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By NSARB at 3:43 pm, Oct 09, 2025

Movement patterns and predator-prey interactions of domestic Atlantic salmon (Salmo salar) following an experimental release in a highly dynamic marine environment

The global seafood production of marine finfish is dominated by Atlantic salmon (Salmo salar) reared in marine net-pens. Incidents and structural failures may lead to salmon escaping net-pens with their fate being poorly understood, particularly for small-scale escape events (N < 100). This study sought to identify spatial patterns and the fate of Atlantic salmon post-smolts following a simulated escape event from an aquaculture site in the Bay of Fundy. Farmed salmon (N = 99) were implanted with an ultrasonic acoustic tag and were released from a farm in small groups (N ≤ 5). Using an established acoustic array, we tracked fish movement patterns and mortality over a ~4 month period. Predation events by warm-bodied predators were assayed using the tag's temperature sensors. Fish took ~5.0 h to leave the release site and initially opted to either move further inshore (N = 8) or out to sea (N = 73), though a large number of fish returned to the release site spending a large proportion of their time budget there (~26.4%). Several fish (N = 14) were also observed in nearby river estuaries. Most fish (72.7%) succumbed to predation shortly after release (mean time to predation = 57.9 h). Our findings suggest that there is a strong association of salmon with the release site that may result from seasonal migratory tendencies,

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Contact
Email: open-ouvert@tbs-sct.gc.ca

Keywords:
Aquaculture
Oceans
Statistical analysis
Fish
Aquatic animals

which could be exploited to improve recovery of escapees. Also, predation may serve to limit the number of escapee salmon entering the natural environment following a small-scale release.

Cite this data as: Lawrence, M.J., Wilson, B.M., Wringe, B.F., Hawkes, J.P., Hardie, D.C., Hamoutene, D., Flávio, H., English, G., Black, M., McKindsey, C.W., Trudel, M. Movement patterns and predator-prey interactions of domestic Atlantic salmon (Salmo salar) following an experimental release in a highly dynamic marine environment. Published April 2025. Coastal Ecosystem Science Division, Fisheries and Oceans Canada, St Andrews, NB.

Publisher - Current Organization Name: Fisheries and Oceans Canada

Publisher - Organization Section Name: Coastal Ecosystem Science Division (CESD)

Licence: Open Government Licence - Canada

Data and Resources

Data preparation and telemetry analyses code

English specification HTML

Explore

Predator identification code

English specification HTML

Explore

Contact Information

Delivery Point: 125 Marine Science Drive

City: St. Andrews

Administrative Area: New Brunswick

Postal Code: E5B 0E4

Country: Canada

Experiments

Fisheries management

Salmon

Tagging

Aquaculture Ecosystems Interactions Program (AEIP)

Competitive Science Research Fund (CSRF)

Subject:

Nature and Environment

Science and Technology

Topic category:

Biota

Environment

Oceans

Maintenance and Update Frequency: Not Planned

Status: Completed

Date Published: 2025-04-02

Date Modified: 2025-04-01

Temporal Coverage:

Electronic Mail Address: DFO.CESDDataRequest-DSECDemandededonnes.MPO@dfo-mpo.gc.ca

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Record Released: 2025-05-20

Record Modified: 2025-05-20

Record ID: 3cc1c921-152b-4b8f-81b4-ebb1b13a3f53

Metadata:

Link to JSON format

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Data Contact

Organization Name: Government of Canada; Fisheries and Oceans Canada; Coastal Ecosystem Science Division (CESD)

Email: DFO.CESDDataRequest-DSECDemandededonnes.MPO@dfo-mpo.gc.ca

City: St. Andrews

Country: Canada

Postal Code: E5B 0E4

Administrative Area: New Brunswick

Distributor Contact

Organization Name: Government of Canada; Fisheries and Oceans Canada

Email: DataServicesDonnees@dfo-mpo.gc.ca

Address: Bedford Institute of Oceanography, 1 Challenger Drive, PO Box 1006

City: Dartmouth

Country: Canada

Postal Code: B2Y 4A2

Administrative Area: Nova Scotia