Environment and Climate Change Canada | Environnement et Changement climatique Canada

Seasonal Summary

Eastern Canada

Winter 2018-2019

By

Canadian Ice Service
Le service canadien des glaces

Canada

Summary for the East Coast

The 2018-2019 east coast ice season can be described by an early start to ice formation and consistent slightly below climate median ice cover throughout the season. Unlike the previous season there was no major destruction of ice in March across the region.

Well below normal surface air temperatures from mid-November to mid-December started ice formation in Lake Melville and along parts of the northeast coast of Newfoundland around 2 weeks earlier than normal. The early ice formation did not become a pre-cursor to extended or above average ice growth as more moderate temperatures established themselves over the region from mid-December through mid-February.

Ice growth returned to normal in late December but slowed through the month of January as a series of low pressure systems crossed the East Coast of Canada, keeping ice extents below the climatological normal. At the end of December ice extent was similar to the climatological median of 4%. By the end of January extent had grown to near 13%, 3-4% below the normal for that time of year.

Calmer conditions in early February saw ice growth speed up and bring ice extent above the climate normal to 21%. The main driver of this increase in the growth of ice was in the Gulf of St. Lawrence where significant open water areas filled with ice. The middle of February saw a slight decrease of ice coverage on the east coast as generally northwesterly winds formed over the southern half of the region. These winds maintained coastal leads along eastern New Brunswick, along the north shore of the Gulf of St. Lawrence, and east of the Northern Peninsula in Newfoundland. Surface air temperatures in mid-February fell to below normal leading to ice growth at the end of the month, mainly in the Gulf and Newfoundland waters. Because of the persistent northwesterly wind regime export of ice out of the Gulf and along the Nova Scotia eastern shore began bringing an unusually high concentration of ice to the region. By the end of February the ice extent climbed to 24.7%, 3% above the climate normal.

Peak ice conditions on the East Coast were achieved in the first week of March after below normal temperatures in late February. The maximum ice coverage was 25.6%, about 1.5% higher than the historical median. Interestingly 2018-2019 ends the year as the 4th highest maximum ice extent in the last 20 years. At peak conditions, there was ice present south of Nova Scotia, covering the Gulf, along the Labrador coast, and to near the northern tip of the Grand Banks.

As is usually the case ice coverage began to fall in mid-March as ice in the extreme southeast Newfoundland waters and ice in the northwestern Gulf began melting and deteriorating with the onset of spring. By the end of the month, extent had fallen to 11%, just over 4% lower than the climate normal. In early April significant areas of ridged and packed ice remained along the western Newfoundland coast. This ice persisted into the end of the month before finally diminishing late in the month with the onset of easterly winds pushing the ice off the coast. Ice cover from mid-April to the end of May slowly fell from 4% to 2%, remaining slightly below the normal for the time of year.

May, June, and July saw near to below normal surface air temperatures over Newfoundland and Labrador where the remaining ice was contained. The first few weeks of May saw ice cover along the Labrador coast, in parts of northeastern Newfoundland near the shore, and in the northeastern arm of the Gulf. The ice in northeastern Newfoundland melted out before the 3rd week of the month while ice export from the Labrador coast into the Strait of Belle Isle kept some present in the Strait. Lake Melville fractured near its normal date after the third week of May. By June 1st there was no remaining ice in

the Newfoundland and Gulf waters. Some lower concentration ice was present from Groswater Bay to the south with higher concentrations along the Labrador coast to the north. Lake Melville melted completely in the first week of June with all remaining ice slowly melting through the next month. By early July only a small area of ice was present along the mid-Labrador coast. This ice finally melted in the second week of July bringing to an end the East Coast ice season.

The season TAC (Total Accumulated Ice Coverage) for the 2018-2019 season was 7.3%, 1% below the median since the winter of 1968/69. This value is the highest in the last 4 ice seasons.

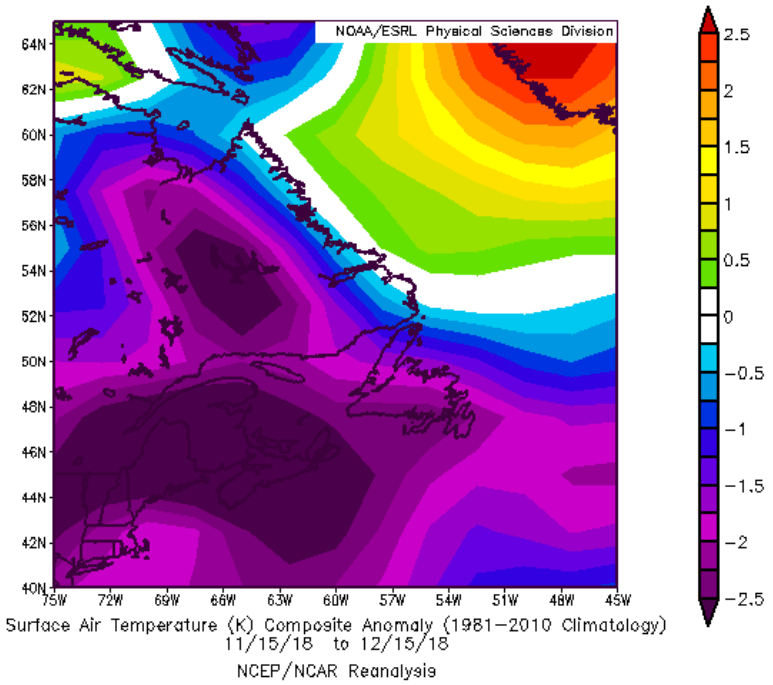

Figure 1: Surface Air Temperature Anomaly November 15 2018 to December 15 2018.

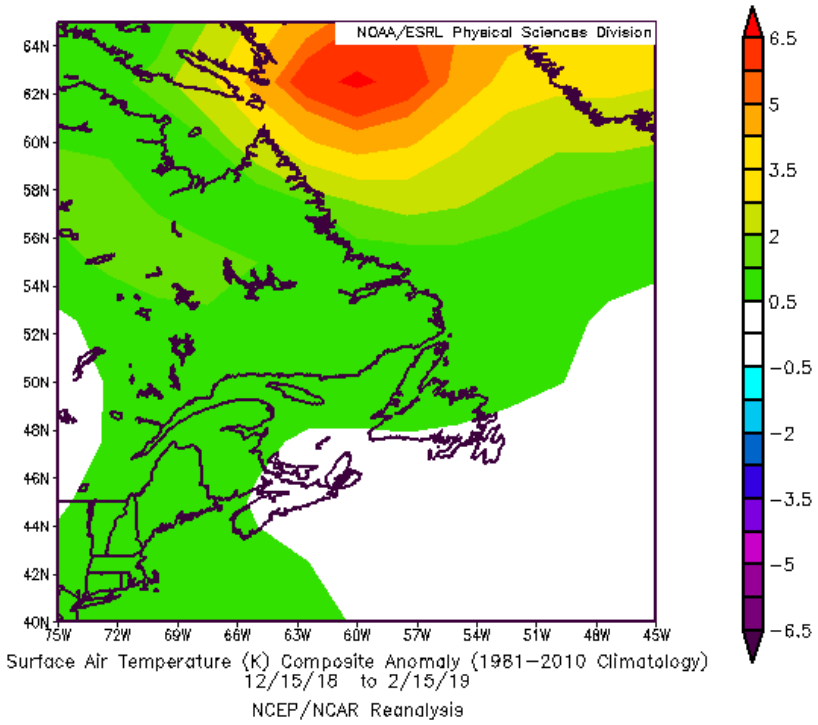

Figure 2: Surface Air Temperature Anomaly December 15 2018 to February 15 2019.

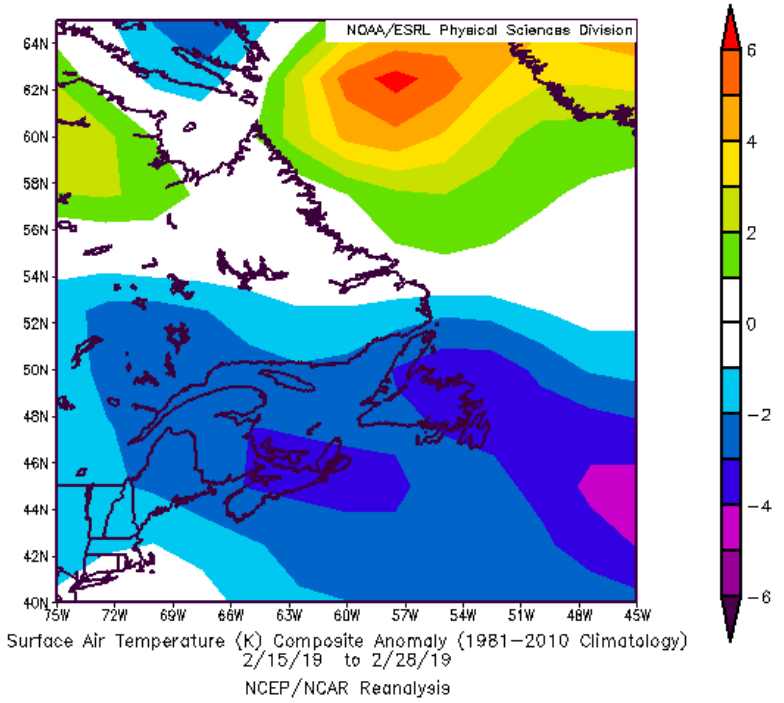

Figure 3: Surface Air Temperature Anomaly February 15 2019 to February 28 2019.

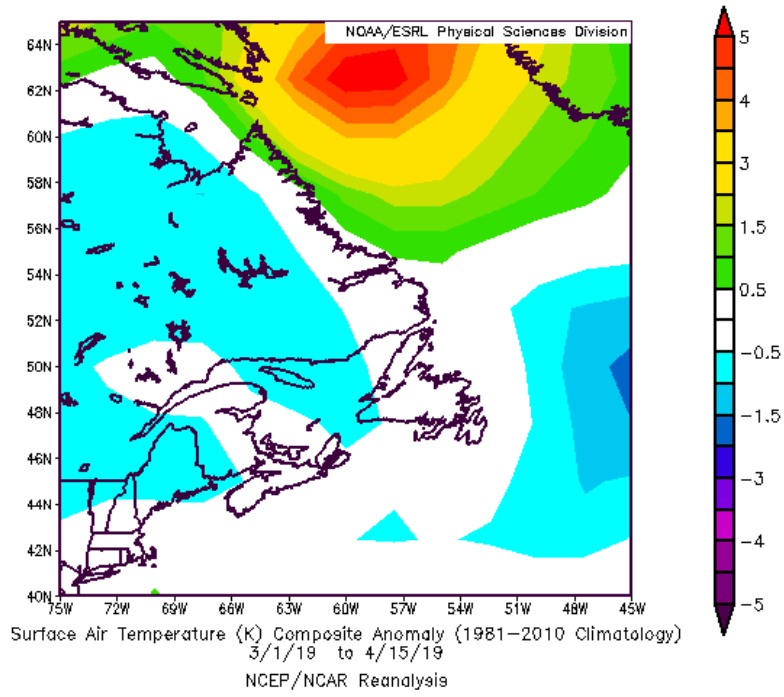

Figure 4: Surface Air Temperature Anomaly March 1 2019 to April 15 2019.

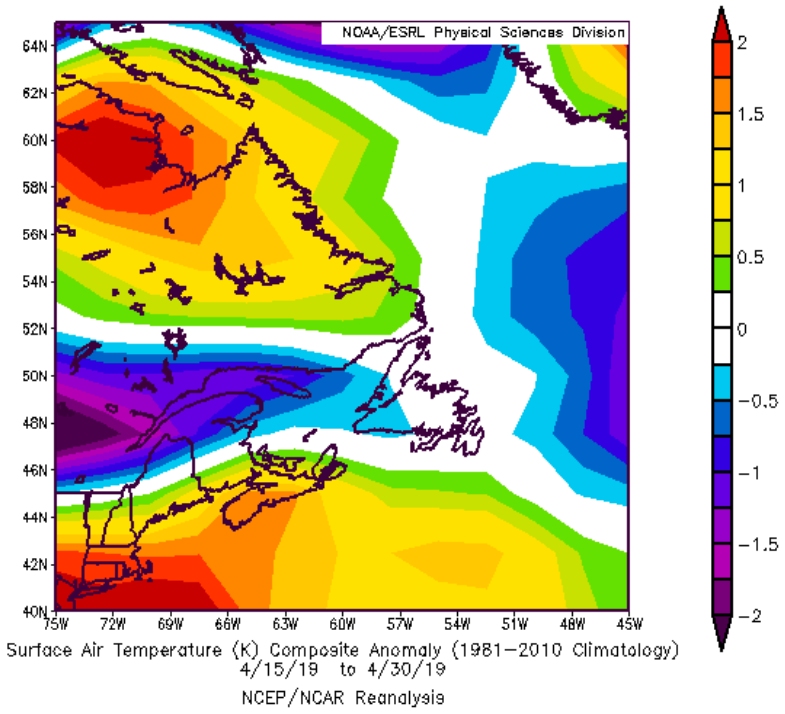

Figure 5: Surface Air Temperature Anomaly April 15 2019 to April 30 2019.

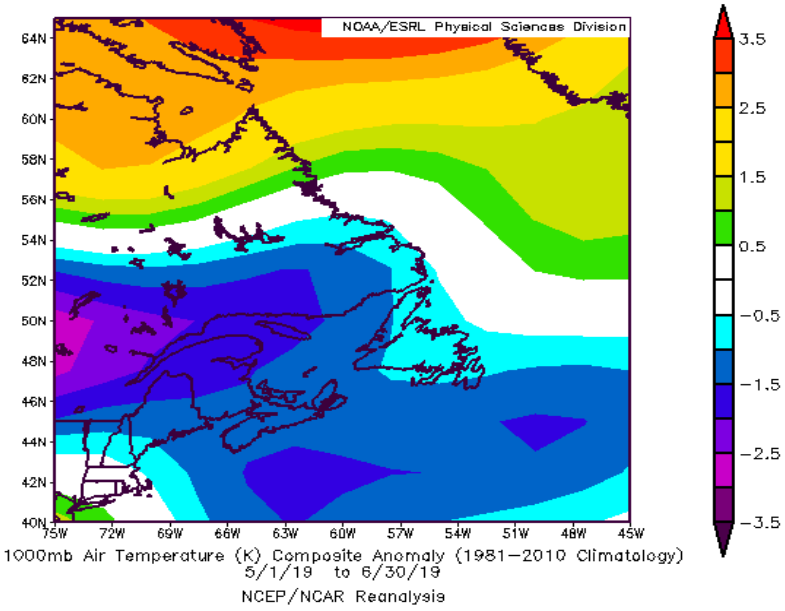

Figure 6: Surface Air Temperature Anomaly May 1 2019 to June 30 2019.

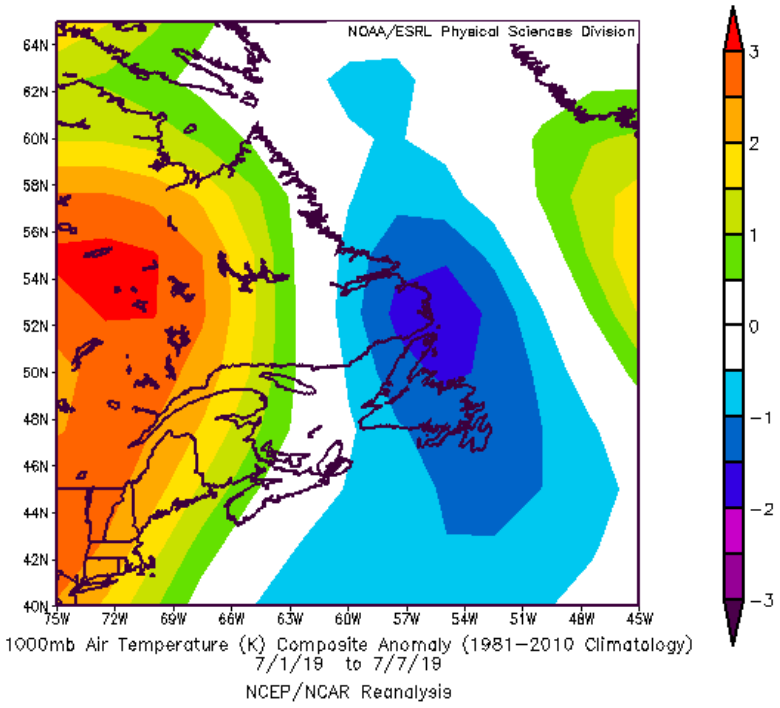

Figure 7: Surface Air Temperature Anomaly July 1 2019 to July 7 2019.

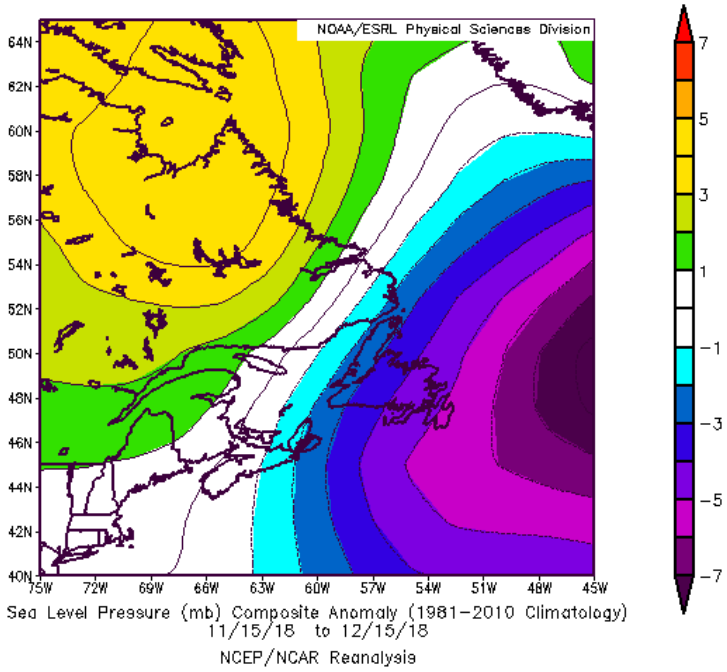

Figure 8: Sea Level Pressure Anomaly November 15 to December 15 2018.

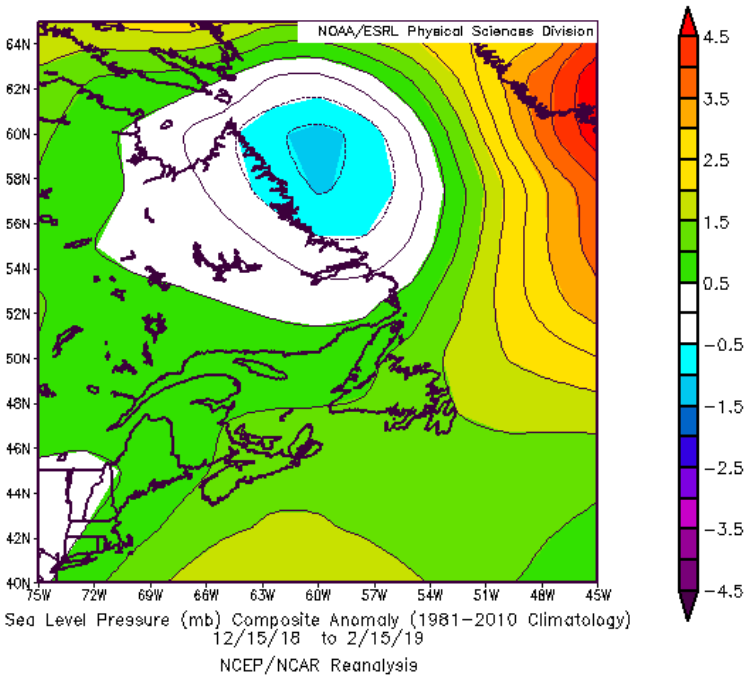

Figure 9: Sea Level Pressure Anomaly December 15 to February 15 2019.

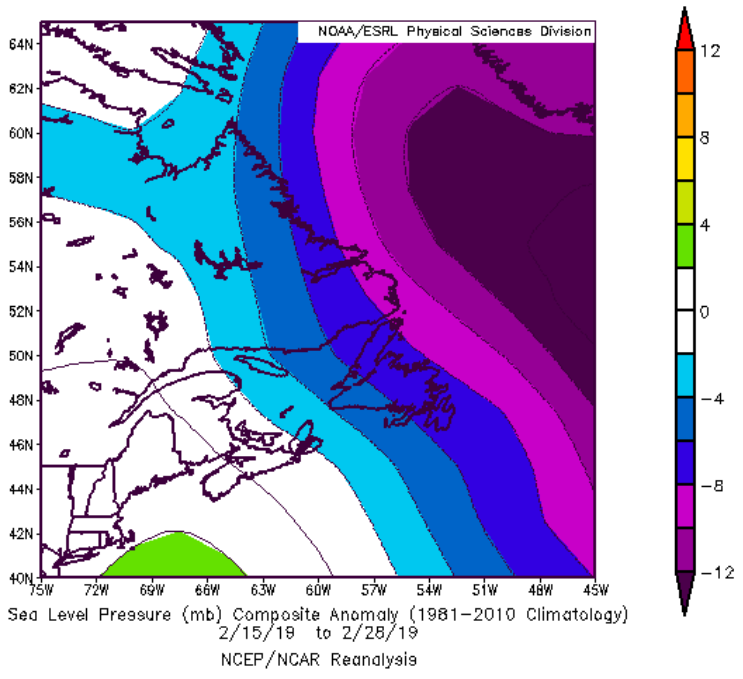

Figure 10: Sea Level Pressure Anomaly February 15 to 28 2019.

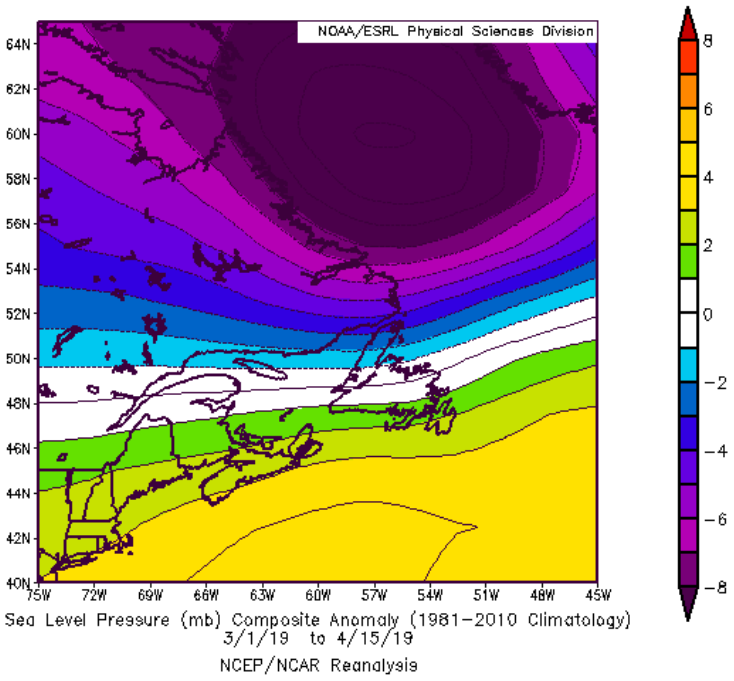

Figure 11: Sea Level Pressure Anomaly February 15 to 28 2019.

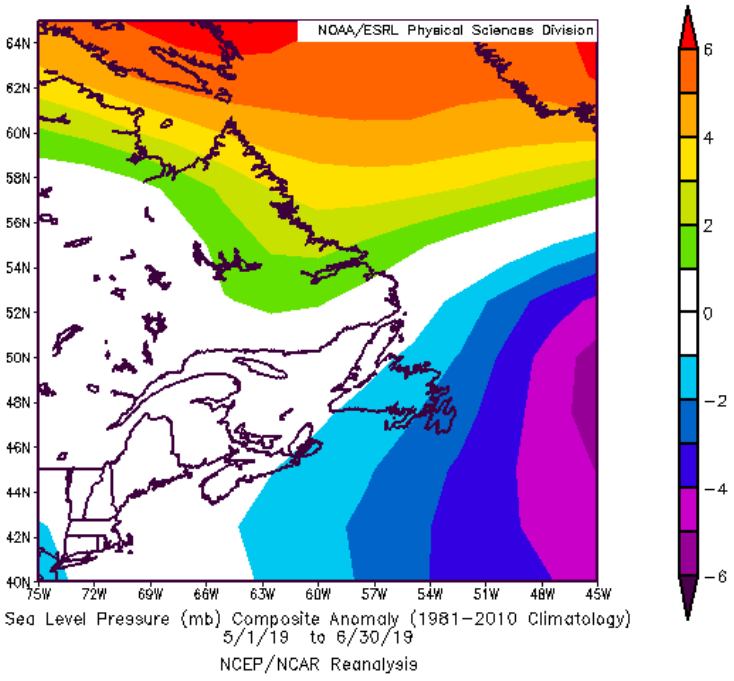

Figure 12: Sea Level Pressure Anomaly May 1 to June 30 2019.

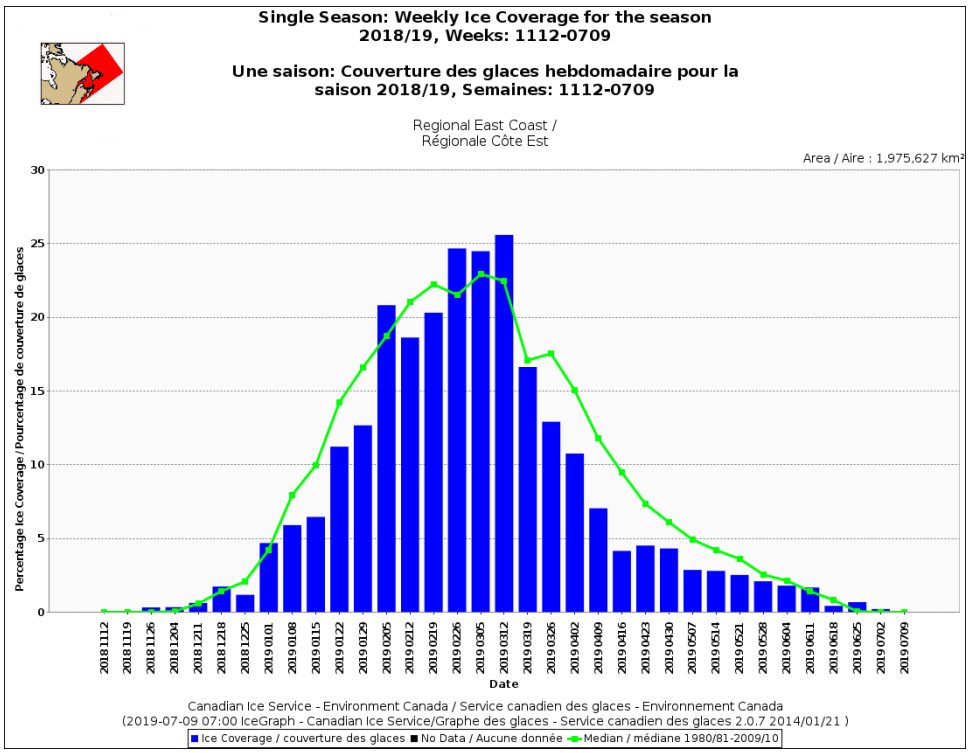

Figure 13: East Coast Weekly Ice Coverage for the Season 2018-19

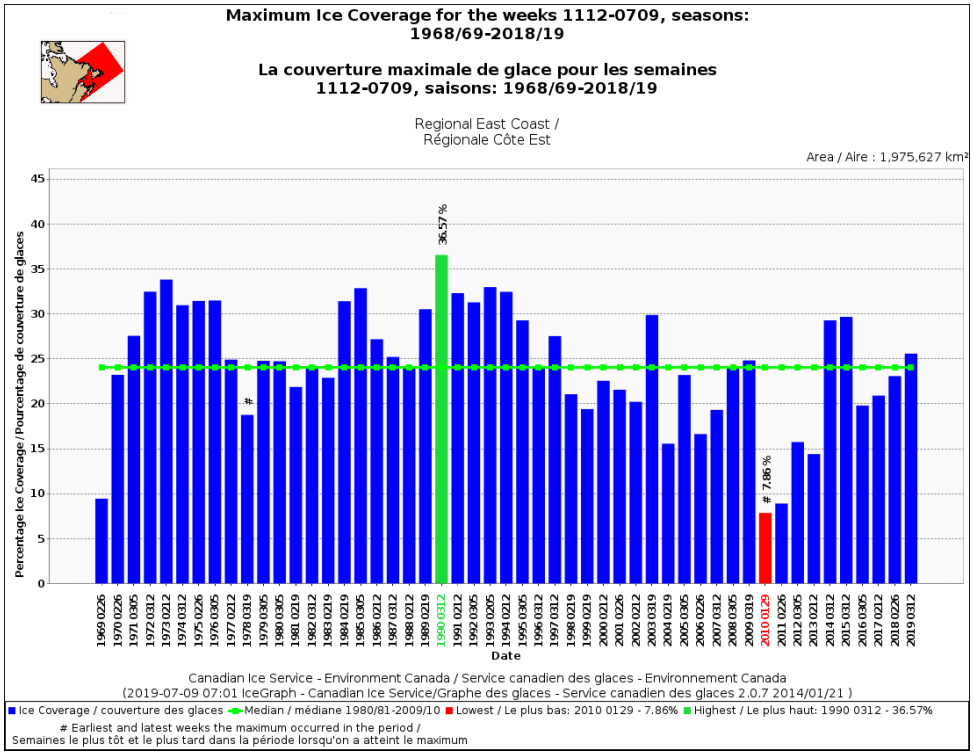

Figure 14: East Coast Maximum Ice Coverage for the Season 2018-19

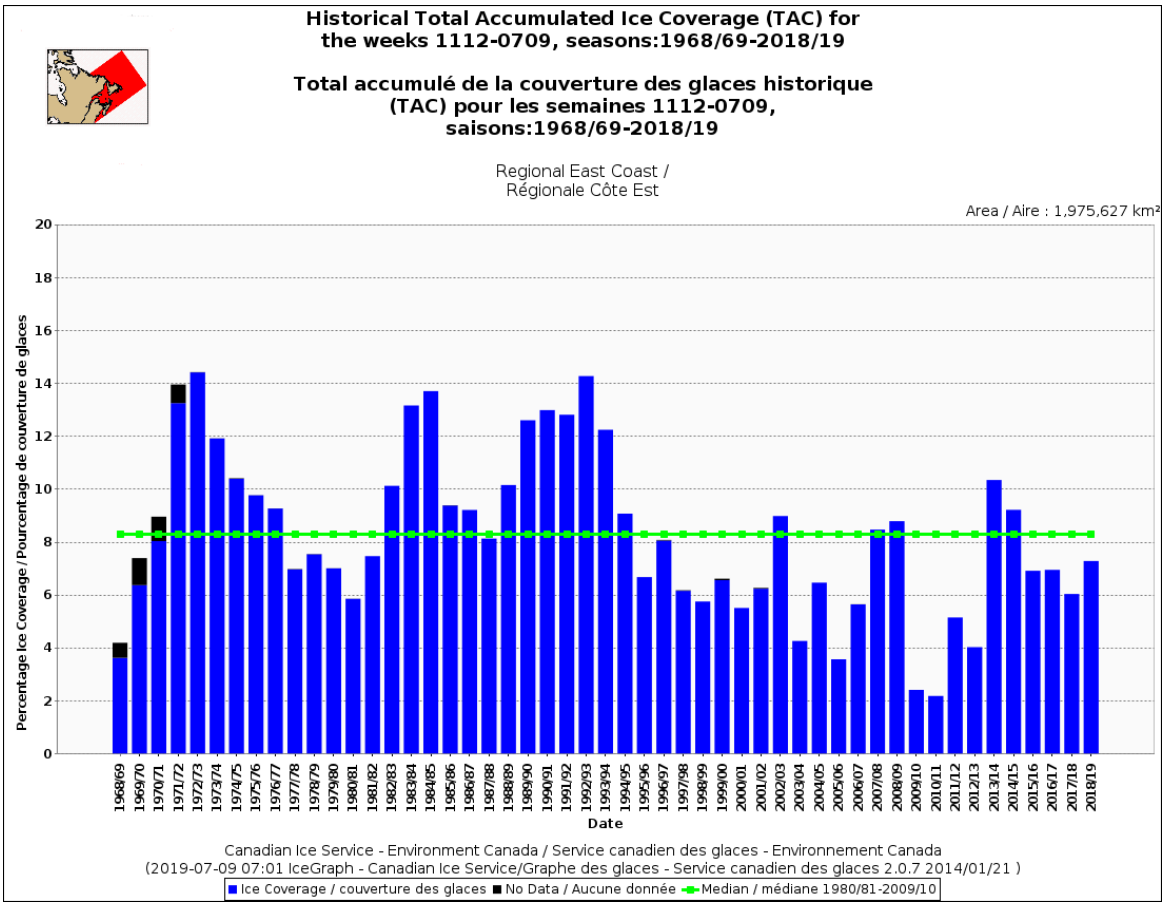

Figure 15: East Coast Weekly Total Accumulated Ice Coverage for the Season 2018-19.

Gulf of St Lawrence

2018-2019 Season temperature: November to June

Below normal surface air temperatures in mid to late November started out the 2018-2019 ice season for the Gulf of St. Lawrence. These below normal temperatures continued through to mid December with overall temperatures of 2-3 degrees Celsius below normal were dominant across the entire region. Anomalous low pressure east of Newfoundland and a corresponding anomalous high pressure temperatures over northern Quebec and Hudson Strait drove the below normal temperatures in the early season.

Near normal surface air temperatures pushed across the region for the end of 2018 and the start of 2019. Near normal conditions continued from mid December to mid February. A second short bout of below normal surface air temperatures enveloped the Gulf of St. Lawrence the last 2 weeks of February. General temperatures of 2-4 degrees Celsius during the period associated with significantly anomalous low pressure east of the Grand Banks leading to generally cool airflow from the northwest.

After the cool temperatures at the end of February, surface air temperatures returned to near seasonal values from early March until mid-April during the peak ice formation and growth time of the year in the Gulf of St. Lawrence. Average air temperatures hovered within 1 degree Celsius of the climatological normal value. The second half of April saw anomalous pressure move over the Great Lakes basin. With it, cool air funneled into the northern half of the Gulf of St. Lawrence and the estuary of the St. Lawrence Seaway while warmer than normal air temperatures moved over the Northumberland Strait. Temperatures in the southern Gulf were near 1 degree Celsius above normal. Temperatures in the estuary and northern Gulf were 1 degree below normal during the same timeframe.

The last 2 months of the ice season, May and June, saw cooler than normal surface air temperatures across the Gulf of St. Lawrence region. The coolest temperatures were 3 degrees below normal in the northwestern portion of the Gulf. Further east and northeast, along the west coast of Newfoundland, temperatures were still below normal but only 1 degree lower than normal.

November Ice conditions

The earliest ice on record in the Gulf of St. Lawrence formed this season due to the early season cold. In the third week of the month ice formed across many bays and inlets, as well as in the western edge of the estuary. Although less than 1% ice coverage, this was the first ice recorded on CIS regional charts in the month of November since the 1972/73 season.

December Ice conditions

Through the first 10 days of the month ice conditions remained at or below 1% as new ice remained in low concentrations along much of the New Brunswick and Quebec shorelines. In the second week of the month, new and grey ice began to form in the Estuary of the St. Lawrence Seaway. By mid-December, ice along the eastern shore of New Brunswick started to form outside of isolated bays, remaining new and grey in thickness. Some initial ice formed within the Magdalen Islands. The Estuary was nearly fully ice covered in young ice. The first fast ice of the season formed in western Miramichi Bay. Overall ice extent increased above 3%, remaining above the climate normal for that time of month.

A strong low pressure system with gale force accompanying winds moved across the Gulf on the 22nd and 23rd of December. These strong winds caused a significant reduction in the sea ice extent across the Gulf, destroying much of the mobile young ice along the coast. On Christmas Day, 2018, ice extent fell back to near 1%, a value closer to what was present at the start of December. The last week of December saw ice growth restart behind the low. The Estuary, eastern New Brunswick coast, and Northumberland Strait filled with ice, mainly young ice. Some grey ice in the Northumberland Strait thickened to grey-white ice in the last week. A thin band of new and grey ice was present along the Quebec and Labrador coast. At the end of December, ice extent bounced back above the climate median to just under 10%, roughly twice the normal ice extent for the end of the month. This value was close to the value from the 2017-2018 year and the second highest extent in the last decade.

January Ice Conditions

January 2019 was a month punctuated by a series of low pressure systems moving across the Gulf of St. Lawrence. Because of these low pressure systems ice extent and growth of ice in the month was slower than normal. Although the first few days of the month saw ice extent above normal by the end of the first week ice extent fell slightly below normal to 9%; roughly 1% lower than at the start of the month and 1% lower than the climate normal. A strong low pressure system moved over the Gulf in the second week of the month and remained stationary over the Gulf for 3 days. Little new ice formed in the western Gulf during the 2nd and 3rd week of the month. Extent did slightly increase due to the increase in ice in the northeastern portion of the Gulf and in the Strait of Belle Isle. Predominant ice in the western Gulf and Northumberland Strait was grey-white during this time with the majority of the rest of ice in the western Gulf being mainly grey ice. In the northeastern Gulf ice was present near the Quebec shore and mainly of grey thickness with some grey-white embedded.

Low pressure system and their strong associated winds continued to track directly across the Gulf in the last half of the month. Low pressure systems crossed the Gulf on the 17th, 21st, and 25th maintaining below normal ice extent. At the end of January ice extent in the Gulf was 21%, 11% under the climate median for the end of the month. There was less ice than normal through the central part of the Gulf near the Magdalen Islands, in the northeastern section of the Gulf, and north and west of Anticosti Island. There were no locations in the Gulf that were seeing abnormally high ice extents.

February Ice Conditions

After the stormy month of January lighter winds brought in the month of February. Ice conditions between the end of January and the first week of February increased drastically. An almost doubling of ice extent occurred in the first few days of the month, jumping from 21% on January 28 to 40% ice covered on February 4. This value was 8% above the climate median for that week. Significant ice growth occurred across the entire Gulf region except for the section of the eastern Gulf along the Newfoundland coast from Rocky Harbour to Port-aux-Basques and extending 10-100 km from the coast. That region remained as open water. Ice thickened to thin first year ice south of Prince Edward Island in the Northumberland Strait. Most of the Gulf was full of a mixture of grey and grey-white ice in the first week of the month. An abnormally high ice extent formed in the Cabot Strait and east of Cape Breton in generally northwesterly flow. Persistent northwesterly flow continue through the next week in the Gulf of St. Lawrence. This flow cause a compaction of ice in the Estuary along the north shore of the Gaspé Peninsula and concurrent open water leads along the north shore of the estuary. This open water and lack of ice in the estuary caused the ice coverage amounts in the region to drop to 35% covered, 5% below the climate normal for the week of February 12th. The northwesterly winds also caused a lack of new ice formation in the eastern portion of the Gulf. The open water region near the Newfoundland coast remained for the week however did decrease slightly in size. The lack of ice in the estuary drove the ice extent lower for the week however, the associated northwesterly winds did increase the ice extent in the Cabot Strait and east of Nova Scotia to well beyond its usual extent. Ice in Cabot Strait was main grey-white thickness with younger ice present closer to the coast of Cape Breton Island.

The second half of February started out with a slight increase in ice extent to 38% covered in the continued northwesterly flow. Cooler than normal temperatures moved over the region after 2 months of slightly above normal temperatures. The continued outflow of ice out of the Gulf in Cabot Strait and near Cape Breton led to an increase in ice extent. Loss of ice occurred in the eastern Gulf near Newfoundland where the previous week had seen slight growth. By the 18th of the month, thin

first-year ice started to flow into the northeastern Gulf from the Strait of Belle Isle. As well, thin first-year ice was present along western Cape Breton and in the ice surrounding Prince Edward Island. A thin band of grey-white and thin first-year ice was still present along the north shore of the Gaspé Peninsula. The last week of the month saw cooler than normal temperatures, lighter winds, and a jump in ice extent. By the 25th of February ice was present across almost the entire Gulf of St. Lawrence as well as, unusually, along much of the eastern shore of Nova Scotia. Well above normal concentrations of ice southeast of Nova Scotia. As well, because of the persistent northwesterly winds earlier in the month, a significantly extensive and thick patch of ice was present near, north, and south, of the Port-aux-Port peninsula in Newfoundland. A few small areas of ice, mainly north of Anticosti Island, contained less ice than normal, at the end of February. On the 25th of February ice extent was near 47%, 8% above the normal of 39% for the same week historically.

March Ice Conditions

Maximum ice conditions occurred in early March for the Gulf of St. Lawrence. The maximum extent was 53%, above the long-term median of 46%. This value was the highest maximum in over a decade for the Gulf of St. Lawrence and the fifth highest maximum since the 1972-73 season. There was near full ice coverage through the Gulf itself. An unusual amount of ice was present in Cabot Strait, along southwestern Newfoundland, and near and along the shore of Nova Scotia. Close pack new and grey ice spread along the Eastern Shore of Nova Scotia from just east of Halifax all the way into Cabot Strait. Ice was present 20km offshore as far west as Lunenburg. Ice south of Nova Scotia in this quantity is unusual and was driven mainly by the persistent northwesterly wind over much of the winter. These winds drove an export of ice from the Cabot Strait and into the near shore current along Nova Scotia.

At the peak ice coverage the southwestern portion of the Gulf contained mainly first-year ice with some medium first-year thickness present. The centre of the Gulf was mainly grey and grey-white ice and the ice in the northeastern arm of the Gulf of St. Lawrence and along the western Newfoundland coast was a mixture of thin and medium first-year ice.

After the first week of March ice conditions began to loosen in the Estuary of the St. Lawrence Seaway and along the coast in southeastern New Brunswick and ice began to rapidly melt. Ice present offshore south of Nova Scotia reduced in extent and coverage. By the 11th of March ice coverage dropped 5% to 48%. Although there was an overall loss of total extent there was still much higher amounts of ice than the median of 40%. The ice exporting out of the Gulf through the Cabot Strait continued to drive the above normal ice extent with 9/10 of ice more than normal along the Newfoundland coast from St. George's Bay to the southwestern tip of the Island. Areas of eastern Cabot Strait, along the eastern shore of Nova Scotia, and southeast of Cape Breton Island continued to contain grey and grey-white ice in extent and concentrations much higher than the climate median. There was some thickening of ice in the centre of the Gulf from mainly grey thickness to mainly grey-white thickness.

Ice decline in the Gulf historically begins in mid-March and this year was no different. In the week of the 18th of March significant melt of sea ice occurred. All ice in the estuary except for some grey and grey-white ice near Sept Isle melted and was destroyed. Along coastal New Brunswick fast ice remained in bays and inlets but the coastal ice that was present melted and moved offshore. Significant areas of grey-white and first-year ice still affected the shipping lane through the centre of the Gulf from Cabot Strait to south of Anticosti Island. All ice south of Nova Scotia melted. Grey-white and

first-year ice south of Newfoundland reduced in extent but continued to remain in place. The northeast arm of the Gulf and along the Newfoundland west coast still contained significant quantities of first-year ice. The decrease of ice continued through the end of the month at close to the climatological decline. By the end of the month all ice had melted out of the northwestern section of the Gulf. Fast ice still remained along parts of the New Brunswick and Prince Edward Island coasts with a small section of mobile first-year ice in Northumberland Strait. Less ice was present around the Magdalen islands and along the north shore of Quebec in the northeast arm. Significant concentrations of first-year ice remained in the southeastern Gulf region near Newfoundland at well above normal ice concentrations. By the end of the month ice coverage dropped to 11%, 6% below the climate normal and a loss of over 40% ice coverage from the start to the end of the month.

April Ice Conditions

April ice extent started below the climate normal with ice unusually present in the southeastern section of the Gulf offshore west of Stephenville. A strong low pressure system moved across the northern Gulf in the first week with associated gale and storm force winds, mainly out of the west. These winds enhanced ice melt and by the 8th of April, almost all mobile ice was either compressed against the western Newfoundland coast, rapidly melting in low concentrations in Cabot Strait, or present within Northumberland Strait in low concentrations. The fast ice along the New Brunswick coast fractured. High concentrations of rubbled and ridged first-year ice persisted along most of the west coast of Newfoundland. The Strait of Belle Isle and northeastern arm of the Gulf continued to hold close pack first-year ice and fast ice along parts of the coast. By the 8th of April ice extent dropped to 3%, below the 10% normal for the time of year. Warming spring temperatures in the southern Gulf in the second week of the month melted out all ice in the southern and western half of the Gulf except for a small amount of rotten fast ice in Chaleur Bay. Little change in ice conditions occurred on the west coast of Newfoundland. Ice conditions remained similar through until the last week of the month when easterly winds began pushing ice off the coast of Newfoundland. Once the ice became decoupled from the coast it rapidly deteriorated and melted. Some of the ice, mainly in the northeastern arm, pushed against the Quebec coast. Small areas of rotten fast ice continued to deteriorate in Chaleur Bay and Miramichi Bay and melted out by the end of April. At the end of the month ice extent in the Gulf was near the climate normal of 1%.

May Ice Conditions

The month of May started with under 1% of ice coverage with all ice remaining in the Gulf region present in the northeastern section. Low concentrations of ice near Corner Brook melted out in the first week. Some mobile ice in low concentration in the Strait of Belle Isle remained through the first 2 weeks. After mid-May the first-year ice that formed in the Gulf melted. Some first-year ice including a trace of old ice pushed through the Strait of Belle Isle from the north. This feed of ice continued until the end of the month when the flow from the north ended. Ice concentrations dropped to zero at the end of the month roughly 1 week later than the normal end of the ice season in the Gulf region.

The TAC for the Gulf region ended the 2018-2019 season near the climate normal of 15%. This value puts it at a higher TAC then the last 3 ice season.

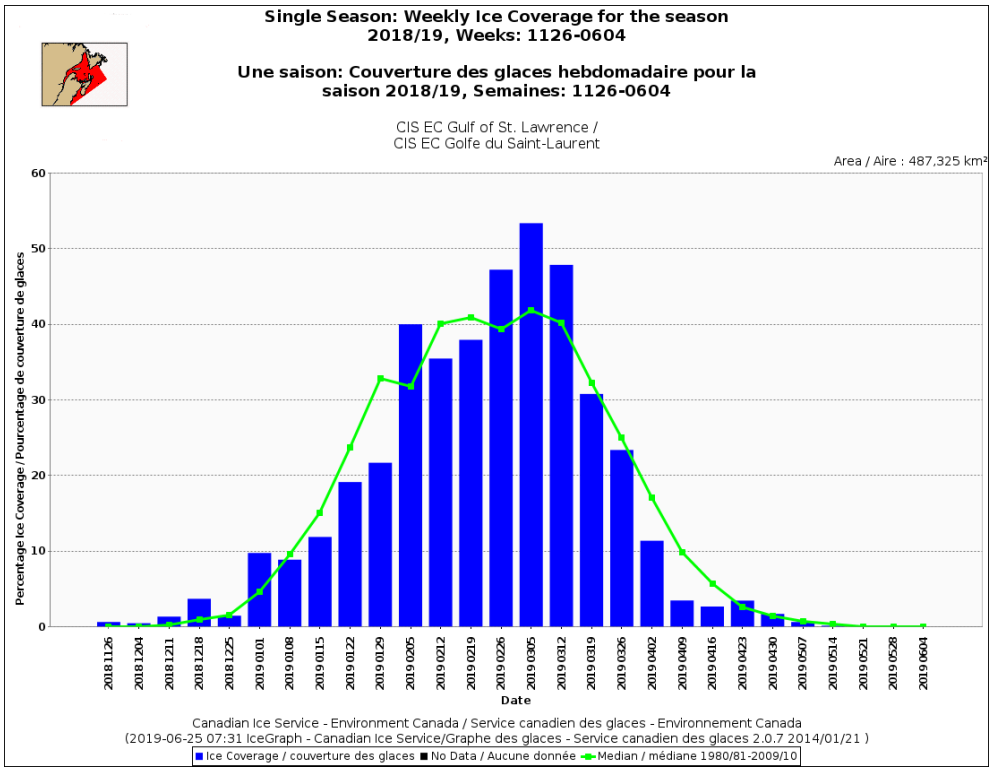

Figure 16: Weekly Ice Coverage for the 2018-2019 Season in the Gulf of St. Lawrence.

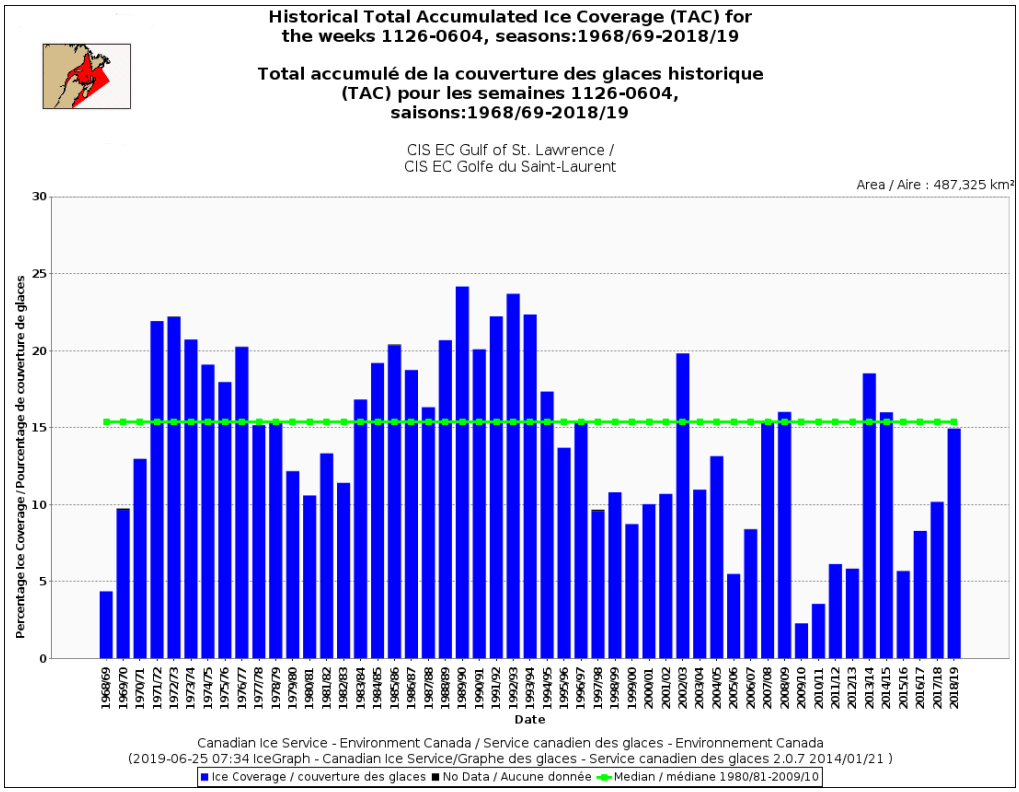

Figure 17: Historical Total Accumulated Ice Coverage for the Gulf of St. Lawrence by Season, 1968-2019

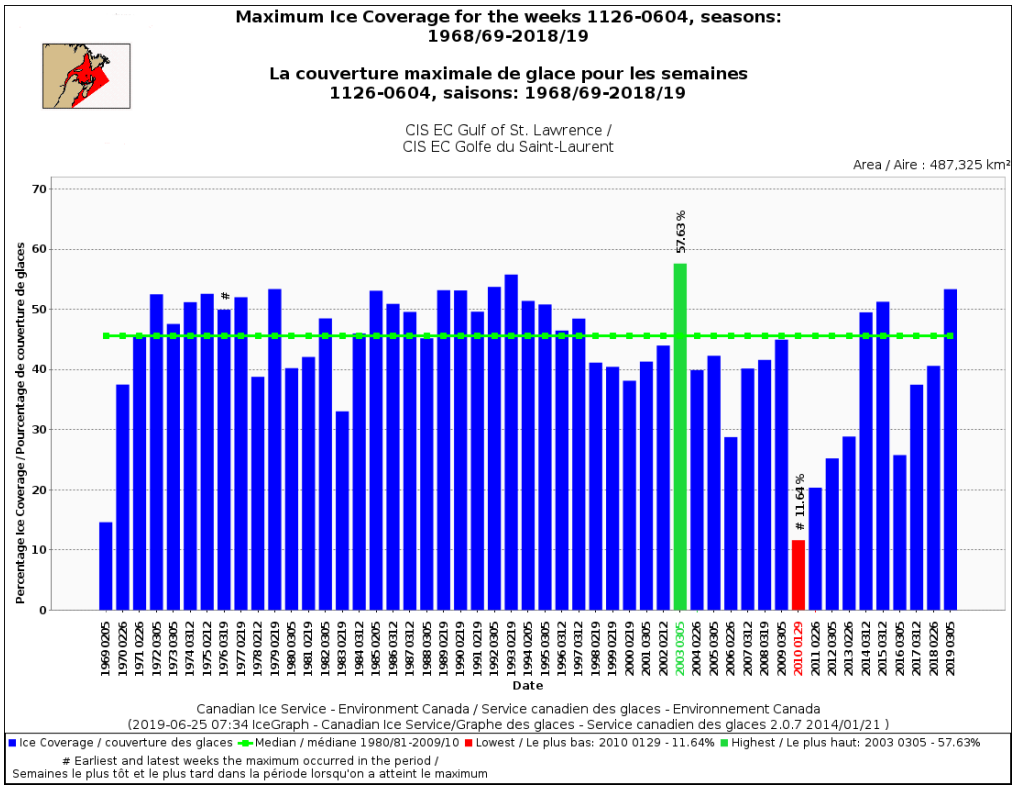

Figure 18: Maximum Ice Coverage in the Gulf of St. Lawrence by Season, 1968-2019.

Newfoundland and Labrador Waters

2018-2019 Season temperature: November to June

The ice season began with well below normal temperatures from mid-November to mid-December for the Island of Newfoundland. Coastal Labrador, during the same time, had near normal temperatures with warmer than normal temperatures in the waters of the Labrador Sea. After the initial incursion of below seasonal temperatures the entire Newfoundland and southern Labrador region had temperatures near to slightly above normal through mid-February.

Starting in mid-February a shift in surface air temperatures occurred with Newfoundland Island and surrounding waters with a cold anomaly for the second half of February of up to 4 degrees Celsius below normal over eastern Newfoundland. These colder than normal temperatures did not persist into March. Temperatures returned to near normal values in early March and continued through the next 2 months while a well below normal sea level pressure anomaly covered central Davis Strait.

May through July saw near to slightly below temperatures for Newfoundland and Labrador for the end of the East Coast ice season.

November Ice Conditions

As is usually the case the first ice formed on Lake Melville in the third week of November. Full ice cover was established over the lake over the next week and by months end some fast ice began to

form at the extreme western portion of the lake. A few patches of new ice formed along the coast and near Cartwright at the end of the month.

December Ice Conditions

Little ice extent change occurred before Christmas day, 2018 as near normal temperatures returned to Newfoundland and Labrador. Ice completely covered Lake Melville and parts of the Labrador coast, all of which was young ice. The last week of December Lake Melville became fully fast with grey-white and first-year ice while ice was present along the entire Labrador coast, some of which stretched up to 70nm from the coast.

January Ice Conditions

Along the South Labrador coast, January saw ice extent increase from 7% to 20%, staying slightly below the seasonal value during the time. Ice through the month was mainly grey and grey-white and extended about 100nm from the coast. At the end of January peak ice extent for the year was observed on the south Labrador sea. Ice cover of 27%, 3% higher than the median climate value.

The waters off Newfoundland saw a similar seasonal pattern with ice slowly climbing from near 0% ice cover at the start of the month to 2% ice covered at the end, near the normal value. The ice pushing into forming in Newfoundland was an extension of the ice pack from southern Labrador pushing south to the Northern Peninsula. Ice was roughly 1 week behind normal flowing southwards into northeastern Newfoundland.

February Ice Conditions

Much like many years ice on the Labrador coast went through phases of contraction and expansion depending on the predominant wind direction. Ice extent fluctuated within 2-3% of 20% for the month, 3-5% below the climate normal. Ice thickness increased from grey-white with some first-year present at the start of the month to mainly first-year with some embedded old ice by the end of the month.

Newfoundland saw gradually increasing ice amounts as ice spread across northeastern Newfoundland in the middle of the month. A big increase in ice extent occurred in the second half of the month when cool northwesterly winds established over the region. Ice covered double to 16% in the week 3rd week of the month, roughly 6% higher than normal for that time. The main addition of ice was to the southeastern waters just north of the Grand Banks. Towards the end of the month some ice moved into the Flemish Pass on the Grand Banks. Predominant ice thickness was grey-white with large swaths of first-year ice in the region.

March Ice Conditions

Continued steady conditions on the Labrador coast with contraction and expansion through the month of the ice along the coast.

Newfoundland started out the month near 16% ice coverage, 4% above the climate median. Northwesterly winds continued through the first few weeks with ice continuing to push southeasterly over the Grand Banks. In the second week of the month the season maximum ice extent was attained in the East Newfoundland waters at 17.5% covered, 6.5% higher than the climate maximum ice cover. The second half of March had ice conditions decreasing rapidly in the southeastern sections of the east Newfoundland waters. Ice near the Grand Banks was rapidly destroyed due to strong winds and ice pulled away from the northeast coast. Ice cover fell by well over half to 6% ice covered in the third week of the month. Because of the time of year of these strong winds ice cover did not recover in extent before the end of the season. By the end of the month all of the ice east of Newfoundland had been destroyed with ice 30-50nm north of the northeast coast of the island. Ice cover ended the month just above 2%, well below the normal of 8-10%.

April Ice Conditions

Labrador tends to see a steady decline in sea ice extent in April and 2018-2019 was no different. Ice cover began near 21% ice covered and reduced to 11.5% covered by the end of the month. Through the month the ice on the Labrador coast flowed into the Strait of Belle Isle and into northeastern Newfoundland waters. Lake Melville and the ice along the coast remained fast through the month. Ice offshore along the Labrador coast went through phases of more expansive and less expansive but generally declined in amount.

The waters off Newfoundland saw a drop from just over 2% ice covered at the start of the month to under 1% covered by the end of the month. Through the period ice gradually thinned and was destroyed. By mid-month ice had pushed southwards to lie along the northeast coast of the Island. That ice sloshed around and by the end of the month a band of very close pack first-year ice including a trace of old ice was present along the eastern coast of the Northern Peninsula.

May Ice Conditions

May saw steady ice cover that very slightly decreased from 8% at the start of the month to 6% at the end of the month. Ice remained through the month along the coast with fast ice against the coast. Towards the end of the month export of ice from Labrador into Newfoundland waters ended. Lake Melville fractured towards the end of the month.

Newfoundland continued to see gradual decline in ice amounts for the first two weeks of the month with some ice remaining in low concentrations at mid-month along the northeastern coast and the eastern coast of the Northern Peninsula. That ice mainly melted in the third week of the month with cool springtime temperatures over the Island. Before the end of the month no further ice could be found in the waters surrounding Newfoundland.

June Ice Conditions

Lake Melville started the month ice covered but within the first 10 days of the month saw all ice melt within. During those same 10 days most of the fast ice along the Labrador coast fractured. An

area of very close pack ice remained along the coast through the month with some close pack to open drift ice surrounding the more concentrated ice. By the second week of the month all ice was present north of Groswater Bay along the coast. The less concentrated ice reduced in extend and quantity. By the end of the month ice was down under 1% cover.

July Ice Conditions

The remaining ice cover melted in the first week of the month, ending the East Coast ice season. The year ended 1 week later than the climate normal end date.

TAC for the East Newfoundland waters ended the 2018-2019 season at 3%, 1.5% below the climate median.

TAC for the Southern Labrador Sea ended the 2018-2019 season at 10.7%, 1.3% below the climate median.

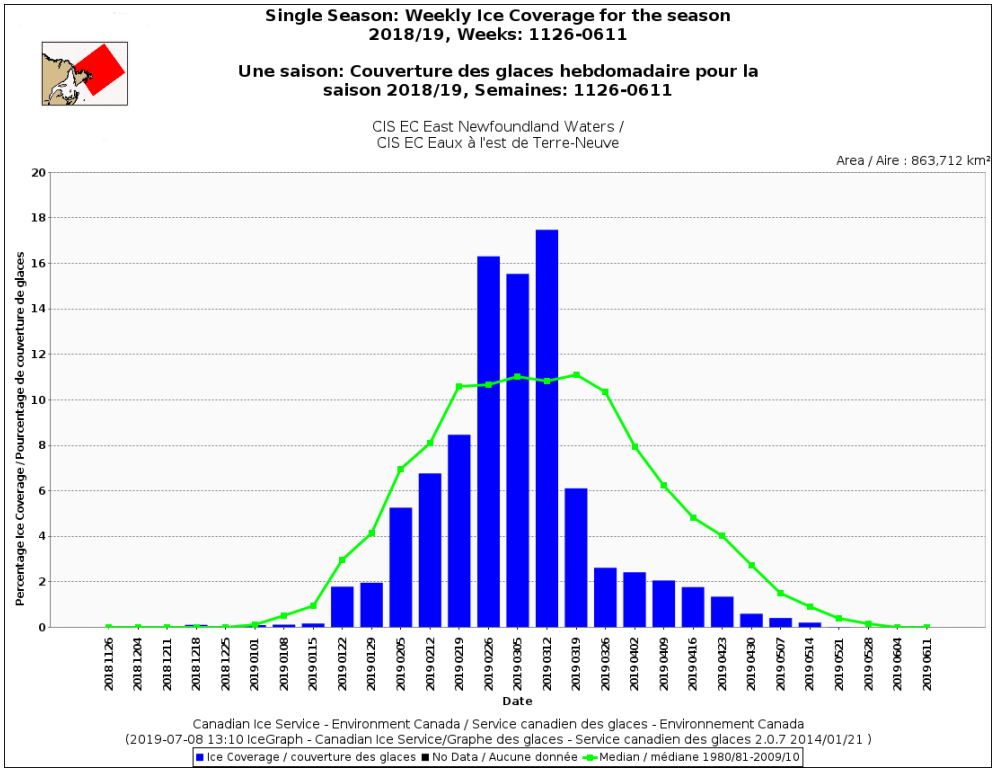

Figure 19: Weekly Ice Coverage for the 2018-2019 Season in Newfoundland.

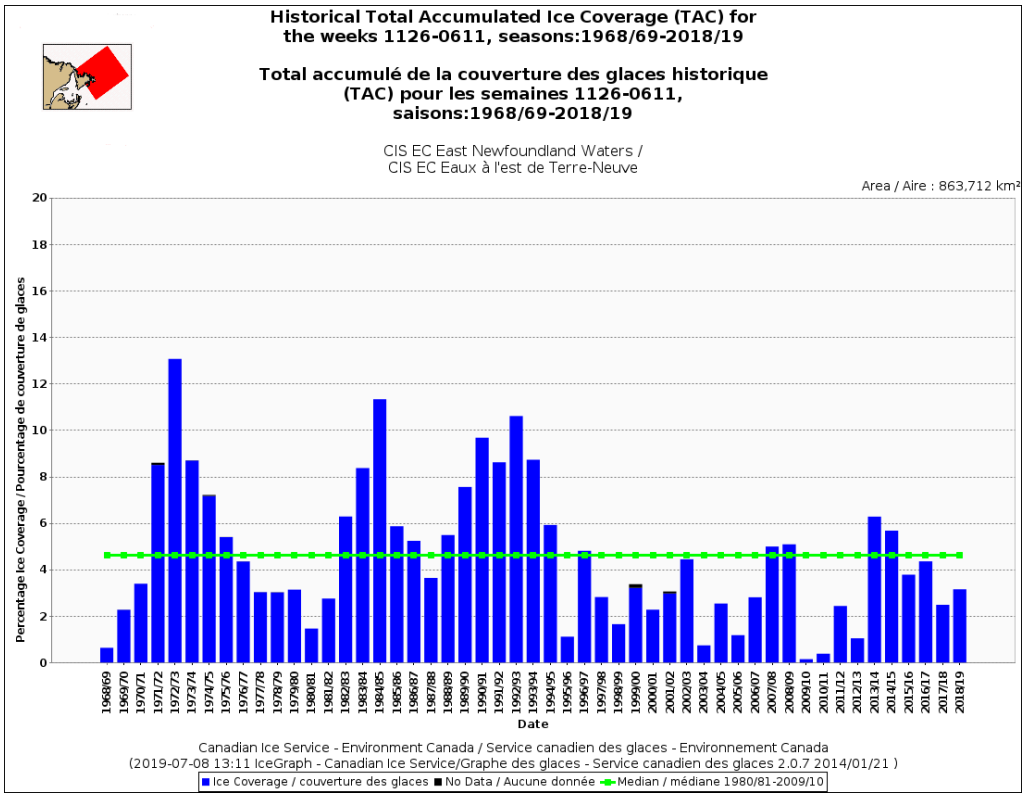

Figure 20: Historical Total Accumulated Ice Coverage Newfoundland by Season, 1968-2019

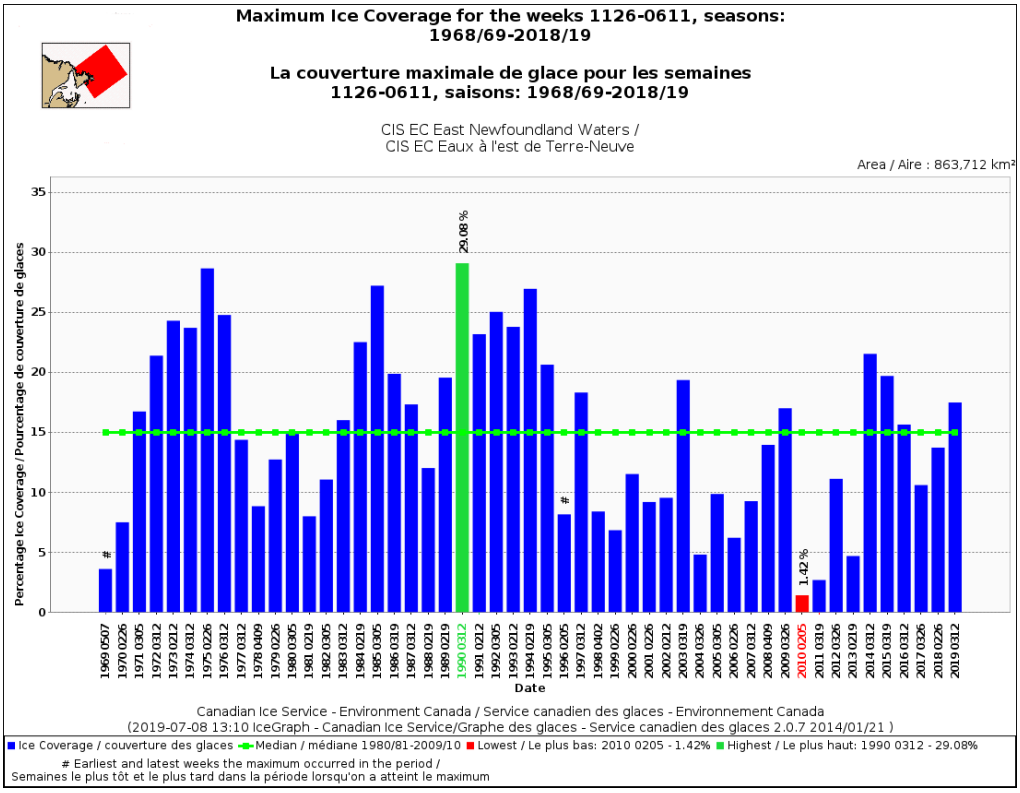

Figure 21: Maximum Ice Coverage in Newfoundland by Season, 1968-2019.

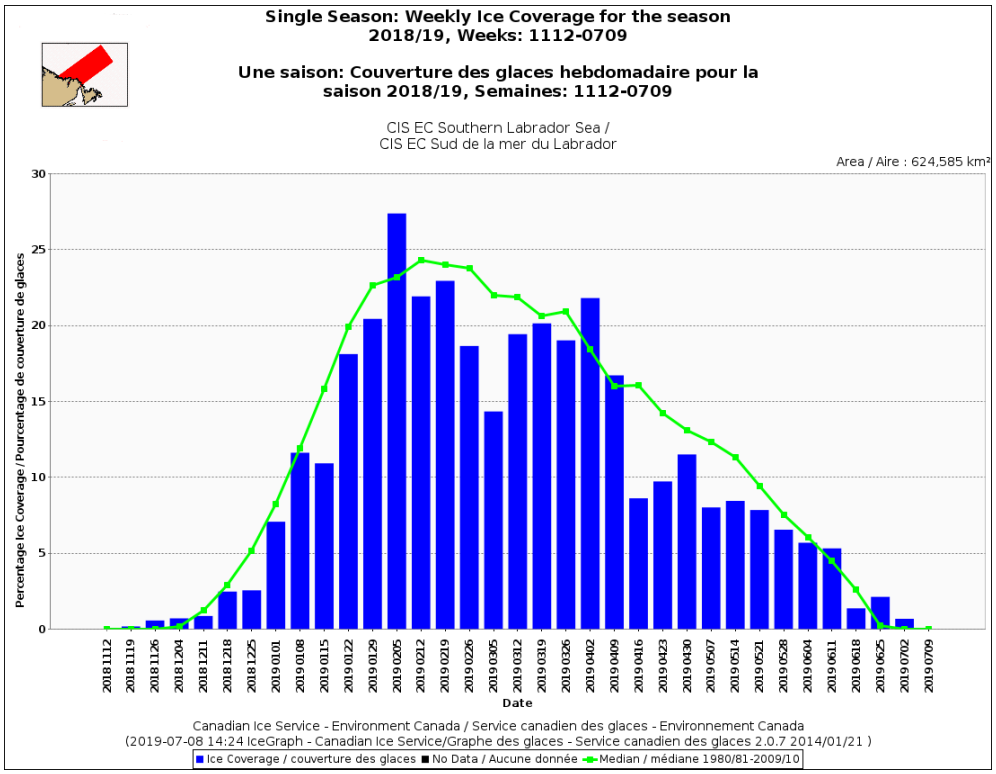

Figure 22: Weekly Ice Coverage for the 2018-2019 season in the Southern Labrador Sea.

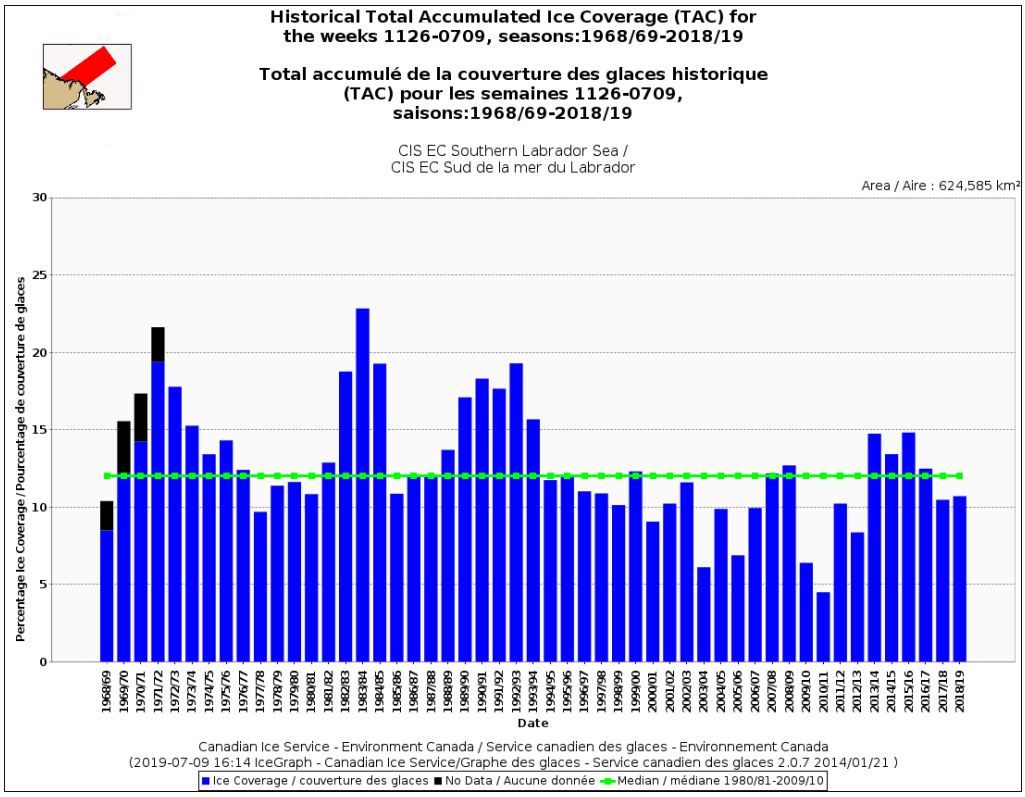

Figure 23: Historical Total Accumulated Ice Coverage for Southern Labrador Sea by Season, 1968-2019

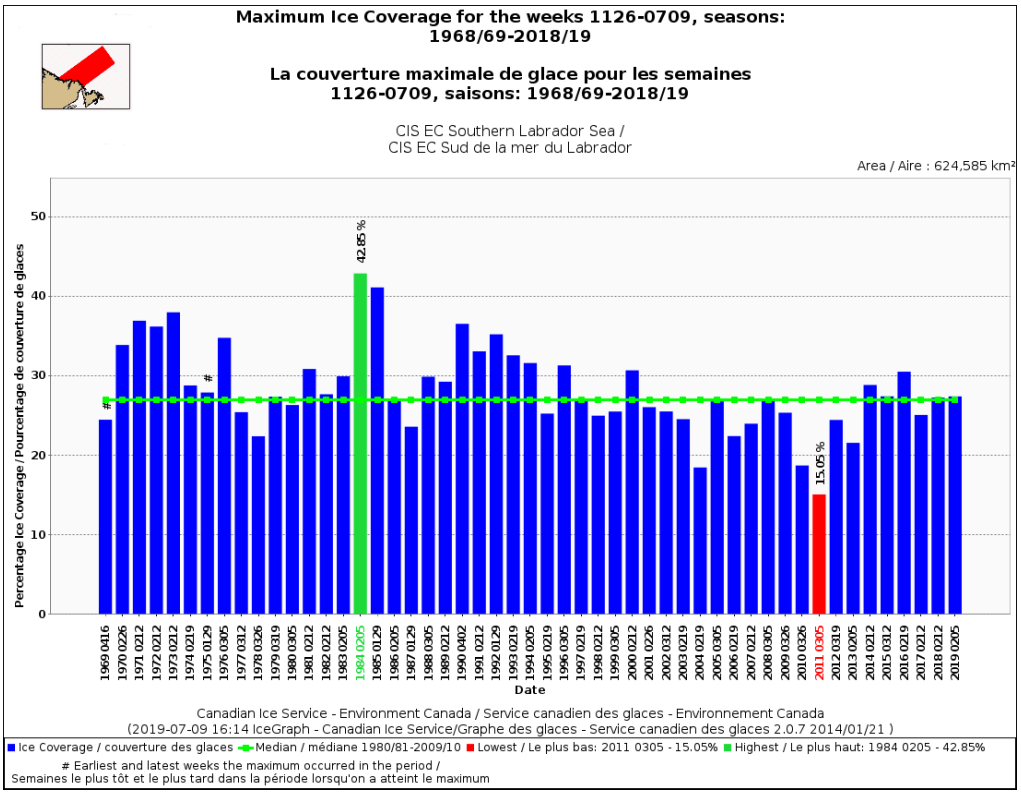

Figure 24: Maximum Ice Coverage in the Southern Labrador Sea by Season, 1968-2019.

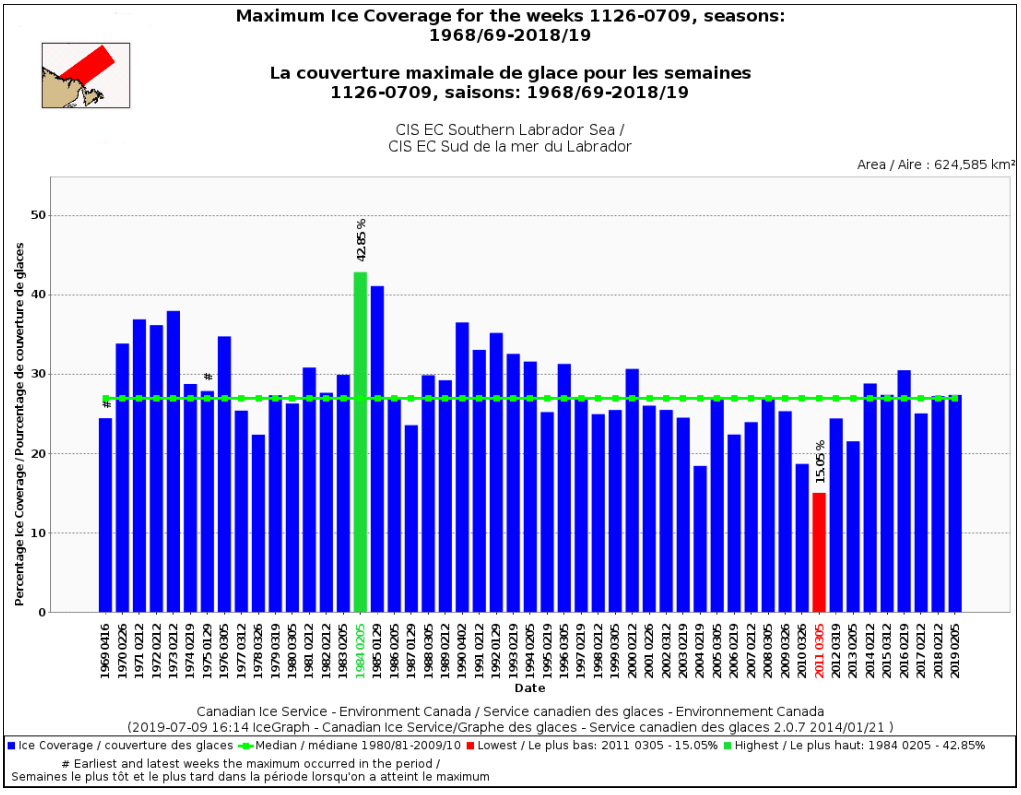

Figure 25: Maximum Ice Coverage in the Southern Labrador Sea by Season, 1968-2019.

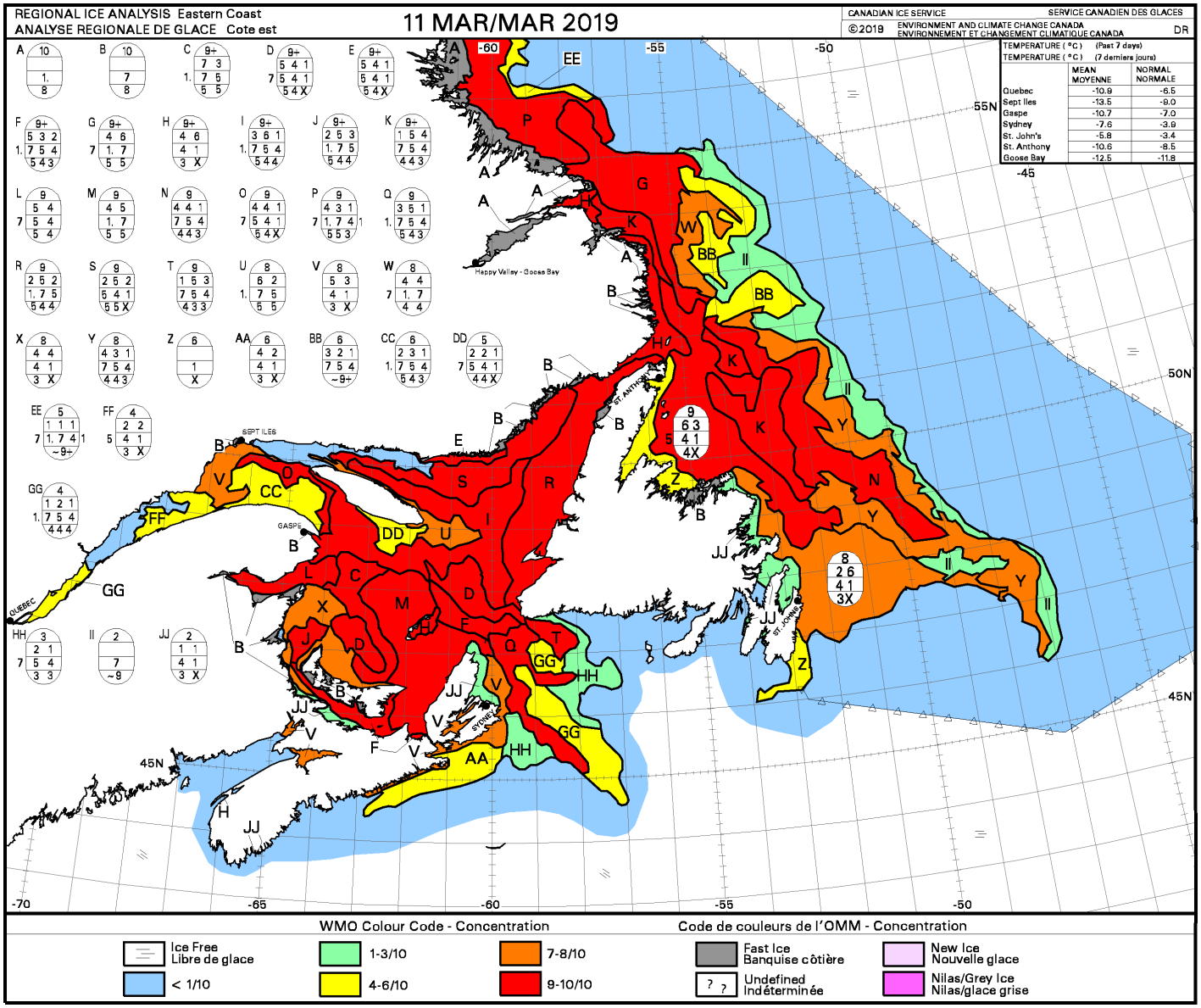

Figure 26: Maximum Ice Cover, Eastern Coast Regional Ice Chart – 11 March 2019.