	<b>Council</b>  <i>Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2020 – Canada</i>	<b>CNL(21)45rev</b>
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***Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2020***

The Annual Progress Reports allow NASCO to evaluate progress on actions taken by Parties / jurisdictions to implement its internationally agreed Resolutions, Agreements and Guidelines and, consequently, the achievement of their objectives and actions taken in accordance with the Convention. The following information should be provided through the Annual Progress Reports:

- any changes to the management regime for salmon and consequent changes to the Implementation Plan;
- actions that have been taken under the Implementation Plan in the previous year;
- significant changes to the status of stocks, and a report on catches; and
- actions taken in accordance with the provisions of the Convention.

*In completing this Annual Progress Report please refer to the Guidelines for the Preparation and Evaluation of NASCO Implementation Plans and for Reporting on Progress, [CNL\(18\)49](#).*

These reports will be reviewed by the Council. Please complete this form and return it to the Secretariat **no later than 1 April 2021**.

<b>Party:</b>	<b>Canada</b>
<b>Jurisdiction / Region:</b>	

<b>1: Changes to the Implementation Plan</b>
<b>1.1 Describe any proposed revisions to the Implementation Plan (Where changes are proposed, the revised Implementation Plans should be submitted to the Secretariat by 1 November).</b>
No additional changes are proposed beyond those submitted in November 2020.
<b>1.2 Describe any major new initiatives or achievements for salmon conservation and management that you wish to highlight.</b>
<p>Notwithstanding the COVID-19 public health measures in 2020, and their impacts on activities related to the fishing and management of wild Atlantic salmon, the Government of Canada continued to implement a series of management measures aimed at restoring and maintaining wild Atlantic salmon populations.</p> <p>The management measures are guided by Canada's Wild Atlantic Salmon Conservation: Implementation Plan 2019-2021. The Plan was developed in close collaboration with interested stakeholders, provincial governments, and Indigenous communities, and contains 18 action items which form a multi-pronged program of work that guides the collective efforts of all stakeholders for the conservation and sustainability of wild Atlantic salmon stocks.</p> <p>In 2020, the Department of Fisheries and Oceans (DFO) launched a second call for proposals under the \$50 million Indigenous Habitat Participation Program (IHPP). The contribution component of this program is designed to promote collaboration between DFO and Indigenous groups to support conservation and protection, monitoring and planning activities related to fish and fish habitat across Canada, including for Atlantic salmon.</p>

Moreover, in 2020, work continued on several ongoing projects to restore Atlantic salmon habitat and improve fish passage. These projects are funded through Canada's Coastal Restoration Fund, Habitat Stewardship Program and the Canada Nature Fund for Aquatic Species at Risk

**2: Stock status and catches.**

**2.1 Provide a description of any new factors that may affect the abundance of salmon stocks significantly and, if there has been any significant change in stock status since the development of the Implementation Plan, provide a brief (200 word max) summary of these changes.**

No new factors affecting salmon abundance have been identified. Status of Atlantic salmon in eastern Canada is as described in the Implementation Plan; stocks from the northern regions ([Gulf](#), Quebec, Newfoundland, Labrador) are faring better than stocks in the [Maritimes Region](#). Fisheries in the southern regions are either closed or, where permitted, recreational fishing is restricted to catch and release only.

**2.2 Provide the following information on catches: (nominal catch equals reported quantity of salmon caught and retained in tonnes ‘round fresh weight’ (i.e. weight of whole, ungutted, unfrozen fish) or ‘round fresh weight equivalent’).**

	In-river	Estuarine	Coastal	Total
(a) provisional nominal catch (which may be subject to revision) for 2020 (tonnes)	53.1	43.9	6.9	103.9
(b) confirmed nominal catch of salmon for 2019 (tonnes)	54.2	39.8	5.7	99.7
(c) estimated unreported catch for 2020 (tonnes)	N/A	N/A	N/A	12.7 (preliminary)
(d) number and percentage of salmon caught and released in recreational fisheries in 2020	Provisional 2020: 59,627 salmon released comprising: 38,012 small salmon (FL < 63 cm) and 21,615 large salmon (FL ≥ 63 cm)  Final values for 2019: 60,636 salmon released comprising: 38,711 small salmon (FL < 63 cm) and 21,925 large salmon (FL ≥ 63 cm)			

**3: Implementation Plan Actions.**

**3.1 Provide an update on progress on actions relating to the Management of Salmon Fisheries (section 2.9 of the Implementation Plan).**

*Note: the reports under ‘Progress on action to date’ should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

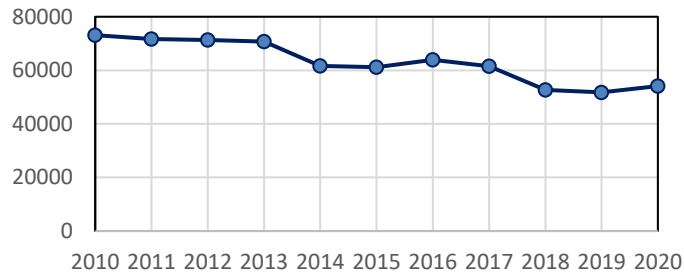
<b>Acti on F1:</b>	Descripti on of action (as submitte d in the IP):	<b>Improve understanding of factors affecting survival of salmon at sea, to inform management</b>  Throughout the North Atlantic, survival at sea of salmon has declined, particularly for populations in the southern and mid-range of the species. There is still no comprehensive understanding of why marine survival is lower than in previous decades. For example, predation factors hypothesized to be contributing to increased mortality, and which could potentially be managed include:
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	<p>predation by native fish such as striped bass; Atlantic cod on out-migrating smolt; seal predation on returning adult salmon in estuaries and rivers; and changes/reductions in the salmon food base (capelin, herring) that are also subject of fishing pressure.</p> <p>Research focused on the identification of the factors that are contributing to reduced sea survival is required to determine if fisheries management actions may contribute to improving marine survival. Even without a complete understanding of the mechanisms involved, scientific information enabling the prediction of salmon returns from the sea could improve management practices.</p>
Expected outcome (as submitted in the IP):	The objective of the ASRJV Science Plan is to guide the strategic planning and implementation of science initiatives in eastern North America that lead to improved understanding of the trends and causes of variation and/or decline in the abundance and distribution of wild Atlantic salmon.
Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>The Atlantic Salmon Research Joint Venture (ASRJV) published its second annual report in 2020. It is expected to be available online later in 2021.</p> <p>In 2020/2021, the ASRJV’s science committee collectively developed a multi-year research program entitled “Linking freshwater habitat conditions to Atlantic salmon marine survival”. An agreement between DFO and the Nova Scotia Salmon Association (NSSA) was signed in fall 2020 to support the first two years of the research program. A data wrangler was hired in 2021 and the hiring of a scientific liaison is underway. The collaborators are collating existing data and coordinating field work for 2021.</p> <p>The ASRJV Science Plan will run until 2023, so further results will be included in later APRs.</p>
Current status of action:	Ongoing
If ‘Completed’, has the action achieved its objective ?	N/A

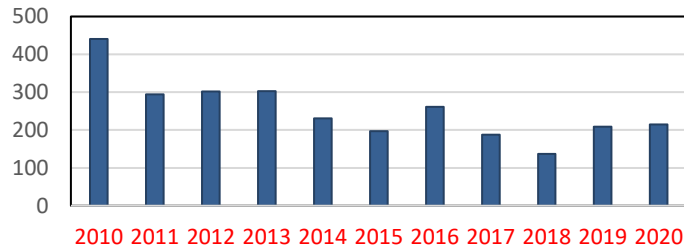
<b>Acti on F2:</b>	Descripti on of action (as submitte d in the IP):	<p><b>Action against illegal fishing</b></p> <p>Newfoundland and Labrador Region will combat illegal salmon fishing activities based on strategic patrol plans developed with Intelligence Led Special Operations in cooperation with the inland guardian program, including deploying 90 Inland Fishery Guardians, three Marine Fishery Guardians, and 14 Aboriginal Fishery Guardians. These strategic operations will continue before, during and post-season. DFO plans to deploy these staff for a minimum 60,000 hours, conducting a minimum of 3,400 inspections/year. Provincial Wildlife Enforcement Officers and DFO will support both regular patrols and special operations.</p> <p>Gulf and Maritimes regions have developed mapping software that contains historical angling activity along certain rivers in its regions and provide key information to enforcement officers about areas with illegal activity, creating more effective patrol planning and use of enforcement resources. The first river system where this pilot project has been implemented is the Saint John River, New Brunswick. The Miramichi River system will be added in the near future.</p> <p>Even though all but three rivers in the Maritimes Region have been closed to salmon angling, catch and release became a practiced activity on a number of other major salmon rivers under the guise of angling for trout and smallmouth bass. DFO will continue to impose complete angling closures in important salmon holding pools and, in some cases, closures of 20 kilometres or more on specific rivers (Medway, Nova Scotia, and Tobique, New Brunswick).</p> <p>A new IT system is being developed to improve catch registration and regulatory compliance monitoring in Quebec. Wildlife protection officers continue to fight against salmon poaching with the collaboration of wildlife protection assistants from controlled harvesting zones (ZEC).</p> <p>DFO will continue to use social media in order to emphasize the consequences to salmon stocks of illegal activities and bring awareness to the penalties.</p> <p>Planned Surveillance deployments by Region for 2019-2024:</p> <table border="1" data-bbox="411 1285 1115 1496"> <thead> <tr> <th></th> <th>Patrol Hours</th> <th>Inspections</th> </tr> </thead> <tbody> <tr> <td>NL</td> <td>48,000</td> <td>3,500</td> </tr> <tr> <td>Gulf</td> <td>6,400</td> <td>500</td> </tr> <tr> <td>Maritimes</td> <td>4,600</td> <td>300</td> </tr> <tr> <td>Quebec</td> <td>40,000</td> <td>No specific objectives</td> </tr> </tbody> </table>		Patrol Hours	Inspections	NL	48,000	3,500	Gulf	6,400	500	Maritimes	4,600	300	Quebec	40,000	No specific objectives
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	Expected outcome (as submitte d in the IP):	<p>Deterrence of illegal activity will be achieved through increased ability to detect such activities and by publicizing penalties on social media associated with resulting prosecutions.</p>															
	Progress on action to date (Provide a brief overview with a quantitat ive	<p>Tables below do not include Parks Canada statistics for Quebec</p> <p>Enforcement trends (2010-2020):</p>															

measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):

### DFO Fisheries Enforcement Hours on Atlantic Salmon Fisheries



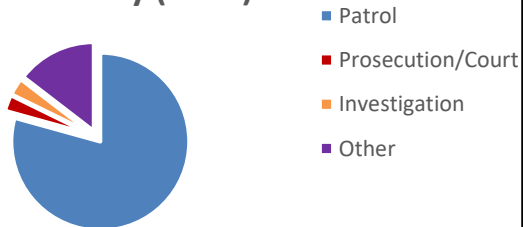
### DFO Fisheries Enforcement Detected violations - Atlantic Salmon Fisheries



Activities in 2020:

DFO Region	Hours	Fishers checked	Fishing Sites checked
GULF	8,875	1,214	7,198
MARITIMES	3,628	456	2,993
NEWF & LAB	41,547	3,571	7,064
QUEBEC	9	0	0
Grand Total	54,058	5,241	17,255

### Enforcement Effort (DFO) by Main Activity (2020)



Detected Violations in 2020:

		Region	Total
		GULF / GOLFE	47
		MARITIMES	20
		NEWFOUNDLAND & LABRADOR	148
		QUEBEC	0
		Grand Total	215
		by Action Taken	Total
		CHARGES LAID	74
		CHARGES NOT APPROVED	4
		CHARGES PENDING/UNDER REVIEW	40
		DIVERTED (ALTERNATIVE MEASURES)	0
		FISHERY OFFICER'S DIRECTION (AIS)	1
		NATIVE PROTOCOL	5
		SEIZURE(S) - PERSONS UNKNOWN	13
		TICKET ISSUED	2
		WARNING ISSUED	76
		Grand Total	215
		by Violation Type	Total
		OTHER LEGISLATION	4
		AREA / TIME	54
		ASSAULT/ OBSTRUCT	6
GEAR - ILLEGAL/ USED ILLEGALLY	66		
GEAR CONFLICT	1		
ILLEGAL BUY/SELL/POSSESS	43		
HABITAT	1		
REPORTING	1		
SPECIES/SIZE LIMIT	0		
INSPECTION	3		
REGISTRATION / LICENCE	31		
QUOTA / BAG LIMIT	5		
Grand Total	215		
		The IT system under development in Quebec is currently targeted for implementation in 2024.	
Current status of action:	Ongoing		
If 'Completed', has the action achieved its objective ?	N/A		

<b>Action F3:</b>	<p>Description of action (as submitted in the IP):</p>	<p><b>Warm water protocols for adaptive management of recreational fisheries</b></p> <p>Due to the warming of waters and the trends of declining returns of Atlantic salmon in the rivers of eastern Canada, a number of measures have been put in place to limit fishing activity and to reduce fish mortality. The most significant measure is the use of warm water protocols to reduce stress on salmon during summer months. Warm water protocols for wild Atlantic recreational fisheries have been developed for some jurisdictions in eastern Canada (rivers of Gulf Region and all rivers in Newfoundland and Labrador) and are expected to be developed for other rivers (e.g., rivers with documented problems in Quebec), where they can be proven to function as a useful tool in supporting decisions to promote sustainability of the stocks.</p>
	<p>Expected outcome (as submitted in the IP):</p>	<p>Increased number of rivers with warm water protocol in Canada, and a reduction in the number and proportion of salmon that die as a result of catch and release associated with warm water conditions.</p>
	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>In 2020, there was no increase in the number of rivers having warm water protocols. However, existing warm water protocols continued to be used for adaptive management of fisheries.</p> <p>Closures of recreational fisheries were implemented in all four rivers of the Gulf Region with warm water protocols. Closures varied by river and ranged from 18 to 58 days in 2020.</p> <p>In the Maritimes Region, rivers are closed to recreational angling during the summer months. Three rivers were open to catch and release recreational angling in the fall of 2020.</p> <p>Two rivers in Quebec have warm water protocols. No fisheries closures were implemented in 2020 although the temperature threshold was almost reached on a few occasions.</p>
	<p>Current status of action:</p>	<p>Ongoing</p>
	<p>If 'Completed', has the action achieved its</p>	<p>N/A</p>

	objective ?	
<b>Action F4:</b>	Description of action (as submitted in the IP):	<p><b>Monitoring and management of Labrador mixed-stock fishery</b></p> <p>In order to reduce the interception of non-Labrador origin salmon in the Labrador mixed stock fishery, intervention in the fisheries that are most likely to intercept non-Labrador origin salmon will occur. These interventions include the relocation (time, space) of fishing effort away from areas with known interceptions of non-Labrador origin salmon.</p> <p>There is ongoing work to improve logbook reporting (including date and location of catches) and modified/enhanced sampling of the fishery catches to assess origin of the catches and effectiveness of the management interventions at reducing catches of non-Labrador origin salmon.</p> <p>Since 2019, fishery sample processing has been targeted to areas with higher probability of non-local stock interceptions. Partnerships with Indigenous groups will continue in these sampling activities.</p>
	Expected outcome (as submitted in the IP):	Adaptive management of locations and timing of the fishery based on annual estimates of origin of salmon in the Labrador subsistence fisheries. Effectiveness of management actions will be shown by the absence or reduction over time of harvests of non-Labrador origin salmon.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>In 2020, 3,000 samples were collected from salmon harvested in the Labrador subsistence fishery. Age and spawning history information were provided at the ICES Working Group on North Atlantic Salmon (WGNAS) meeting. Genetic analysis will be conducted on samples from along the Labrador coast, where interceptions of non-Labrador origin salmon are most likely. Results of these analyses are forthcoming.</p> <p>Information on harvests in Labrador subsistence fisheries, including of non-Labrador origin salmon, are not available at this time but will be presented in the report to be tabled at the North American Commission ahead of this year's Annual Meeting.</p>
	Current status of action:	Ongoing
	If 'Completed', has	N/A



	the action achieved its objective ?	
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**3.2 Provide an update on progress on actions relating to Habitat Protection and Restoration** (section 3.5 of the Implementation Plan).  
*Note: the reports under ‘Progress on action to date’ should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

<b>Action H1:</b>	Description of action (as submitted in the IP):	<p><b>Management of threats related to industrial land-use activities</b></p> <p>DFO will identify and begin development of additional tools and investments in water quality protection, flow management, and fish passage protection, as well as work with partners, including Indigenous peoples and organizations, to identify priority areas for existing habitat programs.</p> <p>The recently modernized <i>Fisheries Act</i> includes provisions related to fish and fish habitat protection, including:</p> <ul style="list-style-type: none"> <li>• measures relating to authorization and permitting of works, undertakings and activities;</li> <li>• creation of fish habitat banks by a proponent of a project;</li> <li>• establishment of standards and codes of practice;</li> <li>• establishment of a public registry; and,</li> <li>• establishment of ecologically significant areas.</li> </ul>
	Expected outcome (as submitted in the IP):	Greater variety of options for regulatory tools and partnerships to reduce the threat to Canada’s Atlantic salmon habitat.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>In 2020, national task teams were formed and framework development began for the modernized <i>Fisheries Act</i> tools, which include Habitat Banking and Offsetting and Ecologically Significant Areas (ESA).</p> <p>Starting in 2018-19, DFO initiated an investment of up to \$50 million over five years in new funding opportunities, the Indigenous Habitat Participation Program (IHPP), to promote collaboration between DFO and Indigenous groups. The work of the IHPP will help support conservation, protection, monitoring and planning activities related to fish</p>

		<p>and fish habitat across Canada, including for Atlantic salmon.</p> <p>In 2019 and 2020 Aquatic Connectivity Assessments (ACAs) occurred in the Newfoundland Region that assessed the salmonid habitat connectivity on Schedule 1 Atlantic Salmon rivers and tributaries. ACAs were conducted by Indigenous Groups and Environmental Non-Governmental Organizations (ENGOS) through contracts and over 1200 culverts and 40 dams were assessed from 2019-2020. Future ACA work is being planned for 2021 and information will be used to prioritize areas for habitat restoration, offsetting, and future habitat banking to help conserve and protect salmonid habitat.</p> <p>In 2020, the Fish and Fish Habitat Protection Program (FFHPP) began collaborations with partners, including academia (Acadia University) and ENGOS, to develop and implement a regional Nova Scotia-wide data engagement project to work with partners in promoting Open Data and data-sharing that can support management decisions related to water quality protection, flow management and fish passage protection. DFO funded the Canadian Wildlife Service to develop a National Canadian Barriers Database which may help identify priority areas for regional barrier remediation needs and to work with and support partners to implement restoration projects with respect to Atlantic salmon flow management and fish passage.</p> <p>Implementing the new authorities in the <i>Fisheries Act</i>, which was amended in 2019, requires the development of a suite of new policy frameworks, supporting tools, and instruments. Since coming into force, the FFHPP has developed and implemented the following:</p> <ol style="list-style-type: none"> <li>1. The Fish and Fish Habitat Protection Policy Statement (2019) articulates the Department's interpretation and application of the fish and fish habitat protection provisions of the <i>Fisheries Act</i>.</li> <li>2. Authorizations concerning Fish and Fish Habitat Protection Regulations set out information and documentation requirements for applications for authorization, and establish the process and time limits for the reviews of these applications. The Regulations will also reflect new authorities for amending, suspending, and cancelling authorizations, and allow for increased flexibility in financial guarantees and the use of habitat banking credits as part of offsetting plans.</li> <li>3. Interim codes of practice are non-regulatory instruments developed under new authorities in the <i>Fisheries Act</i>, and consist of proven best management practices to avoid</li> </ol>
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		<p>harmful impacts to fish and fish habitat, from specific types of works. To date, six interim codes of practice are available for comment:</p> <ol style="list-style-type: none"> <li>I. culvert maintenance</li> <li>II. beaver dam removal</li> <li>III. end-of-pipe fish protection screens for small water intakes</li> <li>IV. temporary cofferdams and diversion channels</li> <li>V. routine maintenance dredging</li> <li>VI. temporary stream crossings</li> </ol> <p>4. The interim policy for applying measures to offset adverse effects on Fish and Fish Habitat Under the <i>Fisheries Act</i> provides guidance on meeting requirements for measures to offset the authorized death of fish and the harmful alteration, disruption and destruction of fish habitat.</p> <p>5. DFO publicly releases information on project decisions through an online registry, which went live in March 2020 via the Government of Canada's Open Government platform. The <i>Fisheries Act</i> Registry provides access to information about authorizations issued under the fish and fish habitat protection provisions of the <i>Act</i> since their entry into force in August 2019.</p> <p>The Registry can be found at the following links:  English - <a href="https://open.canada.ca/data/en/dataset/2c09d2fd-9a8e-4d8c-b5af-95747e36eaac">https://open.canada.ca/data/en/dataset/2c09d2fd-9a8e-4d8c-b5af-95747e36eaac</a>  French - <a href="https://ouvert.canada.ca/data/fr/dataset/2c09d2fd-9a8e-4d8c-b5af-95747e36eaac">https://ouvert.canada.ca/data/fr/dataset/2c09d2fd-9a8e-4d8c-b5af-95747e36eaac</a></p> <p>The next version of the <i>Fisheries Act</i> Registry, hosted on the interactive Government of Canada Common Project Search, will go live in April 2021.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A
<b>Action H2:</b>	Description of action (as submitted in the IP):	<p><b>Management of Acid Rain</b></p> <p>Reduction and elimination of acid rain-causing emissions need to be fully implemented in most areas to mitigate losses of wild Atlantic salmon due to acidification. Some liming of watersheds is being used to buffer acidity, especially in Nova Scotia. The West River Acid Mitigation Project, led by the Nova Scotia Salmon Association (NSSA), commenced in 2005 using liming as a buffering technique. The first decade of this project was funded by the NSSA with recent funding coming from collaboration between the federal and provincial governments and continued funding from the NSSA.</p> <p>The following activities will continue during the 2019-2024 IP cycle:</p>

		<ol style="list-style-type: none"> <li>1) Lime dosing using two dosers to directly treat salmon habitat units affected by acid rain;</li> <li>2) Having completed the first experimental tributary (~180ha of limed land), the helicopter catchment liming project will extend to the next priority tributary of the West River watershed;</li> <li>3) Physical habitat restoration within the West River is addressing a legacy of log driving and nearby road construction, to increase water depth of coldwater habitat pools;</li> <li>4) Continued monitoring, including: operation of the adult salmon counting fence; operation of smolt assessment facilities; and, ongoing electrofishing and water chemistry monitoring;</li> <li>5) Expanding research to include the interplay between forest resiliency/ productivity and catchment liming to integrate salmon and forest economics;</li> <li>6) Expanding research on the interplay of acid mitigation of salmon rivers and the potential for carbon sequestration to address national carbon targets with regard to climate change policy; and,</li> <li>7) A regional acid rain mitigation strategy is being developed based on the experience of the West River project. This strategy will identify priority sites for future acid mitigation strategies based on updated water chemistry and salmon resource data (eDNA) and other considerations.</li> </ol>
	<p>Expected outcome <i>(as submitted in the IP):</i></p>	<p>The liming project in West River has had very positive results. Parr numbers have increased by more than 300 per cent and new sections of the river are being recolonized. Liming can be fairly expensive and must be done repeatedly as long as the source of acidity remains.</p>
	<p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i></p>	<p>In 2020, liming using the second doser continued on the Killag River and an additional 80 ha of catchment (land) was limed by helicopter within Tent Brook (both priority tributaries of the West River). Tent Brook was highly acidified and liming will continue until 2022.</p> <p>Due to COVID-19 restrictions, stream physical restoration projects were cancelled.</p> <p>Similarly, Atlantic salmon monitoring was reduced to two juvenile electrofishing surveys. A single-pass survey was completed for 20 sites on Tent Brook to assess efficacy of the liming. No Atlantic salmon were captured in 2020 (only one was captured in 2019). A second three-sweep depletion survey was completed at 5 sites throughout the watershed based on historical salmon estimates, with all but one being treated with lime. A total of 294 juvenile Atlantic salmon</p>

		<p>(251 young-of-year and 43 parr) were sampled during this survey across all sites.</p> <p>In 2020, new research was not initiated with the forest and liming interactions research. Sampling continued for an associated project at the Otter Ponds demonstration forest (Mooseland, Nova Scotia) in support of a strategic study to evaluate the response of commercially-valuable hardwood and softwood trees to catchment liming. Four 4 ha plots were established, two each in hardwood- and softwood-dominated forests. One plot in each hardwood/softwood zone was limed in 2018 at a rate of 10t/ha. Short-term monitoring involved an assessment of liming logistics, forest floor and mineral soils chemical and physical analyses, tree tissue samples for nutrient analyses, and vegetation assessments including regeneration vigor. Further, the team collected baseline data for a 30-year study that fits within the existing Nova Scotia forest assessment model.</p> <p>In 2020, a collaborative project between Dalhousie University, Eosense (a Halifax-based carbon sensing company) and the Nova Scotia Salmon Association was started. Carbon-flux sensors and water quality sondes were installed, detailed water chemistry analyses was collected to assess the lime-associated particulate concentrations within the river above and below the lime dosers, and also measured how lime dosing affected the rate at which carbon evaded (exited) the river. Preliminary results are still being analyzed.</p> <p>Work has been funded and commenced on the planned Regional Acid Mitigation strategy. The current focus is on better characterizing the state of acidification in the West River watershed, identifying the locations where acid mitigation is likely to confer the largest benefit (i.e. where other threats are minimal), and building the tools to help future liming projects (e.g. building the land-based lime spreader).</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A
<b>Action H3:</b>	Description of action (as submitted in the IP):	<p><b>Management of Aquatic Invasive Species (AIS)</b></p> <p>Some examples of collaboration to support conservation of Atlantic salmon in the face of threats from AIS under the framework described in 3.3(b) include:</p> <ul style="list-style-type: none"> <li>• Since 2008, Government and NGO partners have worked to contain smallmouth bass to the Miramichi Lake, initially through the use of a physical barrier and associated physical control methods. Further efforts in 2019 and 2020 have included line fishing, electrofishing, netting, collection of environmental DNA samples to</li> </ul>

		<p>determine the spread of the invasion, and collaborating with the University of New Brunswick to use radioisotopes to determine the source of the smallmouth bass captured in the river. A proposal by NGOs and Indigenous groups to eradicate bass with rotenone, and prevent its eventual possible establishment throughout the Miramichi watershed is currently under regulatory review.</p> <ul style="list-style-type: none"> <li>• In Nova Scotia, the province and DFO have collaborated to undertake targeted removals of smallmouth bass and chain pickerel through electrofishing boat capture and other methods on rivers during smolt emigration. In 2020, rotenone was applied to Piper Lake to eradicate smallmouth bass from the headwaters of the St. Mary's River.</li> </ul>
	<p>Expected outcome (as submitted in the IP):</p>	<p>Implementation for the AIS Regulation will help to prevent introductions of new AIS and to control and manage existing populations.</p> <p>The long-term integrated management plan for smallmouth bass in the Miramichi Lake and in the river will help prevent further spread of this invasive species.</p>
	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>No further progress to the action described above with regards to smallmouth bass in Miramichi watershed. DFO has initiated, in partnership with provincial and Indigenous governments, to adopt a “river-by-river” model for the management of Atlantic salmon in the Miramichi River system. The new initiative seeks to expand the scope of managing Atlantic salmon and its habitat towards an ecosystem-based and multi-species approach.</p> <p>In Nova Scotia, targeted removals of smallmouth bass and chain pickerel are continuing on an annual basis. In addition, a rapid response initiative for smallmouth bass in Piper Lake has begun. The work in 2019 focused on: (1) ensuring containment of the smallmouth bass population within Piper Lake; (2) continuing to control the population using current methodologies; and (3) dewatering the lake to the extent possible to further reduce the potential for downstream migration and potentially induce winter mortality of smallmouth bass. To facilitate containment, a berm and screened water control structure was installed at the outlet of the lake to prevent downstream escapement. The rapid response initiative for smallmouth bass in Piper Lake project continued into 2020 and focused on: (1) continued containment of the smallmouth bass in the lake, (2) federal approval for the province of Nova Scotia to apply rotenone to the lake, and (3) collaboration between DFO and the province to apply rotenone and continued monitoring. Monitoring for the presence of smallmouth bass in 2021 will confirm the effectiveness of treatment and advise on next steps.</p>



		<p>A second rapid response initiative began for smallmouth bass found in Dobson Lake in 2020. The work associated with the Dobson Lake project in 2020 ensure containment of the smallmouth bass population within the lake. DFO in conjunction with the province, has begun development of response plans for dealing with current AIS threats in freshwater, including smallmouth bass and chain pickerel, both high risk threats to Atlantic salmon survival.</p> <p>DFO funds multi-year projects to promote AIS stewardship within N.S., which include at least one of the following themes: (1) AIS education and outreach, (2) assessment of AIS presence, (3) mitigation of AIS and (4) impacts of AIS on Atlantic salmon. Partners leading AIS projects include Nova Scotia Salmon Association, Confederacy of Mainland Mi'kmaq, Clean Annapolis River Project, and Bluenose Coastal Action Foundation.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A

### 3.3 Provide an update on progress on actions relating to Aquaculture, Introductions and Transfers and Transgenics (section 4.11 of the Implementation Plan).

*Note: the reports under 'Progress on action to date' should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

<b>Action A1-A:</b>	Description of action (as submitted in the IP):	<p><b>Legislative and regulatory reform with respect to sea lice</b></p> <p>The federal government is conducting an engagement process on developing a federal Aquaculture Act as well as a comprehensive set of General Aquaculture Regulations in consultation with all provinces and territories. This process will review current regulations, including with respect to sea lice, and seek to strengthen them where appropriate.</p> <p>Newfoundland and Labrador is also undergoing a legislative and regulatory review process, which will include modernization of its fish health management policies.</p> <p>In Nova Scotia, as part of the 2015 Aquaculture Management Regulations, there are provisions associated with sea lice management. There is a sea lice management section within annual Farm Management Plans that support regulatory requirements and establishes minimum procedures for managing sea lice. The current management regime has maintained sea lice numbers below levels that require treatment, and will be maintained and adapted, as required, over the Implementation Plan period.</p> <p>In New Brunswick, regulations require weekly sea lice counts, which are subject to audits by the government, and sea lice are managed under the Integrated Pest Management Plan for Sea Lice. Additionally, the</p>
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		province's anticipated legislative and regulatory review process is expected to explore additional measures to enhance sea lice management in the province.						
	Expected outcome (as submitted in the IP):	Improved implementation and coordination of sea lice management through new regulations, policies and agreements, research, improved monitoring, and dissemination of information.						
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>At the federal level, work continues on the proposed <i>Aquaculture Act</i> and the <i>General Aquaculture Regulations</i>. General engagement sessions for the <i>Act</i> were held with key partners, stakeholders, and the Canadian public throughout the fall / winter of 2020. There were nearly 30 sessions in total with provinces, territories, stakeholders, and environmental non-governmental organizations to discuss the proposed <i>Act</i>. Indigenous engagement will continue through 2021. Further engagement will occur for each phase of the <i>General Aquaculture Regulations</i>.</p> <p>In 2020, Newfoundland and Labrador continues to review their policies for Integrated Pest Management and public reporting for sea lice as part of the provincial legislative and regulatory review process. This work is ongoing and updates will be provided in future annual progress reports.</p> <p>In Nova Scotia, sea lice continue to be monitored at the site level as per the <i>Aquaculture Management Regulations</i>. There have been no regulatory changes for sea lice management in 2020. Levels for salmon lice numbers on Atlantic salmon have been historically low and have not exceeded treatment thresholds since new regulated thresholds were established in 2016 of:</p> <table border="1" data-bbox="491 1164 1364 1406"> <thead> <tr> <th>April, May, June</th> <th>July, August, September</th> <th>October, November, December</th> </tr> </thead> <tbody> <tr> <td>Lice levels equal or greater than 0.5 adult female louse on average, for the site.</td> <td>Lice levels equal or greater than 1.0 adult female louse on average for the site.</td> <td>Lice levels equal or greater than 0.5 adult female louse on average, for the site.</td> </tr> </tbody> </table> <p>New Brunswick is currently creating regulations to coincide with the new <i>Aquaculture Act</i>, acclaimed in 2019, and which will go into effect when regulations are complete.</p>	April, May, June	July, August, September	October, November, December	Lice levels equal or greater than 0.5 adult female louse on average, for the site.	Lice levels equal or greater than 1.0 adult female louse on average for the site.	Lice levels equal or greater than 0.5 adult female louse on average, for the site.
April, May, June	July, August, September	October, November, December						
Lice levels equal or greater than 0.5 adult female louse on average, for the site.	Lice levels equal or greater than 1.0 adult female louse on average for the site.	Lice levels equal or greater than 0.5 adult female louse on average, for the site.						
	Current status of action:	Ongoing						
	If 'Completed', has the action achieved its objective?	N/A						
<b>Action A1-B:</b>	Description of action (as submitted in the IP):	<b>Enhanced use of non-therapeutic measures to address sea lice</b> Provincial regulators in New Brunswick are seeking to address the threat that sea lice pose to wild salmon through the enhanced use of non-therapeutant treatment options. These non-therapeutant sea lice control						



		<p>treatments, such as warm water baths and high pressure water sprays, have greatly reduced the need for and use of approved therapeutants. Further measures to manage sea lice on farms have included single year-class farming, site fallowing, and rotation of treatment regimes.</p> <p>To monitor the effectiveness of these new options, as well as the sea lice threat more generally, regulatory requirements are in place for weekly sea lice counts, which are audited by the province's Department of Agriculture, Aquaculture and Fisheries.</p>
	Expected outcome (as submitted in the IP):	Improved implementation and coordination of sea lice management through the application of effective non-therapeutic treatments.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>The federal government has provided a national policy interpretation for its <i>Aquaculture Activities Regulations</i>, to allow for the use of cleaner fish by the aquaculture industry in support of non-therapeutic methods to control sea lice.</p> <p>Nova Scotia continues to support aquaculturists in the rearing of cleaner fish as an option to the use of therapeutic measures in the control of sea lice on farms within the Atlantic provinces. There are no further changes in respect to enhanced use of the non-therapeutic measures.</p> <p>New Brunswick continues to use all above-mentioned non-therapeutants as well as reporting increased usage of cleaner fish on farms.</p> <p>Use of cleaner fish for sea lice control is being developed and expanded in Newfoundland and Labrador. Non-therapeutic treatment to address sea lice may be addressed in Newfoundland and Labrador's Integrated Pest Management Plan. This option will be explored as part of their ongoing legislative and regulatory review process.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A
<b>Action A2-A:</b>	Description of action (as submitted in the IP):	<p><b>Policy dialogue and development with respect to containment of farmed fish</b></p> <p>As part of the federal General Aquaculture Regulations, which are under development, DFO will consider national standards to further improve the regulatory management of aquaculture across Canada, while respecting provincial jurisdictions. National containment standards may be considered once these regulations are developed.</p> <p>There are several policy dialogue and policy development processes in the Atlantic provinces aimed at addressing the risk of farmed salmon escapes.</p> <p>In New Brunswick, dialogue is taking place through the New Brunswick Aquaculture Containment Liaison Committee, which is comprised of members from the provincial and federal governments, as well as</p>

		<p>conservation groups and the Atlantic Canada Fish Farmers Association. This work with industry and NGOs following up on breaches of containment from aquaculture facilities improves the transparency around escapes. The work of the Committee, with industry assistance, has led to the identification of the origin of aquaculture escapees captured in the wild.</p> <p>The implementation of the Code of Containment for the Culture of Salmonids in Newfoundland and Labrador continues to be a condition of the salmonid aquaculture licence. Further, the Newfoundland and Labrador’s Department of Fisheries and Land Resources is working to make changes to the Code as part of its broader legislative, policy and planning modernization (noted above). This will improve and further clarify containment practices and regulations in the province.</p> <p>Nova Scotia is creating a traceability program that will establish mechanisms to enable regulators to trace salmonids caught in to wild back to the operator of origin. This is being done through the Nova Scotia Salmonids Traceability Committee, made up of stakeholders from federal and provincial agencies, industry, and angling associations. Based on recommendations from the Committee, changes are being made to the Nova Scotia Aquaculture Management Regulations to accommodate the traceability program.</p> <p>An Engineering Working Group has also been established by Nova Scotia to contribute to and comment on the creation of policy around containment structures. The province is developing policies that will define the requirements and processes for the certification and auditing of aquaculture infrastructure designs and installation in the marine environment.</p>
	<p>Expected outcome (as submitted in the IP):</p>	<p>Improved implementation and coordination of farmed fish containment through new regulations, policies, and agreements.</p> <p>Improved monitoring, and dissemination of information on farmed fish containment.</p>
	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>The General Aquaculture Regulations (GAR) is being developed in phases, with the initial phases underway. The GAR will potentially incorporate by reference national standards, developed in collaboration with Provinces and Territories, to further improve the regulatory management of aquaculture across Canada. Among other topics, a national containment standard may be considered.</p> <p>The Nova Scotia Salmonids Traceability Committee has provided advice on the “Containment Management Framework” which outlines the criteria and requirements industry must meet which will enable fish to be traced back to the operator of origin.</p> <p>Nova Scotia has taken the advice from the Engineering Working Group and incorporated that into the “Containment Management Framework”, which outlines criteria industry, engineers and auditors must follow when conducting assessments of aquaculture infrastructure.</p> <p>In Newfoundland and Labrador, policy revisions outline new requirements around containment, monitoring, reporting and inspections.</p>

		<p>In 2020, there was one reported loss of a 600 gram smolt during fish handling.</p> <p>In 2020, Nova Scotia had one reported escape event of rainbow trout where 22,000 fish were reported as having escaped. A third-party audit was conducted per the Nova Scotia Aquaculture Management Regulations. The audit report identified corrective actions and these corrective actions were approved for implementation by the Department of Fisheries and Aquaculture.</p> <p>In New Brunswick, current revisions are being made to the Code of Containment document. No escape events were reported in New Brunswick in 2020.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A
<b>Action A2-B:</b>	Description of action (as submitted in the IP):	<p><b>Technological advancement and research to support containment of farmed fish</b></p> <p>Federally-funded research is ongoing to quantify through targeted surveys the magnitude of farmed salmon escapes, and the annual variation in hybridization. The results of this research will be used to inform the development of any new legislative or regulatory approaches to the management of containment and the impacts of escapement.</p>
	Expected outcome (as submitted in the IP):	Improved research to better understand escapement and the impacts of farm escaped Atlantic salmon on wild stocks.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	Federally-funded research is ongoing to quantify through targeted surveys the magnitude of farmed salmon escapes, and the annual variation in hybridization. The results of this research will be used to inform the development of any new legislative or regulatory approaches to the management of containment and the impacts of escapes. In 2020, one project in this research area concluded, with another five projects continuing into 2021. New projects are also under consideration for future funding.
	Current status of action:	Ongoing

	If 'Completed', has the action achieved its objective?	N/A
<b>Action A3-A:</b>	Description of action (as submitted in the IP):	<p><b>Monitoring and control mechanisms with respect to fish health and emerging diseases</b></p> <p>Canada's provinces have in place a range of mechanisms to monitor fish health and control disease transmission and spread. The mechanisms may be modified as part of the ongoing legislative and regulatory reviews in each province as described above.</p> <p>The Certificate of Health for Transfer was developed by Atlantic provincial veterinarians to help ensure only healthy fish are transferred between hatcheries and to the sea cage environment. In the Atlantic provinces, the movement of live salmon between sea cages is not authorized.</p> <p>In New Brunswick, there are a number of provisions in its legislation and regulations related to aquatic animal health. Currently the province conducts monthly fish health surveillance of each site, both by veterinarians and fish health care professionals.</p> <p>Newfoundland and Labrador is in the process of policy modernization regarding fish health management as part of its legislative, policy and planning modernization. This management regime includes an aquatic animal health surveillance program for diseases.</p> <p>In Nova Scotia, as part of the 2015 Aquaculture Management Regulations, there are a number of regulations associated with aquatic animal health. The province has specifically established an aquatic animal health section within its annual Farm Management Plans that support the regulatory requirements for aquatic animal health. This establishes minimum requirements for procedures and protocols for finfish husbandry and welfare, veterinary care and disease surveillance, biosecurity measures, and general emergency measures, including culling or mass stock depopulation practices. The Regulations also require reporting and contain authority to control disease through isolation, quarantine, depopulation, biosecurity measures, movement controls and following.</p>
	Expected outcome (as submitted in the IP):	Better interdepartmental communication and coordinated federal-provincial action to manage emerging diseases of aquatic organisms, including Atlantic salmon, on the Atlantic coast.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress.	Nova Scotia continues to keep informed on emerging disease issues at three committee tables: NS Introductions and Transfers Committee, Atlantic Canada's Provincial Aquaculture Veterinary Committee and Nova Scotia Department of Fisheries and Aquaculture/Canadian Food Inspection Agency Food and Animal Health Bi-lateral Committee. Emerging disease issues continue to be monitored for within the finfish provincial disease surveillance programs at licensed aquaculture facilities in the province. These programs involve veterinary facility visits and testing of finfish samples. There has been no change in 2020 with respect to these activities.

	<p><i>Other material (e.g. website links) will not be evaluated):</i></p>	<p>In 2020, Newfoundland and Labrador continue to oversee and conduct aquatic animal health surveillance.</p> <p>In New Brunswick, the province continues to conduct monthly fish health surveillance of each site, both by veterinarians and fish health care professionals.</p> <p>The provinces regularly engage with DFO through the Introductions and Transfers committees set up in each Atlantic Province and chaired by DFO.</p>
	<p>Current status of action:</p>	<p>Ongoing</p>
	<p>If 'Completed', has the action achieved its objective?</p>	<p>N/A</p>
<p><b>Action A3-B:</b></p>	<p>Description of action (as submitted in the IP):</p>	<p><b>Research and action with respect to fish health and emerging diseases</b></p> <p>Under the National Aquatic Animal Health Program (NAAHP), DFO delivers diagnostic testing, risk assessment, and research, and provides scientific advice on fish health and emerging diseases. DFO's fish health research is ongoing and contributes to the Department's ability to identify and address threats to wild fish and ecosystem health.</p> <p>As two examples of this research:</p> <ul style="list-style-type: none"> <li>• DFO is currently examining impacts on wild Atlantic salmon from the transmission of Infectious Salmon Anaemia virus (ISAv) originating from Atlantic salmon farms in Atlantic Canada.</li> <li>• DFO has delivered nine individual peer-reviewed disease risk assessments of the risk to Fraser River sockeye salmon from pathogens on Atlantic salmon farms in the Discovery Islands, British Columbia. The scientific evidence from these risk assessments will also help to inform the management of disease risks associated with wild-farmed salmon interactions in eastern Canada.</li> </ul> <p>The Canada Food Inspection Agency (CFIA) is recognized as the lead federal authority for aquatic animal health in Canada. The CFIA's responsibilities include monitoring for emerging diseases, conducting risk assessments, and implementing emerging disease controls. A federal emerging disease committee will be established between CFIA and DFO to identify, evaluate, and recommend potential management actions on emerging infectious disease of wild and cultured aquatic animals.</p>
	<p>Expected outcome (as submitted in the IP):</p>	<p>The disease risk assessments are expected to provide improved scientific advice for the management of disease risks associated with wild-farmed salmon interactions in Atlantic Canada.</p> <p>The joint CFIA-DFO emerging disease committee is expected to improve the process of understanding and evaluating potential emerging diseases of wild and cultured aquatic animals. The committee will improve interdepartmental communication and enable a coordinated federal response.</p>

	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>Under the NAAHP, DFO continues to deliver diagnostic testing, risk assessment, and research, and provides scientific advice on fish health and emerging diseases.</p> <p>The CFIA and DFO developed the CFIA-DFO Joint Operational Policy on Emerging Aquatic Animal Diseases (ED policy). The ED policy was ratified in October 2020.</p> <p>As established in the ED policy, a federal emerging disease committee was formed between CFIA and DFO to identify, evaluate, and recommend potential management actions on emerging infectious disease of wild and cultured aquatic animals. The committee will improve interdepartmental communication and enable a coordinated federal response.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	N/A

<b>4: Additional information required under the Convention</b>
4.1 Details of any laws, regulations and programmes that have been adopted or repealed since the last notification.
None, other than those noted in the responses above.
4.2 Details of any new commitments concerning the adoption or maintenance in force for specified periods of time of conservation, restoration, and other management measures.
None, other than those noted in the responses above.
4.3 Details of any new actions to prohibit fishing for salmon beyond 12 nautical miles.
Nil.
4.4 Details of any new actions to invite the attention of States not party to the Convention to matters relating to the activities of its vessels which could adversely affect salmon stocks subject to the Convention.
Nil.
4.5 Details of any actions taken to implement regulatory measures under Article 13 of the Convention including imposition of adequate penalties for violations.
Nil.
<b>North American Commission Members only:</b>
4.6 Details of any new measures to minimise bycatches of salmon originating in the rivers of the other member.
None, other than those noted in the responses above.
4.7 Details of any alteration to fishing patterns that result in the initiation of fishing or increase in catches of salmon originating in the rivers of another Party except with the consent of the latter.
Nil.

## **Addendum**

### Update on enforcement activities in Canada in 2020

This paper updates the information on enforcement activities in Quebec contained in the Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2020 – Canada (CNL(21)45), as follows:

#### Section 3.1

##### Action F2: Action against illegal fishing

Quantitative overview of actions against illegal fishing by the ministère des Forêts, de la Faune et des Parcs du Québec in 2020 :

Patrol hours = 39,215

Fishers checked = N/A

Fishing sites checked = N/A

Detected violations = 162