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|  | Council <i>Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2021 United States</i> | CNL(22)28 |
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Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2021

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 2022.**

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| Party: | United States |
| Jurisdiction / Region: | |

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| 1: Changes to the Implementation Plan |
| 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). |
| N/A |
| 1.2 Describe any major new initiatives or achievements for salmon conservation and management that you wish to highlight. |
| <ol style="list-style-type: none"> 1. PLANNING: In 2021, three geographically specific work plans were completed that identify and prioritise highest priority actions needed to further recovery of Atlantic salmon (Action H3). These plans are intended to guide restoration efforts and funding priorities for Atlantic salmon recovery efforts. 2. RESTORATION: In 2021, NOAA-Fisheries provided \$900,000 towards freshwater habitat restoration projects aimed at restoring habitat for endangered Atlantic salmon. Funding was provided in support of 18 road crossing projects and 4 dam projects. https://www.fisheries.noaa.gov/feature-story/900000-funding-recommended-atlantic-salmon-habitat-restoration (Action H3). Furthermore, 24 connectivity projects were |

- completed in 2021 improving access to 61 km of rivers and streams. In doing so, these projects restored full connectivity to 123 units of salmon habitat and improved access to another 774 units (where 1 unit = 100m²) (Action H1).
3. OUTREACH: In 2021, we created an animated video that highlights the threats Atlantic salmon face and actions that the public can take to protect and restore Atlantic salmon and their ecosystems. The video can be viewed at: <https://videos.fisheries.noaa.gov/detail/videos/protected-species/video/6259928987001/atlantic-salmon-animation?autoStart=true>
 4. REGULATION: In 2021, We issued regulatory requirements for the Brunswick and Pejepscoot Dams on the Androscoggin River that will require improvements in upstream and downstream passage for Atlantic salmon (Action H2).

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.

For 2021, no new factors significantly affected the abundance of wild salmon stocks in the United States. Provisionally, there were 680 adult returns to U.S. waters in 2021. This count includes 676 returns to the GOM DPS; 0 to the Central New England complex; and 4 to the Long Island Sound complex.

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 2021 (tonnes) | 0 | 0 | 0 | 0 |
| (b) confirmed nominal catch of salmon for 2020 (tonnes) | 0 | 0 | 0 | 0 |
| (c) estimated unreported catch for 2021 (tonnes) | 0* - See our response to F3 | 0 | 0 | 0 |
| (d) number and percentage of salmon caught and released in recreational fisheries in 2021 | There are no recreational fisheries for sea-run Atlantic salmon in the United States. There are, however, small fisheries for domestic broodstock in the Naugatuck and Shetucket Rivers in Southern New England; these rivers are outside the geographic range of endangered wild Atlantic salmon. | | | |

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*

| <p><i>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.</i></p> | | |
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| Action F1: | Description of action <i>(as submitted in the IP):</i> | Reduce mortality of U.S.-origin salmon in mixed-stock fisheries by remaining active in the West Greenland Commission (WGC) and the North American Commission (NAC). |
| | Expected outcome <i>(as submitted in the IP):</i> | <p>a) Maintenance of existing mortality attributable to the West Greenland fishery as measured by the quota currently set at 30mt through 2020 (note: specific outcomes beyond 2020 cannot be determined at this time as the existing regulatory measure applies only for 2018, 2019, and 2020)</p> <p>b) Agreement on a regulatory measure in 2021</p> <p>c) Maintenance of low levels (previously estimated at 30 to 40 U.S.-origin salmon per year) of interception of U.S.-origin salmon in the mixed-stock fishery in Labrador</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>In 2021, the United States worked cooperatively with the Parties of the WGC to develop a new one-year regulatory measure for the West Greenland fishery. While it did not contain all of the provisions that the United States feels are necessary to ensure appropriate management of the fishery and that the quota is not exceeded, the regulatory measure did maintain a number of important elements designed to improve the management of the fishery, including limiting harvests and monitoring and control measures. Effective implementation of these requirements is expected to provide conservation benefits to contributing stocks, including critically endangered U.S.-origin salmon.</p> <p>It will be necessary to negotiate a new measure in 2022. The United States continues to participate fully in the work of the WGC, including multiple intersessional meetings to evaluate the outcomes of the 2021 fishery against the 2021 regulatory measure and to begin discussions for a new measure in 2022. In light of the continuing need for strong protection of U.S.-origin salmon, the United States is eager to work with WGC members to develop and adopt a new regulatory measure in 2022 that contains all of the necessary provisions to ensure appropriate management, monitoring and control of the fishery that continues to persist against the scientific advice.</p> <p>The United States remains an active participant in the NAC and continues to encourage Canada to evolve its sampling of this fishery to ensure improved characterization of the impact of the fishery on U.S.-origin salmon. We continue to urge Canada to implement fishery management measures that eliminate the catch of U.S.-origin salmon in the Labrador fishery and, towards this end, additional management action has been taken in recent years. Continually increasing the efficacy of the sampling in Labrador, either through increased sampling, targeted sampling or a combination of both, would</p> |

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| | | greatly assist in evaluating the effectiveness of these management actions. |
| | Current status of action: | Ongoing |
| | If 'Completed', has the action achieved its objective? | |
| Action F2: | Description of action (as submitted in the IP): | Reduce bycatch of Atlantic salmon in recreational fisheries for other species, such as brook trout, to the maximum extent possible. |
| | Expected outcome (as submitted in the IP): | Closures of certain areas of rivers, gear restrictions, bag limit reductions, publication of species identification guides in fishing law books, prosecution of poachers when necessary, among others. Note: this action (and therefore the expected outcome) does not lend itself to quantitative measures because specific estimates of bycatch are not available. Thus, developing quantitative targets is not possible. Reporting on progress under this action will, therefore, focus on qualitative aspects (using specific examples where possible) with the assumption that activities under this action will correlate with reductions in mortality of Atlantic salmon attributable to bycatch. |
| | 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): | The federal Endangered Species Act prohibits any "take" of endangered Atlantic salmon. The State of Maine maintains stringent regulations governing recreational fishing (https://www.maine.gov/ifw/docs/20-MDIFW-30-Fishing-Lawbook-2021.pdf) in salmon habitats that remained in place in 2021. These regulations explain that sea-run salmon are federally endangered and cannot be removed from the water. Anglers are also prohibited from retaining landlocked salmon and brown trout above 63 cm to ensure that adult sea-run salmon are not incidentally captured and retained. A minimum length limit of 15 cm on brook trout and brown trout and 35 cm for landlocked salmon ensures that Atlantic salmon parr are not incidentally retained during recreational fisheries. Area closures and gear restrictions are also in place on many Atlantic salmon rivers where adult salmon are known to congregate. These areas include downstream of dams with fishways, and areas that are known to serve as cold water refugia or holding areas for adult salmon. We also work closely with state and federal law enforcement to call attention to sites where poaching of Atlantic salmon may be more likely to occur to ensure that they receive sufficient surveillance (See action F3). |
| | Current status of action: | Ongoing |
| | If 'Completed', has the action achieved its objective? | |

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| Action F3: | Description of action <i>(as submitted in the IP):</i> | Reduce poaching of Atlantic salmon to the maximum extent possible. |
| | Expected outcome <i>(as submitted in the IP):</i> | Deterrence of illegal activity and prosecutions of poachers when necessary. |
| | 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>The federal Endangered Species Act prohibits any "take" of endangered Atlantic salmon. In 2021, the State of Maine maintained stringent regulations governing recreational fishing in areas supporting Atlantic salmon (described in F2 above).</p> <p>In 2021, Marine Patrol Officers documented 929 hours of targeted Atlantic Salmon enforcement with a combination of aircraft, watercraft, motor vehicle, foot patrol, and surveillance details. Law enforcement officials also conducted an additional 44,500 hours of general fishing enforcement on freshwater rivers and streams, and thousands of hours enforcing smelt, alewife, elver, striped bass, and shad fishing regulations along Maine’s coastal rivers.</p> <p>Targeted efforts are spent watching fishermen near fishways, dams and other pools and areas where Atlantic salmon are known to congregate. Extra focus is spent at known pools considered to be potential hotspots for poaching in the Penobscot, Machias and Narraguagus River watersheds. In 2021, only two fishing violations were issued for fishing in closed areas and another fishing violation that involved the catch of an adult Atlantic salmon in Casco Bay is currently being investigated.</p> <p>In addition to enforcement efforts, law enforcement staff conduct outreach by talking directly with anglers about fishing laws and posting “know your catch” posters that help anglers identify Atlantic salmon and other salmonids.</p> |
| | Current status of action: | Ongoing |
| If ‘Completed’, has the action achieved its objective? | | |
| Action F4: | Description of action <i>(as submitted in the IP):</i> | Reduce mortality of Atlantic salmon by (1) maintaining closures for all directed fisheries for Atlantic salmon consistent with the existing Fishery Management Plan under the Magnuson-Stevens Fisheries Conservation and Management Act and (2) reducing bycatch of Atlantic salmon in fisheries for other species to the maximum extent possible. |
| | Expected outcome <i>(as submitted in the IP):</i> | Zero mortality of Atlantic salmon attributable to (1) directed salmon fisheries and (2) bycatch of Atlantic salmon in other commercial fisheries. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified</i> | In 2021, there continued to be no directed fisheries for sea-run Atlantic salmon in the United States consistent with the existing Fishery Management Plan issued under the Magnuson-Stevens Fisheries Conservation and Management Act. There are, however, small fisheries for domestic broodstock in the Naugatuck and Shetucket Rivers in Southern |

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| | <p><i>evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i></p> | <p>New England; these rivers are outside the geographic range of endangered wild Atlantic salmon.</p> <p>We continue to monitor bycatch of Atlantic salmon in commercial fisheries. NOAA maintains a vessel landings database, a dealer purchases database, and an observer database for commercial fisheries subject to federal jurisdiction. To ensure that bycatch of Atlantic salmon in other commercial fisheries remains insignificant, each year, we query these databases. For 2021, our query of the dealer purchases database and vessel landings database revealed no records of Atlantic salmon being caught. For the observer database, bycatch of Atlantic salmon remains a rare event. Interactions have been observed in only 7 of the 30-year time series, and no Atlantic salmon have been observed since August 2013. Reporting is complete through August, 2021.</p> |
| | <p>Current status of action:</p> | <p>Ongoing</p> |
| | <p>If ‘Completed’, has the action achieved its objective?</p> | |

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| <p>3.2 Provide an update on progress on actions relating to Habitat Protection and Restoration (section 3.5 of the Implementation Plan). <i>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.</i></p> | | |
| <p>Action H1:</p> | <p>Description of action (as submitted in the IP):</p> | <p>Improve fish passage by removing dams, installing fishways, removing culverts, decommissioning roads, and upgrading road-stream crossings.</p> |
| | <p>Expected outcome (as submitted in the IP):</p> | <p>By 2024, restore connectivity to 5,000 units of suitable Atlantic salmon habitat (as defined in the Atlantic salmon Recovery Plan).</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>Progress was made at restoring connectivity through improving fish passage at 21 culverts, and 3 dam projects in 2021.</p> <p>The estimates of habitat gains are preliminary and will be adjusted in future annual reports. Only habitat units above projects with unimpeded access from the ocean are considered accessible and count towards our goal of restoring 5,000 units of habitat. For example, a dam removal that occurs upstream of an existing barrier or partial barrier to passage would not be included in the estimate. Habitat gains are reported in habitat units, where 1 habitat unit equals 100m².</p> <p>Recognizing the important work that our conservation partners are doing throughout the watersheds where Atlantic salmon live, we are also including a summary of salmon habitats</p> |

| | | where access was improved but there remains a partial barrier downstream, even though these habitat improvements currently do not count towards our recovery goals. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|---|-------------------------------------|---|--|---|--|------------------|----------|------------------|----|----|---------------|---|---------------|---|-----|------------------|-------|------------------|----|-------|--------------|--------------|--------------|------------|--------------|------------|------------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th rowspan="2">Salmon Habitat Recovery Unit (SHRU)</th> <th colspan="2"># of Projects</th> <th rowspan="2">Habitat units made accessible (no barriers below)</th> <th rowspan="2">Habitats with improved access (partial barriers below)</th> </tr> <tr> <th>Dams</th> <th>Culverts</th> </tr> </thead> <tbody> <tr> <td>Downeast Coastal</td> <td>1</td> <td>2</td> <td>87</td> <td>0</td> </tr> <tr> <td>Penobscot Bay</td> <td>1</td> <td>23</td> <td>0</td> <td>544</td> </tr> <tr> <td>Merrymeeting Bay</td> <td>1</td> <td>3</td> <td>36</td> <td>230</td> </tr> <tr> <td>Total</td> <td>3</td> <td>21</td> <td>123</td> <td>774</td> </tr> </tbody> </table> | Salmon Habitat Recovery Unit (SHRU) | # of Projects | | Habitat units made accessible (no barriers below) | Habitats with improved access (partial barriers below) | Dams | Culverts | Downeast Coastal | 1 | 2 | 87 | 0 | Penobscot Bay | 1 | 23 | 0 | 544 | Merrymeeting Bay | 1 | 3 | 36 | 230 | Total | 3 | 21 | 123 | 774 |
| Salmon Habitat Recovery Unit (SHRU) | # of Projects | | | Habitat units made accessible (no barriers below) | Habitats with improved access (partial barriers below) | | | | | | | | | | | | | | | | | | | | | | | | |
| | Dams | Culverts | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Downeast Coastal | 1 | 2 | 87 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Penobscot Bay | 1 | 23 | 0 | 544 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Merrymeeting Bay | 1 | 3 | 36 | 230 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 3 | 21 | 123 | 774 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Summary table towards achieving goal of 5,000 accessible habitat units (across all SHRUs): | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th></th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Downeast Coastal</td> <td></td> <td></td> <td>87</td> <td>87</td> </tr> <tr> <td>Penobscot Bay</td> <td></td> <td>152</td> <td></td> <td>152</td> </tr> <tr> <td>Merrymeeting Bay</td> <td>2,656</td> <td></td> <td>36</td> <td>2,692</td> </tr> <tr> <td>Total</td> <td>2,656</td> <td>152</td> <td>123</td> <td>2,931</td> </tr> </tbody> </table> | | 2019 | 2020 | 2021 | Total | Downeast Coastal | | | 87 | 87 | Penobscot Bay | | 152 | | 152 | Merrymeeting Bay | 2,656 | | 36 | 2,692 | Total | 2,656 | 152 | 123 | 2,931 | | |
| | 2019 | 2020 | 2021 | Total | | | | | | | | | | | | | | | | | | | | | | | | | |
| Downeast Coastal | | | 87 | 87 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Penobscot Bay | | 152 | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Merrymeeting Bay | 2,656 | | 36 | 2,692 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 2,656 | 152 | 123 | 2,931 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Current status of action: | Ongoing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | If 'Completed', has the action achieved its objective? | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Action H2: | Description of action (as submitted in the IP): | Improve fish passage at hydroelectric dams through dam removal or construction of effective fishways and the implementation of adaptive management strategies to achieve passage efficiency and survival targets for dams that cannot be removed. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Expected outcome (as submitted in the IP): | By 2024, restore connectivity to 10,000 units of suitable Atlantic salmon habitat and reduce mortality and injury of smolts and kelts at hydroelectric dams. | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | <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>For most hydro-electric dams in areas where salmon live, for the habitat upstream to be considered “accessible” upstream and downstream passage effectiveness must be 95% or greater. No additional habitat units were made accessible due to improvements in fish passage at hydroelectric dams in calendar year 2021. However, progress has been made towards implementing and verifying effective passage through the relicensing of projects under the U.S. Federal Power Act (FPA), and through consultation requirements of the U.S. Endangered Species Act (ESA). The objective in these proceedings is to implement effective upstream and downstream fish passage and reduce the impact of hydroelectric dams and their operations on Atlantic salmon and the ecosystems on which they depend. Consultations addressing the implementation of effective fish passage are currently ongoing at all mainstem hydro dams within designated critical habitat in the Gulf of Maine population. Brookfield Renewable operates the four lower river dams on the Kennebec River; they constructed a new fishway at the second lower-most dam on the river in 2017. This company has also proposed to install new upstream fishways at the remaining three dams in order to achieve ESA and FPA regulatory compliance. When complete, this will result in a significant increase in habitat accessibility in the Kennebec River watershed.</p> <table border="1" data-bbox="679 1137 1390 1408"> <thead> <tr> <th></th> <th>FPA Relicensing that are ongoing</th> <th>ESA Consultations in place or underway</th> </tr> </thead> <tbody> <tr> <td>SHRU</td> <td></td> <td></td> </tr> <tr> <td>Merrymeeting Bay</td> <td>6</td> <td>11</td> </tr> <tr> <td>Penobscot Bay</td> <td>4</td> <td>5</td> </tr> <tr> <td>Downeast Coastal</td> <td>2</td> <td>1</td> </tr> </tbody> </table> | | FPA Relicensing that are ongoing | ESA Consultations in place or underway | SHRU | | | Merrymeeting Bay | 6 | 11 | Penobscot Bay | 4 | 5 | Downeast Coastal | 2 | 1 |
|--------------------------|---|---|--|----------------------------------|--|------|--|--|------------------|---|----|---------------|---|---|------------------|---|---|
| | FPA Relicensing that are ongoing | ESA Consultations in place or underway | | | | | | | | | | | | | | | |
| SHRU | | | | | | | | | | | | | | | | | |
| Merrymeeting Bay | 6 | 11 | | | | | | | | | | | | | | | |
| Penobscot Bay | 4 | 5 | | | | | | | | | | | | | | | |
| Downeast Coastal | 2 | 1 | | | | | | | | | | | | | | | |
| | <p>Current status of action:</p> | <p>Ongoing</p> | | | | | | | | | | | | | | | |
| | <p>If ‘Completed’, has the action achieved its objective?</p> | | | | | | | | | | | | | | | | |
| <p>Action H3:</p> | <p>Description of action <i>(as submitted in the IP):</i></p> | <p>Develop and implement a freshwater protection, restoration, and enhancement strategy by 2024 for each of the three salmon habitat recovery units (actions PBS6.4, MBS7.4 and DES5.4 in the current recovery plan).</p> | | | | | | | | | | | | | | | |
| | <p>Expected outcome <i>(as submitted in the IP):</i></p> | <p>Geographically explicit freshwater protection, restoration, and enhancement strategy for each of the three recovery units. These strategies will explicitly consider protection of climate-resilient spawning and rearing habitats for each recovery unit in the face of climate change.</p> | | | | | | | | | | | | | | | |

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| | <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 2021, we completed our geographically explicit freshwater protection, restoration and enhancement strategies (five-year work plans) for the three geographic areas where wild salmon remain: Penobscot, Merrymeeting Bay and Downeast. These work plans detail conservation goals and priorities within each geographic area and priority actions necessary to advance these areas towards meeting the delisting criteria identified in the 2019 recovery plan. Each of the recovery teams in these geographic areas are now working to implement these plans.</p> <p>In support of the five-year work plans, NOAA Fisheries provided \$900,000 in 2021 towards projects identified in these plans that restore habitat for endangered Atlantic salmon. Funding was provided in support of 18 road crossing projects and 4 dam projects.</p> |
| | <p>Current status of action:</p> | <p>Complete</p> |
| | <p>If ‘Completed’, has the action achieved its objective?</p> | <p>We have achieved our desired outcome of completing geographically explicit freshwater restoration strategies. Implementation of these strategies will be ongoing for years to come and it will, therefore, take some time before we can assess whether the overall objectives of the work plans described in this Action have been achieved.</p> |

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.*

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| <p>Action A1:</p> | <p>Description of action (as submitted in the IP):</p> | <p>Sea Lice - Minimize sea lice loads on commercial aquaculture fish being reared in marine net pens to reduce risks to salmon in the wild each year. This will be accomplished by mandatory fallowing, monitoring of lice levels (monthly when temperatures range from 6 – 8°C and bimonthly when temperatures exceed 8°C), and mandatory treatments when thresholds for sea lice counts are exceeded (1 gravid female and 5 pre-adult lice).</p> |
| | <p>Expected outcome (as submitted in the IP):</p> | <p>a) Lice loads in marine net pens maintained at a level below the predetermined thresholds, and b) Treatment when necessary (monitoring reveals sea lice levels above threshold levels) to ensure that risks to salmon in the wild remain low.</p> |
| | <p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress.</p> | <p>This action was considered unacceptable in our implementation plan as it does not demonstrate clear progress towards reducing sea lice loads on wild salmonids.</p> <p>Work has begun in developing a decision support tool to guide aquaculture sea lice management in the United States, and to</p> |

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| | <p><i>Other material (e.g. website links) will not be evaluated):</i></p> | <p>expand on the existing knowledge base of sea lice biology and distribution in Cobscook and Passamaquoddy Bay; places where aquaculture is most active. The goal is to better understand the seasonal abundance and distribution of sea lice within these areas in order to better manage and reduce sea lice loads in commercial aquaculture. Additionally, coordinated fallowing efforts between Bay Management areas aims to further reduce the overall abundance and reproduction rates. These measures are intended to minimise sea lice loads found in the environment and subsequently reduce lice infection in commercial salmon farms and on wild salmon.</p> <p>The main objectives of this work involves developing a model that would incorporate environmental conditions such as tides, current and flow to understand distribution of juvenile sea lice before settlement onto the primary host. The model will also look at the biology of the species and prevalence among the commercial sites within each Bay Management Area. This information could help explain where the initial source of infectious pressure may be located and help inform more effective sea lice management throughout the United States and Canada.</p> <p>In addition, a new publication is anticipated in 2022 that investigated the prevalence rates and propagule pressure put on wild salmon held in sentinel cages throughout Cobscook Bay. This work was initially conducted in 2013-2015 and was published in 2018 (Frederick et al. 2018).</p> |
| | <p>Current status of action:</p> | <p>Ongoing</p> |
| | <p>If ‘Completed’, has the action achieved its objective?</p> | |
| <p>Action A2:</p> | <p>Description of action (as submitted in the IP):</p> | <p>Containment --- Minimize effects to wild salmon from genetic introgression from escaped aquaculture-origin salmon by ensuring that containment measures are maintained at 100% of all salmon farms each year.</p> |
| | <p>Expected outcome (as submitted in the IP):</p> | <p>No escapees of U.S origin spawning in the rivers containing endangered salmon.</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 2021, we achieved our objectives of minimizing effects of wild salmon from genetic introgression from farmed raised salmon. The containment management system (CMS) remains in place for 100% of salmon farms in Maine. The CMS (a condition of federal permits) requires the aquaculture industry to report any escapes of 50 fish or more that are 2kg or larger or a 25% reduction in biomass for marine net pens. There were no reportable escape events from commercial farms in Maine in 2021. However, four aquaculture origin Atlantic salmon were captured in a fishway at the first dam located at the head of tide on the Union River in Eastern Maine. Currently, there are no wild populations of Atlantic</p> |

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| | | <p>salmon in the Union River. The aquaculture fish were not allowed to pass upstream of the dam.</p> <p>A follow up genetic analysis of fin tissue from the 4 captured salmon verified all of the fish originated from a commercial Atlantic salmon grow-out site (Black Island South) in Penobscot Bay which belongs to Cooke Aquaculture. A follow up Containment Management System audit was inconclusive as to the cause of the escape from the facility. Discussions are ongoing with Cooke Aquaculture to further investigate the cause of the escape event and, if appropriate, to require implementation of standard operating procedures to eliminate escapes similar to this in the future. No aquaculture fish were captured at fishways with fish handling facilities on either the Penobscot or Narraguagus Rivers, which are the next closest rivers to the Black Island commercial aquaculture site.</p> <p>For detailed information on industry permitting and reporting requirements please refer to the U.S. Implementation Plan.</p> |
| | Current status of action: | Ongoing |
| | If 'Completed', has the action achieved its objective? | |
| Action A3: | Description of action (as submitted in the IP): | Implement broodstock management protocols at conservation hatcheries on an annual basis. |
| | Expected outcome (as submitted in the IP): | Reduce or eliminate the loss in diversity from endangered populations. |
| | 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 2021, we continued monitoring genetic diversity within seven river-specific broodstock populations to ensure the goals of the conservation hatcheries are being met. Estimates of genetic diversity were obtained from parr-based broodstock collected in 2019 and the sea-run fish sampled during the return in 2021. Maintenance of genetic diversity remains the primary goal of the conservation hatchery program: to maintain the genetic characteristics of each individual broodstock, to allow for diversity to persist for natural selection and adaptation to occur, and to ensure that genetic diversity is not being lost inadvertently due to management practices. Estimates of heterozygosity (observed and expected) compared over time within a broodstock and between broodstocks indicate that similar levels of diversity are present in each broodstock; however, some broodstocks, particularly the Pleasant and Sheepscot rivers have decreased estimates of allelic diversity relative to other broodstocks. In the case of the Pleasant River, decreased diversity is likely a result of decreased broodstock number and historic genetic bottleneck, and in the Sheepscot likely due to consistently low estimates of effective population size. Average estimates of effective population size (N_e) also vary between broodstocks from 70.1-141.3 for most populations (from 2008 to 2019), to 413.1 for</p> |

the Penobscot (an average for 2008 - 2021). The much larger N. for the Penobscot River is due to the larger total broodstock number and overall size of that population. The most recent estimates of effective population size are provided in Table A3 (below) and reflect estimates of the number of breeders for the parr-collected broodstocks primarily from a single cohort. The estimate for the Penobscot River is based on multiple year classes of returning adults sampled at time of spawning. Due to the difference in collection times and year classes, there is a two-year lag in the sample year between the two groups (parr and adult).

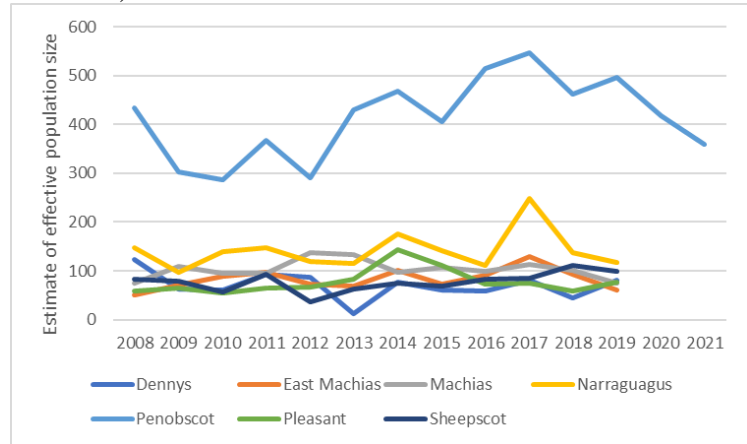


Figure A3. Estimates of effective population size for the seven Atlantic salmon broodstocks managed through the conservation hatchery program in Maine based on time of sampling: as parr for the parr-based broodstocks reflecting the number of breeders since each collection year is predominately a single cohort, and estimates of effective population size for returning adults for the Penobscot River, comprised of multiple cohorts (data obtained by the U.S. Fish and Wildlife Service).

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| | Current status of action: | Ongoing |
| | If 'Completed', has the action achieved its objective? | |
| Action A4: | Description of action (as submitted in the IP): | Reduce stocking of non-native salmonids in the freshwater range of endangered salmon to ensure that predatory and competitive effects are minimized. |
| | Expected outcome (as submitted in the IP): | Minimally, the current locations for stocking non-native salmonids will be maintained where only the Sandy River is routinely stocked with brown trout. |
| | Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. | In 2021, there continued to be no stocking of non-native salmonids in rivers that support endangered Atlantic salmon. However, there continues to be brown trout stocked in the Sandy River, which is actively being managed for Atlantic salmon recovery efforts. Stocking of brown trout in the Sandy has either decreased or been maintained throughout the term of this reporting cycle, which is consistent with our expected outcome. |

| <i>website links) will not be evaluated):</i> | | | | | | | | | |
|---|---|--|------|--------|------|-------|------|-------|------|
| | | <table border="1"> <thead> <tr> <th>Year</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>2019</td> <td>4,600</td> </tr> <tr> <td>2020</td> <td>3,700</td> </tr> <tr> <td>2021</td> <td>3,700</td> </tr> </tbody> </table> | Year | Number | 2019 | 4,600 | 2020 | 3,700 | 2021 |
| Year | Number | | | | | | | | |
| 2019 | 4,600 | | | | | | | | |
| 2020 | 3,700 | | | | | | | | |
| 2021 | 3,700 | | | | | | | | |
| | <p>As a product of decades of stocking, brown trout now spawn successfully and have become well-established in the Sandy River. The impact that brown trout are having on the already very low populations of Atlantic salmon in these systems is not well known.</p> <p>Non-native brown trout and rainbow trout are also routinely stocked in lakes and ponds throughout the range of the Gulf of Maine population that currently do not support wild sea-run Atlantic salmon. There are also a few rivers that are stocked with brown trout that currently do not have known populations of Atlantic salmon but are designated as Atlantic salmon critical habitat. Over the last year, no additional progress has been made to further reduce the stocking of non-native salmonids (i.e., brown trout) to minimise interactions with wild Atlantic salmon although such stocking has not increased.</p> | | | | | | | | |
| | Current status of action: | Ongoing. | | | | | | | |
| | If 'Completed', has the action achieved its objective? | | | | | | | | |

| 4: Additional information required under the Convention | |
|--|---|
| 4.1 | Details of any laws, regulations and programmes that have been adopted or repealed since the last notification. |
| | N/A |
| 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. |
| | N/A |
| 4.3 | Details of any new actions to prohibit fishing for salmon beyond 12 nautical miles. |
| | N/A |
| 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. |
| | N/A |

| | |
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| 4.5 | Details of any actions taken to implement regulatory measures under Article 13 of the Convention including imposition of adequate penalties for violations. |
| | N/A |
| North American Commission Members only: | |
| 4.6 | Details of any new measures to minimise bycatches of salmon originating in the rivers of the other member. |
| | N/A |
| 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. |
| | N/A |