### **1. NATURE AND EXTENT OF THE RESOURCE**

On the Atlantic coast of Canada, anadromous Atlantic salmon (*Salmo salar*) are found in rivers (see Atlantic Salmon Rivers of Eastern Canada) from the US border at the mouth of the Bay of Fundy (46°N) north to Nain, Labrador (56°37'N) as well as in Ungava Bay (58°N). The number of rivers with anadromous Atlantic salmon runs in Canada was previously noted at over 600 rivers (NASCO Rivers database) but a recent and ongoing review indicates there may be upwards of 900 rivers which contain salmon. The discrepancy is due to the definitions used to declare a river a salmon river and in some cases there have not been any surveys to verify the presence of salmon in numerous small and remote rivers.

Most Atlantic salmon rivers of eastern Canada are small with annual run sizes of less than a thousand adult salmon. There are few rivers with annual run sizes in excess of 10,000 salmon. There are a large number of small rivers and rivers in the northern portion of the distribution where little, if any, information is available about run size and status.

Stocks are managed in five administrative areas in eastern Canada among the five provinces: Newfoundland and Labrador, Québec, New Brunswick, Prince Edward Island (P.E.I.), Nova Scotia and, the Nunatsiavut Government.

Severe declines in abundance of Atlantic salmon in the 32 rivers of the inner Bay of Fundy have resulted in this component being designated as "endangered" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and listed in Schedule 1 of Canada's Species at Risk Act. These are mostly small rivers. (reference [http://www.dfo-mpo.gc.ca/species-especes/species/species\\_atlanticSalmon\\_e.asp](http://www.dfo-mpo.gc.ca/species-especes/species/species_atlanticSalmon_e.asp))

## ATLANTIC SALMON RIVERS IN EASTERN CANADA



List of all rivers is attached as Annex 1

## 1.1 Description of the Fishery and Management Measures

Fisheries management in Canada is complex and extensive given the number of Atlantic salmon rivers, varying abundance levels, array of impacts/factors influencing stocks and the diverse interest of stakeholders in wild Atlantic salmon. Regional management plans are a means to address these issues and provides the details on management actions. The regional fishing plans are provided in Annex II, III and IV.

The following provides a synopsis of the fisheries and major management measures that have been undertaken over time to address conservation concerns.

<b>COMMERCIAL</b>	<b>ABORIGINAL</b>	<b>RECREATIONAL</b>
Commercial exploitation of salmon was continually reduced through gear, season, location and license transfer regulations until a general license reduction program was initiated in 1972.	Fished by more than 40 First Nations Reserve communities and by the larger population of Traditional Ancestral Homeland Aboriginal Peoples (off-reserve) in Eastern Canada.	Licences are required for all persons fishing recreationally for Atlantic salmon. Also regulated by seasons, daily and seasonal bag limits. The daily and seasonal bag limits vary by and within provinces, within areas and by rivers.
Conservation measures initiated in 1972 continued in 1984, when the commercial fisheries of the New Brunswick, Nova Scotia, and Prince Edward Island as well as portions of Quebec were closed.	Due to conservation considerations some aboriginal communities do not fish for salmon.	Retention of salmon occurs within the recreational fisheries of all five provinces of eastern Canada but size limits for retention are in force in many areas.
Further reductions were introduced through the late 1980s and early 1990s leading to a moratorium on commercial salmon fishing for insular Newfoundland in 1992, followed by moratorium in 1998 for Labrador and in Quebec in 2000.	When Aboriginal fisheries occur, Aboriginal Peoples are generally engaged in agreements, arrangements or licenses which may stipulate gear, season and catch limits.	Catch and release only fisheries occur along the Atlantic coast of Nova Scotia and the eastern portion of Cape Breton Island as well as in selected rivers of Newfoundland and New Brunswick.
A number of license buy-back programs were initiated to reduce the fishery effort.	Many Aboriginal communities follow a strict communal harvesting guideline which respects the resource. For	Based on the status of the stocks, Atlantic salmon recreational fisheries have been prohibited in large areas

	example: some communities have stopped using gill nets in favor of trap nets so that all fish are harvested alive and decisions can be made about their release.	of the Maritime Provinces, in a large number of rivers in Quebec and in several rivers of Newfoundland.
<b>Since 2000, all commercial fisheries for Atlantic salmon have remained closed.</b>	Harvests are required to be reported collectively by each Aboriginal user group. If reports are not available, the catches are generally estimated to derive total harvest numbers.	A large number of rivers in Quebec are subject to in-season assessments and based on estimates of returns to date, retention of large salmon may be prohibited for the remainder of the season.
	Since 2000, a licensed food fishery for Labrador residents has taken place. Residents were permitted to retain a maximum of 4 salmon of any size as a by-catch while fishing for trout and char using fixed gill nets of specified size. Retained salmon were required to be tagged along with a requirement to complete and return fishing logbooks to DFO following the closure of the fishery.	The practice of catch and release has increased in the recreational fisheries in Canada. In 1984, it became mandatory for anglers to release all large salmon in the Maritime Provinces and Newfoundland. In recent years, anglers have been required to release all salmon on some rivers and, on others, anglers voluntarily practice catch and release fishing. In recent years, some provinces have introduced catch and release only licences.

## 2. STATUS OF STOCKS

Stock status is evaluated in the context of abundance and attainment of river-specific conservation requirements. The objective is to maintain spawning escapements above the conservation requirements. In the Maritime provinces, the conservation limit is an egg deposition rate of 240 eggs per 100 m<sup>2</sup> of fluvial habitat and this rate is expected to maximize freshwater production. In Newfoundland, a deposition rate of 240 eggs per 100 m<sup>2</sup> of fluvial area is used with an additional requirement of 368 eggs or 105 eggs per ha of habitat area, the latter rate is applied to rivers in the northern peninsula of the province. In Quebec, conservation limits are defined in terms of an egg deposition rate equivalent to 1.67 eggs per unit of production, the unit of production varying with the type of habitat in the river and the latitude. In Labrador, a deposition rate of 190 eggs per 100 m<sup>2</sup> of fluvial habitat is used. The rearing of salmon parr in lakes and ponds also occurs in Labrador and specific conservation rates may be recommended in the future.



Conservation limits in terms of two-sea-winter salmon, as a subset of the total conservation requirements, has also been defined for eastern Canada and are used in the development of the catch advice and risk analysis for mixed stock marine fisheries at West Greenland and in Canada.

Assessments are prepared for a limited number of rivers based on the importance of the river in a region, as an indicator of patterns within a region, or because of specific requests for fisheries management advice. The returns represent the size of the population before any in-river and estuarine removals. Spawning escapement is determined by subtracting all the known removals, including food fisheries, recreational harvests, broodstock collections, and scientific samples from the total returns.

Estimates of returns of salmon are obtained using various techniques including total counts at fishways and counting fences, using mark and recapture experiments, visual counts by snorkelling, boat/canoe or from shore, and based on angling catches and estimated exploitation rates.

Indices of freshwater production are available from a subset of assessed rivers. Wild smolt production was monitored from eleven rivers in 2006 distributed among Newfoundland, Quebec, New Brunswick and Nova Scotia. Juvenile abundances are monitored in New Brunswick and Nova Scotia rivers and serve as an index of spawning escapement levels and where escapements are known, are used to monitor fresh water survival.

Fish designated as being of wild origin are defined as the progeny of fish where mate selection occurred naturally and whose life cycle is completed in the natural environment. Limited hatchery production and stocking in support of public fisheries takes place in eastern Canada. Four non-government hatcheries continue to stock modest numbers of juvenile salmon of various life stages in New Brunswick, Nova Scotia, and PEI rivers of the southern Gulf of St. Lawrence. Limited stocking from one provincial hatchery occurs in Quebec only for rivers below conservation requirements. Federal biodiversity centres have re-focused their operations on preservation of endangered populations in the Inner Bay of Fundy and restoration of populations threatened with loss in the outer Bay of Fundy and Atlantic coast of Nova Scotia.

The presence of aquaculture escapees is monitored in rivers with trapping facilities and these fish are generally identified by fin erosion and scale characteristics.

## 2.1 **Abundance**

The abundance of Atlantic salmon by size group and specifically for 2SW salmon as well as the attainment of the conservation limits are described for five geographic areas of eastern Canada. For Newfoundland and Labrador, the abundance represents recruitment to each area and incorporates components of the harvests in Newfoundland and Labrador. For the other areas, the abundance is expressed as returns to the respective coastal areas and account for their respective marine fisheries but not for interceptions in the Newfoundland and Labrador. The commercial fishery has been closed since 2000. Harvests of North American origin salmon at West Greenland are excluded from the estimates of recruits and returns for all areas.

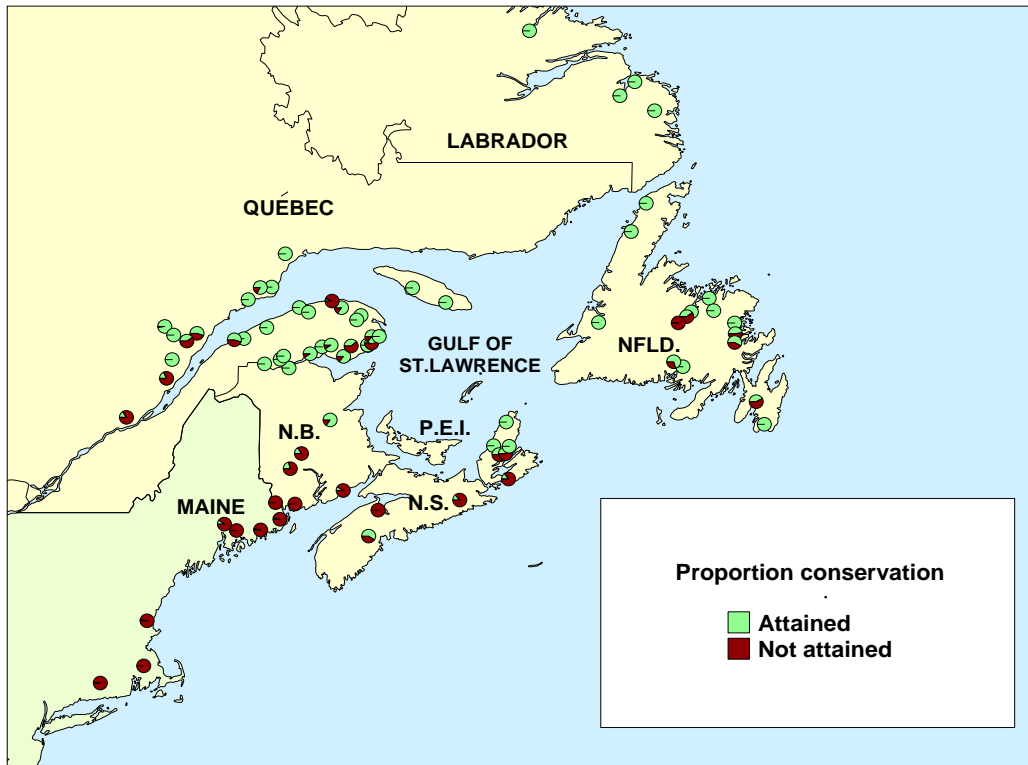
The total population of 1SW and 2SW Atlantic salmon in the northwest Atlantic prior to any exploitation at sea has oscillated around a declining trend since the 1970s to an average of 506,000 fish over the past five years. The 2SW salmon component is specifically considered because it is the primary age group which is potentially exploited at West Greenland and in eastern Canada represents the dominant egg bearing age group.

Spawning escapements of 2SW salmon have been maintained at reduced levels as a result of fisheries management measures in each area. Despite these major changes in fisheries management, returns and spawning escapements have continued to decline in the southern area and many populations are currently threatened with extirpation.

## 2.2 River-specific spawning escapements

The following stock status summaries are for the 2006 assessment year.

Egg depositions by all sea-ages combined in 2006 exceeded or equaled the river specific conservation limits in 35 of the 70 assessed rivers (50%) and was less than 50% of conservation limits in 20 other rivers (29%).



Large deficiencies in egg depositions were noted in the Bay of Fundy (between New Brunswick and Nova Scotia) and Atlantic coast of Nova Scotia where 11 of the 13 rivers assessed (85%) had egg depositions that were less than 50% of conservation limits (CL).

In Quebec, 17% of the 35 assessed rivers had egg depositions less than 50% of CLs.

For 3 of 4 of the Gulf rivers (New Brunswick, Prince Edward Island and Nova Scotia) and 54% of the Québec rivers, egg depositions equaled or exceeded conservation limits.

In Newfoundland, 63% of the rivers assessed met or exceeded the conservation limits and 4% had egg depositions that were less than 50% of conservation limits; most of the deficits occurred in the rivers which are under colonization due to provision of access to previously inaccessible areas of Newfoundland.

Since 2000, the number of assessed rivers which met or exceeded the river-specific conservation limits has only been above 50% once (2004).

	2000	2001	2002	2003	2004	2005	2006
Percentage of assessed rivers exceeding CL	43%	38%	29%	44%	54%	45%	50%

### **2.3 Freshwater production**

There is high annual variability in the smolt production and generally it has not increased in any of the monitored rivers over the past decade. Smolt production remains low in the southern areas which are consistent with the low spawning escapements to these rivers.

Juvenile salmon abundance monitored annually in a number of southern region and Gulf rivers show trends consistent with stock status. In the rivers of the southern Gulf, densities of juveniles have increased since 1985 in response to increased spawning escapements. Abundances of juveniles in the Atlantic coast rivers of Nova Scotia and Bay of Fundy rivers are low and have declined with decreasing spawning escapement. In 2000, juvenile salmon could not be found in half of 57 rivers sampled on the Southern Upland portion of Nova Scotia and in 16 of the 57 rivers, there were fewer than 5.0 juveniles per 100 m<sup>2</sup> or 7% of a “normal” abundance. In 2002, young-of-the-year salmon were absent from 30 of 34 rivers sampled in the Inner Bay of Fundy, which are now listed under Canada’s Species at Risk Act.

### **2.4 Marine survival**

Time series of return rates of smolts to 1SW and 2SW adults of varying lengths are available for 10 wild and two hatchery stocks in eastern Canada for 2006. The characteristics can be summarized as follows:

Survival of fish is low compared to historical levels, especially in the south;

Survival of stocks to home waters did not increase as expected after closure of the commercial fisheries in 1984 and 1992; and return rates of wild stocks exceed those of hatchery stocks.

<b>RETURN RATES OF MONITORED STOCKS OF CANADA FOR THE LAST FIVE YEARS</b>					
Origin	Age Group	Region	Return rate		Number of stocks
			Mean (%)	Range (%)	
Wild	1SW	Maritimes	4.4	1.1 to 12.7	4
		Québec	0.7	0.4 to 1.5	2
		Newfoundland	6.1	2.2 to 15.1	5
Wild	2SW	Maritimes	1.0	0.2 to 2.2	3
		Québec	0.7	0.1 to 1.4	2
Hatchery	1SW	Maritimes	0.5	0.3 to 0.9	2
Hatchery	2SW	Maritimes	0.1	0.05 to 0.2	2

## 2.5 Diversity

Atlantic salmon return with a high degree of fidelity to their natal river for spawning. This characteristic has led to the formation and maintenance of river-specific adaptations, resulting in variability in genetic, life-history, and behavioral traits. Few population genetics studies of Atlantic salmon have been carried out at fine spatial scale in the species' Canadian range. Based on limited studies, salmon of the Southern Upland portion of the Atlantic coast of Nova Scotia, the inner Bay of Fundy and elsewhere in Atlantic Canada are considered to be genetically distinct from each other. Further ecological, life history, and molecular genetic information and analyses are being collected to assist in the delineation of Atlantic salmon structure throughout the Canadian distribution.

Adult Atlantic salmon return to rivers from feeding and staging areas in the sea mainly between May and November, but some runs can begin as early as March and April. In Canada, Atlantic salmon can spawn annually for up to six spawning events. Depending on the stock, spawners returning to rivers are comprised of varying proportions maiden fish (those spawning or the first time) and repeat spawners.

Most salmon stocks consist of varying proportions of smaller fish that return to spawn after one winter at sea (1-sea-winter or 1SW, also known as grilse), larger fish that return after two or more winters at sea (2, 3-sea-winter, also designated as multi-sea-winter or MSW) and repeat spawning salmon. Relative proportions of grilse, MSW and repeat spawning age groups and associated biological characteristics vary widely among stocks and with geographic location in eastern Canada. In rivers in which the dominant age group is 1SW salmon, it is the dominant egg-bearing age group. In stocks with multi-sea-winter salmon, the dominant egg-bearing age groups are 2SW and older salmon.

### 3. MANAGEMENT OF FISHERIES

Integrated management planning that incorporates the biological, economic and social factors for sustainable fisheries has been used in Canada for several years. This process will continue and much emphasis is placed at increasing the stakeholders, aboriginal and provincial participation in the planning and in the shared delivery of the plans. In consultation with stakeholders, management measures take into consideration abundance and inherent uncertainty of stock assessments. Limits on fisheries also are incorporated to avoid, where needed, bycatch of juveniles or spawning salmon or other species.

Regulations are made under the authority of the federal *Fisheries Act* which provides the authority and mechanisms to manage fisheries and implement measures. The federal Department of Fisheries and Oceans (DFO) is the main authority for regulations concerning management of Atlantic salmon except in Quebec where the Provincial government has been delegated the authority. All people fishing for Atlantic salmon must be authorized by a license. The Atlantic Provinces are responsible for licensing recreational freshwater fisheries for Atlantic salmon.

The Federal government licenses all Aboriginal (also referred to as First Nations) fisheries for Atlantic salmon. Within the Labrador Inuit Land Claims Area, the Nunatsiavut Government co-shares management with Fisheries and Oceans through the Torngat Fisheries Board. It is through these mechanisms that fisheries management measures such as gear type, location, area closure, size limits, bag limits, and quotas are implemented. Aboriginal groups have a right to fish for food, social and ceremonial purposes, and it takes priority, after conservation, over other uses of the resource. In other words, all other fisheries including catch and release fisheries would have to close before Aboriginal fisheries are closed.

Management measures are reviewed annually and in most situations throughout the year based on the most current stocks assessments. Adjustments are made as necessary to provide sustainable fishing opportunities and conservation of Atlantic salmon. Environmental factors that would impact stocks such as low water levels, and water temperature are an important factors of the decision making process on setting management measures.

There are occasions when fishing, with restrictions, is allowed on stocks that are below conservation limits. In these situations the socio-economic benefits are important considerations. For example, even though there are a small number of mortalities, catch and release is used to maintain recreational opportunities where there are conservation concerns. As well, fishing by Aboriginals, particularly those in remote areas, is permitted where there may be the possibility of catch a fish from another stock below the conservation limit.

Stocks from the Inner Bay of Fundy are of special concern. To the extent possible, severe management measures have been implemented. This stock is covered under Canada's *Species at Risk Act* and the process has been a long and complex undertaking in addressing all factors impacting this stock. A Recovery Potential Assessment is currently being conducted as part of this process to address recovery planning. The report is expected to be available this summer. Updates on progress will be reported through the Implementation Plan process.

Canada believes that enforcement is an integral part of the fisheries management. In this regard Canada maintains a robust enforcement program supported by a network of fisheries enforcement personnel throughout eastern Canada.

This structured, systematic, and inclusive approach to management conforms to the principles of risk management and the precautionary approach. It also uses the methodology outlined in NASCO's Decision Structure. In addition to the aforementioned, the following outlines specific actions in the integrated management of wild Atlantic salmon stocks.

***Action:*** Canada will maintain its annual participation of science personnel to the ICES Working Group North Atlantic Salmon to address questions posed by NASCO, to the development of catch advice for marine fisheries, and to further the international collaborations on salmon research at sea.

***Action:*** Based on the status of Atlantic salmon stocks and the advice from ICES, Canada will maintain the closure of commercial Atlantic salmon fisheries.

***Action:*** Canada will annually provide a summary of the status of Atlantic salmon stocks to NASCO via the questions addressed by ICES. The details of this annual assessment will form the basis for development of domestic regional Atlantic salmon management plans. The management objective is to maintain the spawning escapement in each river above the conservation limit. Management measures to control undesired consequences of the fisheries are user specific and consider stock status relative to conservation objectives and socio-economic factors of the fisheries.

***Action:*** *Canada's Aboriginal Fisheries* will continue to be subject to negotiated annual agreements or licenses which will stipulate gear, season and catch limits, and catch reporting.

***Action:*** Continue to work with the aboriginal communities and aboriginal governments to reduce the catch of large salmon (some of which are 2SW fish) and incorporate live capture fishing gears which allow for selective harvesting where concerns exist on the status of the river-specific stocks.

***Action:*** *Canada's Recreational Fisheries* will continue to be regulated by seasons as well as with daily and seasonal bag limits and subject to gear restrictions. As well, all retained salmon must be tagged.

***Action:*** Canada will continue to cooperate with France and encourage the provision of catch statistics; biological samples and other data for detailed analysis of the SPM fishery and will encourage France to become a member of NASCO.

***Action:*** Continue to meet with French officials annually, and encourage them to adjust their fishery to meet conservation concerns.

**Action:** In season counts of returning salmon to index rivers of eastern Canada will continue to be made available on the Internet to track the status of rivers in eastern Canada.

**Action:** Develop where required and maintain five-year integrated fisheries management plans. Consult with recreational stakeholders on adjustments to the annual fisheries plans to provide a balance between conservation/rebuilding and fishing opportunities. Integrated management plans currently exist for Newfoundland and Labrador, and the Southern Gulf of St. Lawrence and for the province of Quebec.

### **3.1 Catch Data**

Unreported catch in Canada is estimated to be at an important level relative to reported catch. Significant resources have been committed in recent years to deal with poaching, which constitute the largest portion of the unreported catch, and expanding and improving catch reporting systems. There are questions about the level of confidence associated with the annual unreported catch estimates. In 2007, examinations began on past Catch, Catch and Release and Unreported Catch Estimates as provided to ICES.

**Action:** Canada will undertake to improve catch data reporting, with emphasis on validating unreported catch. A review will be done on reporting methodology for weakness in reliability and consistency.

**Action:** Canada will continue to analyze the issue of unreported catch and will implement changes to reporting methodology to improve reliability and consistency in reporting of catch including unreported catch.

**Action:** Enforcement activities will be maintained and efforts will continue to improve the effectiveness of enforcement measures to thwart illegal fishing. Enforcement activities, violations, prosecutions and penalties assessed will be summarized annually. There will be continued effort to increase the severity of the penalties related to illegal fisheries on Atlantic salmon.

### **3.2 Coastal and Bycatch Fisheries**

In cooperation with the aboriginal peoples of Labrador and the Nunatsiavut Government, additional measures were introduced in 2006 to reduce the catch of large salmon (including 2SW fish) in coastal areas of Labrador. These included prohibition of larger mesh nets (maximum mesh size of 4.5 inches) and, a monitoring program for in-season closures to coincide with peak runs of large salmon. These programs have been largely successful as very few MSW are caught. Further, these fisheries take place in river or in close proximity to the river mouth. Sampling indicates almost all fish are of Labrador origin. The effectiveness of these measures will be evaluated and adjustments will be made if a further reduction in the catch of large salmon is warranted in 2008 and beyond.

Recognizing the ICES advice concerning the West Greenland fishery for 2006, 2007 and 2008 (no fishery), Canada will consult with the NASCO Parties on 2007 measures (maximum 20 tonnes internal subsistence) being applicable in 2008. This will be based on an agreed framework of indicators which are to be used in identifying any significant change in the previously provided multi-annual advice.

#### **4. EVALUATION**

The following actions are some of methods that are used to provide a means of making progress on fish management initiatives. However, a key means of evaluating the effectiveness of Canada's regional fisheries management plans and national or regional programs is through the feed back received from stakeholders thought out the year and more importantly, that received during consultations undertaken annually each spring with stakeholders.

**Action: Annual report on the status of the developments involving the major policy issues, i.e. Wild Salmon Conservation Policy.**

**Action: Canada will report annually as required in Article 14 and 15 of the Convention.**

Efforts and resources will be used to assess the status of stocks on an annual basis. The historical time series of adult, juvenile and smolt assessments will provide the basis for assessing changes in stock status and the efficacy of management measures and the need for further adjustments or initiatives.

**Action: Meet and consult annually with First Nations and stakeholders to seek input on effectiveness of management measures.**

**Action: Maintain assessments on about 70 rivers and, where possible, increase the number of assessments of stock status and the effectiveness of management measures.**

**Action: Report annually on enforcement efforts (prosecutions, charges laid, effort, and penalties) in the protection of Atlantic salmon.**

Canada undertakes a survey of the recreational fishery in Canada every 5 years. It is a collection of information about recreational fishing activities in all jurisdictions. The Survey of Recreational Fishing in Canada 2005 was released in August 2007. Information from the Survey is available for Atlantic salmon which can be used as a means to measure the socio-economic importance of the Atlantic salmon recreational fishery.

**Action: Provide the information associated with the Atlantic Salmon Recreational fishery as reported in the Survey of Recreational Fishing in Canada 2005.**

**Action: Undertake a socio-economic survey of the recreational fishery in Canada in 2010.**



**Action: Provide reporting frameworks for harvests and catches in the recreational fisheries:**

- **In Quebec, all retained fish must be reported to river authorities within 48 hours of harvest.**
- **In Newfoundland and Labrador, Nova Scotia and Prince Edward Island, all catches must be recorded on the stub provided with the license and be returned to authorities at the end of the fishing season. An alternative program for New Brunswick is being evaluated.**

## **THE REVIEW GROUP - QUESTIONS AND ANSWERS**

### **1. Reference points:**

The Gulf Region Integrated Management Plan indicates that the present conservation limits will be retained until such time as more 'finite stock-specific conservation level criteria become available'. The report indicates that these will be developed nationally. What is the timescale for development of these criteria?

*ANSWER: Conservation limits or reference points have been defined. All are subject to review and updates as more information becomes available. There are no set deadlines for this to take place.*

### **2. Stock status and abundance criteria:**

The report indicates that there are about 900 salmon rivers and that about 70 of these rivers are assessed scientifically. This is a comprehensive monitoring programme, but almost half of these assessed rivers are in Quebec while in Labrador, where there is a mixed stock fishery, four rivers are monitored. Will the monitored sites in Labrador be maintained and are there plans to expand this monitoring in future?

*ANSWER: The focus area report does not include details on how many stocks will be assessed in the future. The objective would be to have as many rivers as possible assessed but environmental conditions (ie. high water, remoteness), fisheries management priorities, and resources all affect which rivers are actually assessed in any year. On a large number of other rivers, indicators or proxies of stock status are collected such as juvenile abundance as an index of recent stock status. These indicators are generally not presented in the ICES report of adult returns and spawners but are used in regional assessments of stock status.*

### **3. Mixed stock fisheries:**

The report refers to the introduction of measures, including prohibition of larger mesh nets, in 2006, to reduce the catch of large salmon in coastal areas of Labrador. The report indicates that the effectiveness of these measures will be evaluated and adjustments made if further reductions are warranted. What efforts are being made to determine the origin of the fish harvested in this fishery and what information is available on the effectiveness of the measures based on the evaluation of the fishery to date?

*ANSWER: Sampling of the catches of the Labrador fishery is coordinated by the aboriginal groups and the Nunatsivut government. Scale samples and biological characteristics data are provided to for analysis. Based on river age of the harvests, it can be concluded that few to no fish from the southern areas are harvested in this fishery (no age one year old smolts, few to no age two year old smolts). When the genetic stock identification capabilities are more refined, it*

would be possible to confirm the river origin of these samples. For now, based on where the fisheries occur, the interception of non-Labrador origin salmon is expected to be very low.

#### **4. Management actions:**

The report indicates that Canada's First Nations fisheries will continue to be subject to annual agreements. Are there any such fisheries exploiting stocks below conservation limits and, if so, what factors were taken into account in allowing a harvest?

**ANSWER:** *The right to fish for food, social, and ceremonial purposes by aboriginal peoples is protected under the Constitution of Canada. This aboriginal right can only be infringed upon by conservation concerns. Social and economic considerations are taken into account in fisheries management decisions. In some areas, aboriginal and recreational fisheries are allowed even when stocks are below the conservation levels. In these cases, consideration is made for the overall size of the river, the size of the fisheries relative to the size of the resource, the ability to manage the fisheries in an orderly manner. For example:*

- *Both aboriginal and recreational fisheries have taken place on the Miramichi River despite the stock being intermittently below conservation. The proportion of the stock removed by these fisheries depends on how far below conservation the resource is, and the importance of these fisheries to the local communities. These are taken into consideration when making fisheries management decisions.*
- *In other cases where stocks are small and the fisheries can be comparatively large or difficult to manage, the rivers are closed to all fishing (for ex. The southeast rivers of New Brunswick Gulf Region).*
- *In yet other cases, the aboriginal communities have agreed not to fish but have agreed to permit a catch and release only recreational fishery because of the social and economic value of the recreational fishery in the area. (Recall aboriginal people have priority over recreational fisheries.) This despite the incidental loss of fish which can occur in catch and release fisheries and the stock being consistently below conservation (eastern Cape Breton Island in Nova Scotia).*

The report refers to a Recovery Potential Assessment that is being undertaken for the Bay of Fundy stocks which are of special concern and protected by the Species at Risk Act. What is the timescale for completion of this assessment?

**ANSWER:** *Stocks from the Inner Bay of Fundy are of special concern. Severe management measures have been implemented. A report on the Recovery Potential Assessment to address recovery planning is currently being finalized. The report, previously expected this summer, will now be available later this year. Updates on progress will be reported through the Implementation Plan process.*

The report contains as annexes the management plans for Newfoundland and Labrador, Maritimes and the Gulf Region. There is no plan for Quebec. Does such a plan exist and can its key elements be summarized?

**ANSWER:** *A management plan was established by Quebec and submitted for consultation. This plan has been used since 2000 and will be updated later in 2008. It will then be officially adopted. The key elements of the plan are: no commercial fishery, the river conservation limits must be met before a recreational fishery is permitted. If permitted, restrictive measures are imposed, a licence is required to capture a maximum of 7 salmon, and catch registration is mandatory within 48 hours. In-season adjustments are made if required.*

**5. Socio-economic factors:**

The Group is aware of a survey of recreational fishing in Canada conducted in 2005 and released in 2007. It is understood that the information on salmon fishing is not presented separately from other species. When will the information relating to salmon fishing contained in this report be made available?

**ANSWER:** *The Survey of Recreational Fishing in Canada 2005 was released in August 2007. Information from the Survey is available for Atlantic salmon and was provided at NASCO's annual meeting and to the working group on socio-economics. This information can be used as a means to measure the working group on socio-economic importance of the Atlantic salmon recreational fishery.*

## LIST OF SALMON RIVERS

## NEW BRUNSWICK

***Restigouche R***

Patapédia R

Eel R

Jacquet R

Nigadoo R

Middle R

Pabineau R

Pokemouche R

Tabusintac R

***Miramichi R***

Bartholomew R

Bay du Vin R

Richibucto R

St. Nicholas R

Cocagne R

Aboujagane R

Timber R

Coverdale R

Alma R

Mispec R

Hammond R

Salmon R

Oromocto R

Nackawic R

Odell R

Serpentine R

Pocologan R

St. Croix R

Upsalquitich R

Kedgwick R

Charlo R

Belledune R

Millstream R

Little R

Bass R

Little Tracadie R

Burnt Church R

Tomogonops R

North Branch R

Kouchibouguac R

Bass R

Chockpish R

Shediac R

Kinnear R

Baie Verte R

Pollett R

Irish R

***Saint John R***

Nerepis R

Coal R

Nashwaak R

Meduxnekeag R

Little Wapskehegan R

Aroostook R

Digdeguash R

***Matapédia R.***

Gounamitz R

Benjamin R

Elmtree R

Tetagouche R

Nipisiguit R

Caraquet R

Tracadie R

Bartibog R

Sevogle R

Taxis R

Kouchibouguacsis R

Coal Branch R

Buctouche R

Scoudouc R

Gaspereau R

Petitcodiac R

West (Albert) R

Black R

Kennebecasis R

Canaan R

Little R

Keswick R

Tobique R

Gulquac R

New River

Waweig R

## NEWFOUDLAND

Salmon R

Little Harbour

Hampted R

Peters R

Dog Bay R

***Middle Brook***

Southern bay R

Cloud R

Coney Arm R

Indian R

***Exploits R******Gander R***

Gambo R

Little Catalina R

Soufflets R

Main R

New Bay R

South West R

Northwest R

Terra Nova R

Salmon Cove R

Lockston R  
Hickmans R  
Salmon R  
Manuels R  
Biscay Bay R  
Crossing Place R  
Colinet R  
Big Barachois R  
Branch R  
South East R  
Ship Harbour  
Black R  
Paradise R  
Red Harbour R  
Garnish R  
Bay du Nord R  
Little R  
Grey R  
North East Arm R  
La Poile R  
Grand Bay R  
Grand Codroy R  
Barachois R  
Harry's R  
Serpentine R  
Lomond R  
Castor R  
East R. St. Barbe

Trouty R  
North R  
North Arm R  
Cape Broyle R  
St. Shott's R  
Little Harbour R  
Rocky R  
Red Head R  
Lance R  
North East R  
Come-by-chance R  
Pipers Hole R  
Bay de l'eau R  
St. Lawrence R  
Long Harbour R  
Salmon R  
**Conne R**  
White Bear R  
Couteau R  
Burnt Island R  
Bear Cove R  
**Highland R**  
Robinson's R  
Fox Island R  
Humber R  
Torrent R  
St. Genevieve R  
Parker R

Popes Harbour R  
South R  
Lower Gullies R  
Renews R  
Peter's R  
Salmonier R  
North Harbour R  
Beckford R  
Great Barasway  
Placentia Sound R  
North Harbour R  
Sandy Harbour R  
Rushoon R  
Lawn R  
Bay du Nord R  
Taylors Bay R  
Moran R  
Bay de Loup R  
Cinq Cerf R  
Isle aux Morts R  
Little Codroy R  
Crabbe's R  
Northern Feeder R  
Little R  
Trout R  
East R  
**West Brook**

Plus approximately 123 brooks, ponds and creeks

## LABRADOR

Pinware R  
Mary's Harbour R  
Shinneys Waters  
White Bear Arm R  
River 20 (Unnamed)  
River 26 (Unnamed)  
Paradise R  
North R  
Churchill R  
Beaver R  
Crooked R  
Double Mer R  
River 54 (Unnamed)

St. Peters R  
St. Lewis R  
Gilbert R  
River 16 (Unnamed)  
River 22 (Unnamed)  
**Sandhill R**  
Eagle R  
English R  
Goose R  
Susan R  
Sebaskachu R  
River 49 (Unnamed)  
River 55 (Unnamed)

St. Charles R  
Alexis R  
River 14 (Unnamed)  
Hawke R  
Black Bear R  
Dykes R  
White Bear R  
Kenemich R  
Cape Caribou R  
Naskaupi R  
Mulligan R  
River 53 (Unnamed)  
Michael R

River 58 (Unnamed)  
Big River  
Kaipokok R  
Kanairiktok R  
Adlatok (Ugjoktok)R  
Flowers R  
Notakwanon R

Tukialik R  
River 65 (Unnamed)  
English R  
Little Bay R  
Hunt R  
River 80 (Unnamed)  
Kogaluk R

Pamiulik R  
River 66 (Unnamed)  
River 72 (Unnamed)  
River 75 (Unnamed)  
River 78 (Unnamed)  
River 81 (Unnamed)  
**Fraser R**

Plus approximately 27 Brooks

## NOVA SCOTIA

Fox R  
Five Island R  
Great Village R  
Walton R  
Meander R  
Round Hill R  
Bear R  
Salmon R  
Medway R  
Musamush R  
East R  
Ship Harbour R  
Salmon R  
Gegogan R  
Indian R  
New Harbour R  
Grand R  
Catalone R  
River Tom  
Skye R  
Washabuck R  
Ingonish R  
**Margaree R**  
Pomquot R  
Waugh R  
Pugwash R  
Tidnish R

Parrsboro R  
Economy R  
Stewiacke R  
Kennetcook R  
Gaspereau R  
Lequille R  
Boudreau R  
Tusket R  
Petite R  
Gold R  
Sackville R  
Little West R  
Quoddy R  
Ecum Secum R  
Country Harbour R  
Inhabitants R  
Maine Joseph R  
Mira R  
Scotts R  
Middle R  
North R  
Aspy R  
Mabour R  
Barneys R  
French R  
**River Philip**

Moose R  
Portapique R  
Shubenacadie R  
Hebert R  
Annapolis R  
Moose R  
Metegham R  
Mersey R  
**Lahave R**  
Middle R  
Musquodoboit R  
Kirby R  
Moser R  
**St. Mary's R**  
Isaacs Harbour R  
Tillard R  
Framboise R  
Sydney R  
Denys R  
Baddeck R  
Barachois R  
Cheticamp R  
Afton R  
John R  
Wallace R  
Shinamicas R

## PRINCE EDWARD ISLAND

**Morell R**  
St. Peter's R  
Cross R  
Montague R

Marie R  
Naufrage R  
Cardigan R  
Valleyfield R

Midgell R  
Hay R  
Brudenell R  
Vernon R

Pisquid R  
Bradshaw R  
Mill R

North R  
**Dunk R**  
Trout R

**West R**  
Wilmot R  
Black R

## QUEBEC

**Patapédia**  
**Causapscal**  
**Bonaventure**  
**Grande Rivière**  
**Saint-Jean**  
**Madeleine**  
**Matane**  
Du Sud-Ouest  
**Du Gouffre**  
**Saint-Jean**  
**Des Escoumins**  
Aux Anglais  
**Godbout**  
Pentecôte  
Matamec  
Sheldrake  
**Saint-Jean**  
**De la Corneille**  
**Nabisipi**  
**Kégaska**  
Washicoutai  
**Étamamiou**  
Véco  
**Saint-Augustin**  
**Napetipi**  
Brador Est  
À la Patate  
Du Renard  
Ruisseau Box  
Maccan  
Du Pavillon  
Galiote  
Aux Cailloux  
**Aux Feuilles**  
**George**

Kedgwick  
Nouvelle  
Petite rivière Port-Daniel  
Malbaie  
**Dartmouth**  
**Sainte-Anne**  
**Mitis**  
**Ouelle**  
**Malbaie**  
**À Mars**  
Laval  
Mistassini  
**De la Trinité**  
**Aux Rochers**  
Pigou  
Jupitagon  
**Mingan**  
Piashti  
Aguanus  
**Musquaro**  
Olomane  
Nétagamiou  
**Du Gros Mécatina**  
Coxipi  
**Du Vieux Fort**  
À l'Huile  
Vauréal  
Petite rivière de la Loutre  
Dauphiné  
**De la Chaloupe**  
Aux Plats  
**Jupiter**  
Sainte-Marie  
**Koksoak**

**Matapédia**  
**Cascapédia**  
**Du grand Pabos**  
**York**  
De Mont-Louis  
**Cap-Chat**  
**Rimouski**  
**Jacques-Cartier**  
**Petit Saguenay**  
**Sainte-Marguerite principale**  
**Betsiamites**  
Franquelin  
Du Calumet  
**Moisie**  
Au Bouleau  
Magpie  
Romaine  
**Watshishou**  
**Natashquan**  
Musquanousse  
Coacoachou  
Du Petit Mécatina  
**Kécarpoui**  
Chécatica  
**Saint-Paul**  
MacDonald  
**Aux Saumons**  
Bell  
Petite rivière de la Chaloupe  
Ferrée  
Chicotte  
À la Loutre  
Bec-Scie  
**À la Baleine**