Quarterly Climate Impacts and Outlook

Gulf of Maine Region

June 2024

Gulf of Maine Significant Events – *March–May 2024*

Spring was warmer than normal for the Gulf of Maine region, ranking among the **10 warmest springs** for multiple sites including Saint John, N.B.; Halifax, N.S.; Charlottetown, P.E.I.; Caribou, ME; Portland, ME; and Concord, NH. Much of the region saw **near- or above-normal precipitation**, with this spring ranking as Concord's seventh wettest. **Spring snowfall was highly variable**, ranging from less than 25% of normal in parts of Nova Scotia, P.E.I., and eastern Massachusetts, where Boston had its fifth least snowy spring, to more than 200% of normal in central New Hampshire, which saw two notable snowstorms this spring.

Temperatures were near or above normal in Mar, Apr, and May, with the seasonal average among the 10 warmest at some sites.

March was wet and stormy, with a significant New England snow event; April and May had limited storms.

March

March was warm, ranking as the **warmest on record** for Summerside, P.E.I., and among the 10 warmest Marches for multiple sites in the Maritimes and Maine. The month was exceptionally wet, with multiple storms. Caribou, ME; Fredericton, N.B.; and Saint John, N.B., had their **wettest March on record** and many sites had one of their 10 wettest Marches. Regional snowfall amounts varied in March, with the month **tying as the least snowy** for Boston, MA. However, a significant storm produced the **snow season's largest snowfall** for places like western Maine and central New Hampshire. The warm, wet March conditions had several impacts including plants blooming ahead of schedule, an early start to maple season, an early end to the snowmobiling season that was expected to result in tourism revenue losses, and unstable ice conditions that caused ice fishing shacks in New Brunswick and northern Maine to be removed earlier than usual.

April

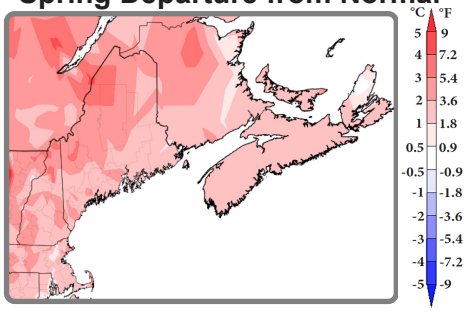
Average temperatures for April were **closer to normal** than in previous months, being the first time since November 2023 that monthly average temperatures in the Maritimes were near or below normal. This April tied as the seventh warmest for Bas-Caraquet, N.B. There were **limited storms** during the month, leading April precipitation and snowfall to be below- or near-normal for much of the Maritimes, northern Maine, and southeastern Massachusetts. Caribou, ME, had its sixth-driest and seventh least snowy April. **Notable exceptions** included southern Maine and parts of New Hampshire due to an early-month storm that deposited heavy precipitation, including snow, on these areas. In fact, Concord, NH, had its ninth snowiest April.

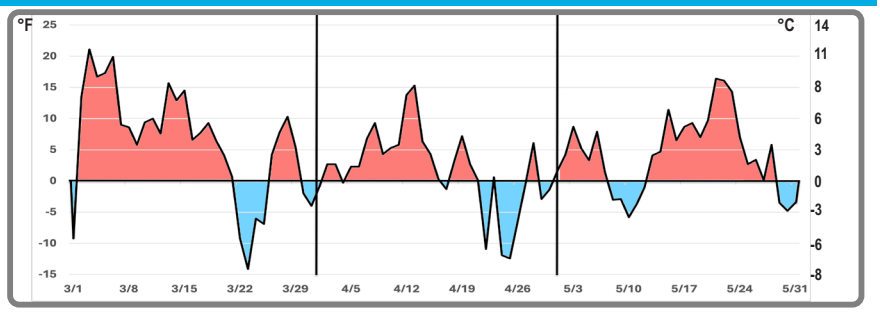
May

Warm conditions continued in May, which ranked among the **10 warmest Mays** on record for several sites including Caribou and Portland, ME; Fredericton and Saint John, N.B.; and Yarmouth and Halifax, N.S. May featured **limited storms**, particularly in the Maritimes and Maine, with much of the region seeing **below- or near-normal precipitation**. In fact, **abnormal dryness** was introduced in northwestern Maine, P.E.I., New Brunswick, and western Nova Scotia. The dry conditions were favorable for the start of P.E.I.'s potato season, allowing some farmers to plant potatoes earlier than usual. Conversely, southeastern Massachusetts was quite wet due to a couple of heavy rainfall events.

Regional Climate Overview – *March–May 2024*

Temperature
Spring Departure from Normal





Daily average temperature departure from normal during spring at Caribou, ME. Warmer-than-normal days are shaded red and colder-than-normal days are shaded blue.

Spring (averaged over March, April, and May) was up to 4°C (7°F) **warmer than normal***, ranking as the **warmest on record** for Summerside, P.E.I., and among the 10 warmest for many parts of the region. **March** was up to 4°C (7°F) **warmer than normal**, ranking among the 10 warmest Marches for multiple sites in the Maritimes and Maine. **April** was up to 2°C (4°F) **warmer than normal**, ranking as the seventh-warmest April for Bas-Caraquet, N.B. **May** was up to 3°C (5°F) **warmer than normal**, ranking among 10 warmest for several sites in the Maritimes and Maine.

*Normals based on 1991–2020 data.

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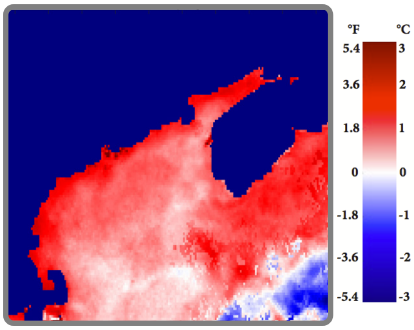
Regional Climate Overview – *March–May 2024*

Spring Departure from Normal

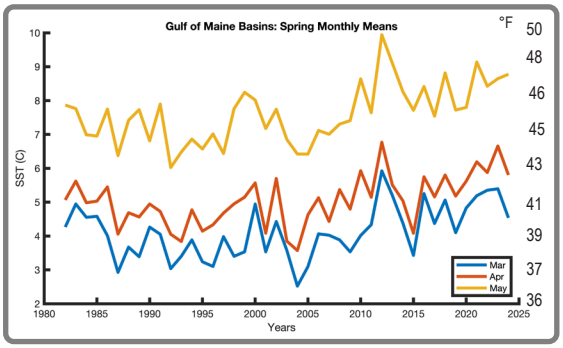


Spring **monthly mean sea surface temperatures**, averaged over the Gulf of Maine deep basins, showed March to be the 13th warmest in the 43-year time series (1982 to 2024), April to be the sixth warmest, and May to be the fifth warmest.

*SST normals based on 1991–2020 data.

Sea Surface Temperature

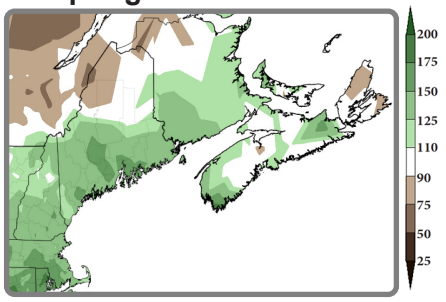
Spring sea surface temperature anomalies were above normal over the entire area, primarily due to very warm April and May conditions. The cold anomalies present in winter had completely disappeared in April. Anomalies in the coastal Gulf of Maine and Bay of Fundy were greater than 1.5°C (2.7°F), greater than 1.2°F (2.2°F) over the Scotian Shelf, and slightly weaker at less than 0.8°C (1.4°F) over the eastern and central Gulf of Maine.



Map and graph: University of Maine School of Marine Sciences

Precipitation

Spring Percent of Normal



Spring precipitation (accumulated from March to May) ranged from 50% of normal* to 175% of normal. Concord, NH, had its seventh-wettest spring. **March** precipitation ranged from near normal to over 200% of normal, being **record wet** for a few sites and among the 10 wettest for many other sites. **April** precipitation ranged from 25% of normal to near normal for many areas, with Caribou, ME, having its sixth-driest April. Southern Maine and parts of New Hampshire were wetter. **May** precipitation ranged from less than 25% of normal in parts of P.E.I. to 200% of normal in southeastern Massachusetts, with many areas seeing below- or near-normal precipitation.

*Precipitation normals based on 1991–2020 data.

Regional Impacts – *March–May 2024*

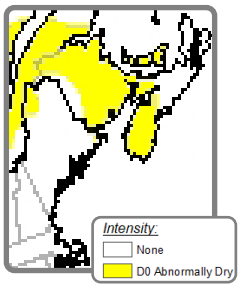
Coastal flooding in Massachusetts in early April. Credit: Essex County Storm Report/MyCoast MA

Spring Conditions

There were multiple storms during March, with two significant events during the second half of the month. From **March 23 to 24**, coastal locations such as eastern Massachusetts and southwestern New Brunswick saw **mostly rain**, with the greatest totals over 80 mm (3 in.), resulting in localized flooding. There were several hours of **freezing rain** in areas like southern New Brunswick and southern Maine, where 6 to 19 mm (0.25 to 0.75 in.) of ice accumulated. Most of New Brunswick, Maine, and New Hampshire saw snow, with the greatest totals ranging from 46 to 76 cm (18 to 30 in.). This was the **snow season's largest snowfall** for parts of New England, boosting business for some ski resorts. Wind gusts of up to 110 km/h (68 mph), saturated ground, heavy snow, and/or ice accumulation brought down trees and power lines, blocking roads and resulting in power outages including for over 200,000 customers in Maine and over 100,000 in New Hampshire. Travel disruptions were also noted. From **March 28 to 30**, New Brunswick, western P.E.I., and western Nova Scotia saw up to 80 mm (3 in.) of precipitation, with locally higher amounts of over 100 mm (4 in.). Most fell as rain, but freezing rain and snow were also reported in parts of New Brunswick. There was localized flooding in a few places in southern New Brunswick and numerous road closures throughout the province.

Despite **limited storms** during **April**, there was a notable event from **April 4 to 6**. Much of the Maritimes and eastern Massachusetts saw up to 50 mm (2 in.) of precipitation, mostly in the form of rain. **Snow** blanketed northeastern New Brunswick, Maine, and New Hampshire, with the greatest totals around 53 cm (21 in.) in central New Hampshire and southern Maine. Wind gusts of up to 97 km/h (60 mph), with locally higher gusts, accompanied the storm. The strong winds, and heavy, wet snow in some areas, downed trees and power lines, with over 300,000 customers in Maine and around 175,000 in New Hampshire losing power. The windy conditions fueled coastal flooding in Massachusetts that inundated roads, a scenario that has and is projected to continue to increase due in part to rising sea levels. The storm also disrupted travel and resulted in one death. During April, Nova Scotia averages 298 cloud-ground lightning strokes but tallied just four this month, its **fewest number for April**.

Similar to April, there were **limited storms** for most of the region during **May**. This lack of precipitation, along with factors like a decline in streamflow, groundwater levels, and soil moisture, led to the introduction of **abnormal dryness** in northwestern Maine, P.E.I., New Brunswick, and western Nova Scotia. However, a few locations such as southeastern Massachusetts saw locally heavy rainfall during the month.



North American Drought Monitor from May 31, 2024

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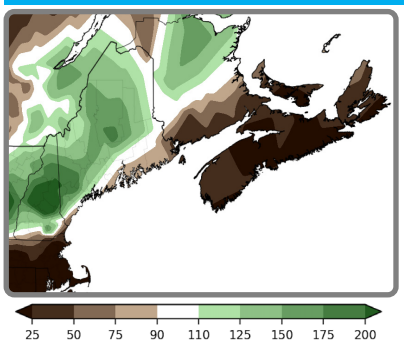
Regional Impacts – *March–May 2024*



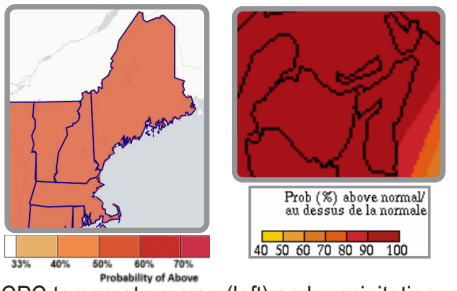
Spring snowfall ranged from less than 25% of normal* to more than 200% of normal. *Normals based on 1991–2020 data

Spring Snowfall

March snowfall ranged from less than 25% of normal in places like Nova Scotia and eastern Massachusetts, where Boston had its **least snowy March**, to over 200% of normal in central New Hampshire. Most of the Maritimes had less snow on the ground than normal at the end of March. April snowfall ranged from less than 25% of normal in places like southeastern Massachusetts and much of P.E.I. to over 200% of normal in southern Maine and most of New Hampshire. Caribou, ME, had its **seventh least snowy April**, while Concord, NH, had its **ninth snowiest**. There was little, if any, snow on the ground at the end of April in much of the Maritimes, leading to a **low flooding season** for the St. John River in New Brunswick. As is typical in **May**, there was **little to no snow**. **Spring snowfall** (accumulated from March to May) was above normal for much of Maine and New Hampshire, driven by snowstorms in late March and early April, as well as parts of northeastern and central New Brunswick. The rest of the region saw below- or near-normal snowfall, with Boston, MA, having its **fifth least snowy spring**. Most of New England had snowfall deficits for the snowfall season, which runs October through May. This snowfall season was among the **10 least snowy** for Boston, MA, and Portland, ME, which had deficits of 100 cm (39.4 in.) and 78 cm (30.7 in.), respectively. Boston also saw a significantly reduced total last snowfall season, making it the site's **first time on record** that two consecutive snow seasons each had less than 33 cm (13 in.) of snow.

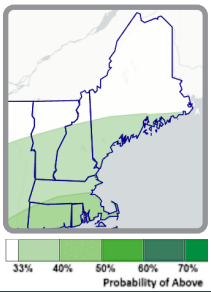
Regional Outlook – *Summer 2024*

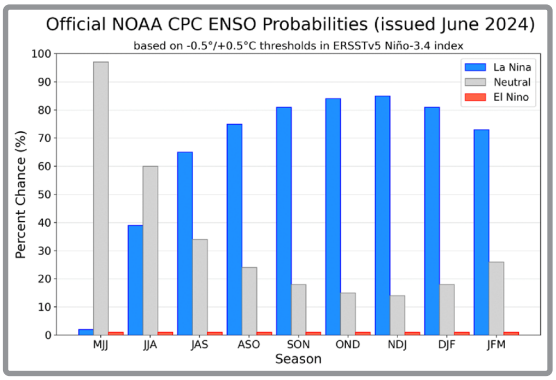
Temperature and Precipitation



CPC temperature map (left) and precipitation map (bottom) produced May 16. ECCC temperature map (right) produced May 31.

For **June–August**, NOAA's Climate Prediction Center (CPC) and Environment and Climate Change Canada (ECCC) favor **above-normal temperatures** for the region due in part to long-term climate trends. CPC favors **above-normal precipitation** for Massachusetts, most of New Hampshire, and southern and coastal Maine, driven by factors like long-term climate trends and the potential for increased tropical moisture due to an expected active hurricane season. Meanwhile, ECCC favors **below-normal precipitation** for southern Nova Scotia. **Equal chances** of below-, near-, or above-normal precipitation were forecast for the rest of the region.





ENSO

ENSO-neutral conditions returned in the equatorial Pacific Ocean in May. NOAA's Climate Prediction Center indicates there is a 65% chance of **La Niña developing** during the July through September period, with a 85% chance of La Niña persisting during the November through January period.

Atlantic Hurricane Season

NOAA is expecting **an extremely active Atlantic hurricane season** with 17–25 named storms, of which 8–13 are expected to become hurricanes, including 4–7 major hurricanes. Multiple factors such as exceptionally warm Atlantic sea surface temperatures and a developing La Niña leading to reduced wind shear are expected to align to potentially make this season very active. The greatest number of named storms in the Atlantic was 30 in 2020, while the greatest number of hurricanes was 15 in 2005. Both of these years also featured a record-tying seven major hurricanes. The Atlantic hurricane season runs from June 1 through November 30, peaking from mid-August to late October.

	2024 Atlantic Season Outlook	1991-2020 Average Season
Number of Named Storms	17-25	14
Number of Hurricanes	8-13	7
Number of Major Hurricanes	4-7	3

Contacts

National Oceanic and Atmospheric Administration

Environment and Climate Change Canada

Northeast Regional Climate Center

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