

Summary of Water Year 2012 Ice Season

By Callan George

Compared to the 2010-2011 winter, this past winter was mild and uneventful. There was very little snowfall in Midwest and West, an unusual phenomenon. The lack of precipitation could be a part in the drought encompassing that region of the United States. Some of those areas rely heavily on snowpack melt off as the main source of their water without which they're struggling through the summer months.

Alaska on the other hand had high snowfall levels in it's costal regions, establishing the conditions needed for major ice events. However, a cool spring and mild warm-up resulted in few ice jams.

There was some minor flooding in Masardis, Washburn, and Fort Fairfield's Maine, as well as in Kobuk, Akiak, Kwethluk, and Nulato Alaska. In Kobuk a boat was needed for transportation, but no structures were flooded. In Kwethluk, thirty-one elderly patients were evacuated for their safety.

While most of the United States had a mild breakup, Manley Hot Springs, Alaska saw the highest water levels in thirty years due to an ice jam on the Tanana River. There was flooding on the runway and several homes were flooded.

River Ice Updates

This is the first River Ice Update of 2011-2012 Winter Season. This update is provided by the Ice Engineering Group at the Cold Regions Research and Engineering Laboratory in Hanover, NH (ERDC/CRREL) to the UOC and the EOCs on river ice conditions during the ice season. This update will be distributed once a week on Wednesday throughout the season. Additional updates may be sent on Mondays and Fridays during peak ice activity.

If you know of ice problems in your area or others who might like to be included on the distribution list, please send information to meredith.l.carr@usace.army.mil. All questions and comments are welcome.

Below is the River Ice Update for 7 March 2012.

07 Mar 2012

Overview:

Extended periods of above normal temperatures this winter have resulted in thin or non-existent ice covers on many typically ice-covered rivers in the U.S. Below normal ice coverage has been reported in Southern New England, the Mid-Atlantic states, the lower Midwest, and the lower Northwest states. In these areas, no further significant ice growth is expected.

Normal or slightly below normal potential for flooding due to ice jams exists in Northern Maine, Montana, North Dakota, Northern Minnesota and Northern Wisconsin. Little ice growth is expected in these areas over the next few weeks. A quicker than normal snowmelt may lead to ice jamming in these areas.

Maine

Ice cover in northern Maine is about 1-2 feet thick, slightly below normal. Freeze-up ice jams from earlier in the season have been locked in place along the Saint John River.

Montana

Ice was moving down through rivers in Montana over a week ago, which has since frozen up during last week's cold snap. Recent rises in stage due to increased runoff during more recent warm temperatures have been attributed to ice jamming. Some ice jams that formed in late February along the Tongue River have since released.

ERDC/CRREL Personnel:

Carrie Vuyovich, research hydraulic engineer at CRREL, discussed local waterway conditions in the aftermath of Tropical Storm Irene during a Wilmington, Vt. town meeting Feb. 15. Vuyovich surveyed damage along the North Branch Deerfield River and its tributaries and then met with the town select-board and concerned citizens to provide an overview of ice jams, ice jam mitigation and emergency response measures. The town was concerned over the potential impacts of the storm damage to river ice processes given the town's history of damaging ice events.

Map of ice jam locations at <https://rsgis.crrel.usace.army.mil/icejam/> and in EngLink under current events in CorpsMap

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Below is the River Ice Update for 14 March 2012.

14 Mar 2012

River ice is weakening and melting through much of the Upper Midwest and Northern Plains. In-bank stage rises are expected along the Black River in Wisconsin, but ice jam flooding is unlikely. As river ice continues to thin and release in Michigan, Montana and Wyoming, the risk of ice jam flooding continues through the end of the week. In much of the Red River basin, water is running over the ice and ice is weakening. In the Upper Red River basin, most ice will break up and move through the system by the end of the week. Breakup of ice on the downstream Red will likely be complete by next week.

A jam occurred on the Ontonagon River near Rockland, Michigan on Monday. River levels rose 4 feet before the jam broke free. There is potential for further ice jamming as the melt progresses downstream. A jam occurred last week on the Missisquoi River in Berkshire, Vermont and led to a brief closure of Route 105.

Map of ice jam locations at <https://rsgis.crrel.usace.army.mil/icejam/> and in EngLink under current events in CorpsMap

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Below is the River Ice Update for 21 March 2012.

21 Mar 2012

Ice has melted or released on most waterways due to the recent warm spell and an unusually mild winter, reducing the risk of ice jam flooding. There is ice still reported on some rivers in Northern Maine. Lingering ice cover on northern Michigan Rivers should be out by the end of the week.

Rises in stages due to snowmelt and ice jamming were seen this past week along the James River in South Dakota, the Peshekee River near Champion, Michigan, and the Missouri River near Williston, North Dakota. On Saturday, a jam on Beaver Creek near Dubois, Idaho caused minor flooding, but was cleared by backhoes.

Map of ice jam locations at <https://rsgis.crrel.usace.army.mil/icejam/> and in EngLink under current events in CorpsMap

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Below is the River Ice Update for 28 March 2012.

28 Mar 2012

Overview:

This will be the final regular river ice update of the season, as rivers and streams across the continental US are mostly ice free. Many rivers and lakes had record or near-record early ice-outs this year. The last breakups of major rivers occurred last week in Northern Maine.

River Ice Updates will restart when ice jams begin occurring in Alaska starting in late April or early May. Current ice and snowpack conditions in Alaska indicate that if a marked warm spell occurs, ice jams are likely.

Maine:

The Aroostook River broke up in a series of small jams. On Thursday morning, jams formed in Masardis and also in Washburn, causing some road flooding. Later, the town of Fort Fairfield's only bridge was shut down for some time because of ice jamming and causing the Aroostook to rise. Jams also occurred on the St. John River between Van Buren and Hamlin.

Images



Ice jamming on the Aroostook River at the Fort Fairfield Bridge, ME



Ice jam on the St. John River near Van Buren, ME, 25 Mar, courtesy Mike Fortin and NWS Caribou.

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Below is the River Ice Update for 25 April 2012: Alaska

25 April 2012

The Alaska ice breakup is beginning after a period of warm weather has caused rapid melting of the snowpack. Due to a heavy snowpack this winter, particularly in southern Alaska and the panhandle, concern over ice jams and snowmelt flooding has been high. Despite the cold weather and snowy season, the thermal insulation of the snow cover on rivers has limited river ice thickness growth to about average. The severity of the breakup and likelihood of jams, therefore, will depend largely on how rapidly warm-up occurs, melting the snowpack and deteriorating the ice. NWS reports a higher than average risk of flooding, particularly in the Kuskokwim River Basin.

A quarter-mile long ice jam has been in place since Thursday night on the Tanana River downstream of Boondox, resulting in minor flooding along the Old Richardson Highway in Salcha, which has been closed for several days. An ice jam has formed in about the same location for the past 10 years, so minor flooding at spring breakup due to river ice jamming is expected by residents, though some feel it is more serious this year because of the volume of water and the speed of the overflow. An ice jam also formed at the mouth of the Salcha River where it meets the Tanana on Sunday night. There was flooding in the Starkeyville subdivision. Both jams were reportedly still causing flooding on Tuesday night.

Breakup is expected to continue along the Tanana for the next week and should be starting on the Yukon the following week.

Map of ice jam locations at <https://rsgis.crrel.usace.army.mil/icejam/> and in EngLink under current events in CorpsMap

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Below is the River Ice Update for 2 May 2012: Alaska

2 May 2012

Overview:

Breakup continues in Alaska with most of the Tanana open water and the Yukon beginning to breakup. Greatest ice jam flood potential is along the middle and lower Kuskokwim River where temperatures have remained low and a sudden warm spell could lead to ice jamming. Ice jams have led to minor flooding in the past week on the Tanana River near Manley Hot Springs, Kuskokwim River downstream of Sleetmute and the Susitna River near Sunshine.

Tanana River:

A 2-3 mile long ice jam formed Saturday on the Tanana River 10 miles downstream from Manley Hot Springs, a town of about 90 people. Water levels rose to the highest level in over 30 years, overflowing Manley Slough, partially flooding the runway, flooding several homes and many basements and contaminating some private wells. The jam broke up Sunday night, dropping water levels by 6 feet overnight. All of the ice was reported to have gone out of the Tanana River where it flows into the Yukon late Sunday night.

Yukon River:

The Yukon ice began breaking up on Sunday, where the ice first went out at Eagle, near the Canadian border. Ice jammed briefly at the location of a severe 2009 ice jam flood, but broke before flooding occurred. Ice was starting to move at Dawson Monday afternoon.

Kuskokwim River:

A 3-4 mile-long ice jam was reported Monday on the Kuskokwim River downstream of Sleetmute. By Tuesday minor flooding was reported where water was going over a roadway.

Images:



Ice jam causing flooding on Tanana River 10 miles downstream from Manley Hot Springs on 29 April 2012 (NWS)



Flooding in Manley Hot Springs on 30 April 2012, upstream of the Tanana River ice jam (NWS)

Map of ice jam locations at <https://rsgis.crrel.usace.army.mil/icejam/> and in EngLink under current events in CorpsMap

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Below is the River Ice Update for 9 May 2012: Alaska

9 May 2012

The breakup in Alaska has been milder than expected due a relatively cool spring. The warmup has been steady, with cool temperatures at night to moderate the thaw. River ice related flooding this week has been primarily on the Kuskokwim River, with the jam downstream of Sleetmute releasing on Saturday. Another jam formed on Saturday on the Kuskokwim River, this time about 10 miles downstream of Aniak near Crow Village. Flooding was reported in Aniak and water was backing up on part of the runway and some low lying roads. Water levels had fallen by Tuesday, though the jam was still in place.

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Below is the River Ice Update for 15 May 2012: Alaska

15 May 2012

The breakup in Alaska is continuing, with ice jams on the Kuskokwim and Yukon Rivers and continued risk of flooding in the West.

Kuskokwim River

The ice jam downstream of Aniak released Wednesday night. An ice jam formed on Sunday below the village of Akiak where the Akiachak and Kuskokuac channel split, inundating roads and causing minor flooding until its release on Monday. Flooding also occurred Sunday at Kwethluk due to an ice jam 5 miles downstream of the village and snowmelt in the Kwethluk River. 31 elderly and chronic care patients were evacuated to Bethel. Several roads were inundated and flooding was expected to continue for several days. By Tuesday, the breakup front was just upriver of Bethel and jammed at Swalbe Island, raising water levels and threatening flooding from Oscarville to Napakiak.

Yukon River

The Yukon is mostly open from Eagle to Kaltag. A jam was in place 2 miles upstream of Kaltag, with 20 miles of chunk ice backed up behind it and ice extending 9 miles to downstream of Nulato. Water rose above the frontage road in Nulato and access to the airport was only by boat. Water levels also rose in Koyukuk. Levels dropped when the jam released Monday. By Tuesday, the main breakup front was above Grayling.

Images:



and



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Breakup flooding at Kwethluk on Monday, 14 May 2012. Photos by George Coyle.

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Below is the River Ice Update for 23 May 2012: Alaska

23 May 2012

This year's Alaska breakup has been relatively mild as a result of cooler than average temperatures in April and May that led to a slow melt and lower flows than could have occurred had the warm-up been quicker. Ice runs and ice jam flooding have been occurring this past week and continue to be a concern on the Buckland, Kobuk and Lower Yukon Rivers.

Buckland River:

Ice began to shift and jammed at Buckland on Sunday. Intact and thick ice downstream combined with upstream tributaries full of snow melt and more snow melt to come, water levels have risen. By Tuesday, the river had risen to within 2.5 feet of the bank, and flooding was expected in the next few days.

Kobuk River:

Ice started moving at Kobuk on Saturday and breakup occurred on Sunday. A jam formed downstream of town, causing minor flooding, requiring travel by boat, but not flooding any structures. The jam released on Monday and river is now mostly open above Shugnak.

Snake River:

A daily maximum rainfall occurred in Nome on Thursday and, as waters rose, a small jam formed at the bridge in town. The jam caused some minor yard flooding and released on Sunday.

Yukon River:

Ice began to run last week at Russian Mission, reaching bankfull on Thursday. Ice also began to run at Marshall and jammed on Wednesday night. A jam also formed on Friday, about 12 miles upstream of Pilot Station, further increasing water levels in Marshall. Minor flooding of low areas and the road to the airport continued through Monday.

At Pilot Station, ice ran on Saturday, opening up 5 miles in town, though the upstream jam did not move. The jam was still in place Tuesday, but the risk of flooding was low due to the release of ice downstream at Hills Island on Tuesday.

Image



Lower Yukon River on Friday, 18 May 2012, University of Alaska - GINA,
www.gina.alaska.edu

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Below is the River Ice Update for 30 May 2012: Alaska

30 May 2012

Spring breakup in Alaska has been progressing and is now effecting the North Slope streams. The Yukon River is open except for ice in some delta channels. The jam formed last week at Buckland released Friday night and minor flooding has ended. Minor flooding was reported in the last week in the Interior, but this was caused by record rainfall and accelerated snowmelt, with most river ice already cleared from the area.

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Below is the River Ice Update for 06 June 2012: Alaska

06 June 2012

This will be the final river ice update of the season. Reports indicate that all Alaska rivers are open or mostly open, indicating that the risk of river ice related flooding has ended.

A review of the 2011-2012 ice season will be transmitted during the summer. If you have any suggestions for information you would like to see in this review, please let us know.

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