State of Maine
River Flow Advisory Commission
Report on Current Hydrologic Conditions
April 11, 2001

The Commission has issued previous reports this spring on March 14, 28 and April 4. Changes from the April 4 report are highlighted.

Overview:

On April 11, the River Flow Advisory Commission met and found that flood potential in the state remains much above normal. This is again primarily due to water content in the snowpack that, although reduced in the past week, remains significantly above normal for this time of year. All the factors that contribute to flood potential are discussed below.

Throughout this report, Internet addresses are listed for each category of information. The River Flow Advisory Commission web site, **www.state.me.us/rfac**, provides a portal to all these different sites. It provides a connection to the ever-changing information critical to monitoring flood potential in the state. At the end of the report, additional sources are provided for further information.

An updated report will be issued following a review of current conditions on April 18, or sooner if conditions warrant.

Current Conditions and Flood Potential:

Stream Flow and Headwater Storage Levels:

River flows throughout the state are generally at or near normal. Over the last week, snowmelt has brought river flows up from the far below normal levels seen so far this spring into a more normal range. Some small streams in southern Maine are reported near bank full but this is causing no flooding problems at this time

River basin managers report headwater storage levels remain at or below normal pre-spring drawdown levels, but reservoir levels have started to rise as the long-delayed snowmelt begins to take effect. Significant storage is still available to retain additional snowmelt and rainfall. For further information on stream flow:

USGS Water Resources of Maine	**me.water.usgs.gov** (Hydrologic Conditions Section)

Ice Conditions:

River ice covers have cleared from long reaches of the major rivers in central and southern Maine rivers, including the Kennebec and Androscoggin. Ice cover on tributary streams has rotted considerably but has not totally cleared. Northern rivers, including the St John and Aroostook and upper reaches of the Piscataquis and Penobscot, still have ice cover. The potential for ice jam flooding remains on the Piscataquis, St. John and Aroostook; existing ice formations are being closely monitored on these rivers. Although the current presence of ice jams does not mean that spring flooding will occur, ice jams, particularly during spring runoff, can produce locally severe flooding.

Strong spring sun and rising water temperatures will generally work to erode river ice naturally.

To monitor ice conditions on the Kennebec River, the Cold Regions Research and Engineering Laboratory of the Army Corps of Engineers (CRREL) placed ice motion detectors in some areas where freeze-up jams were in place. These detectors have now been pulled, since the lower river, including Augusta, is substantially free of ice.

The USGS has placed live web cameras on the Kennebec River in Augusta and on the Piscataquis River in Abbot to provide remote "eyewitness" observation of ice and water movement. These web cams will remain operational at least through the spring. The web cam images are accessible on the Internet at **me.water.usgs.gov**.

For more information on ice conditions:

CRREL	**www.crrel.usace.army.mil**
Northeast River Forecast Center	**www.nws.noaa.gov/er/nerfc**
USGS	**me.water.usgs.gov**

Snowpack:

A full statewide snow survey was conducted April 9 and 10. For the first time in several weeks, water content decreased in the snowpack throughout the state. Decreases in water contents ranged from 1 to 2 inches in Aroostook County to up to 4 inches in south coastal Maine. However, snowpack water levels are still above normal throughout the state. An average of 10 to 12 inches of water is present in the snowpack in the upper and lower Androscoggin River basins, 8 to 9 in the St. John and Aroostook River basins, 6 to 10 in the Penobscot basin, 7 to 10 in the Kennebec basin and 6 to 8 in the Presumpscot and Saco River basins.

Because of the high water contents, even normal amounts of rainfall, coupled with snowmelt from warming temperatures could produce river flooding.

The Maine Cooperative Snow Survey conducts surveys at sites across Maine from mid-February until the snowpack is gone from the headwaters of our major rivers. Cooperators measure snow depth and water content weekly at specific sites. A critical measurement is the "snow water equivalent" which quantifies the amount of water that could potentially run off into the river basins. Contributors to the Maine Cooperative Snow Survey include Federal and State agencies, hydroelectric power and paper companies and Canadian and New Hampshire environmental agencies.

The next snow survey will be conducted Tuesday, April 17. Surveys will be conducted every Tuesday until headwaters are substantially free of snow. For more information on snow survey data, updated with every survey through the spring:

Maine Cooperative Snow Survey	**www.state.me.us/mema/weather/snow.htm**

Flood Potential:

1 to 2 inches of combined rainfall and snowmelt over a 12-hour period would be sufficient to cause flooding in small streams and adjacent lowlands in Maine. One-half to three-quarters of an inch of rain is expected over the next 2 days, which may cause minor flooding on some rivers and streams in southern and central Maine. The Presumpscot River in particular will be monitored closely during this event. Temperatures in the near term are expected to be above normal, with a cooling trend next week to below normal. In the longer term, temperatures are expected to remain below normal with near normal precipitation.

The most important single factor in determining the severity of flooding is rainfall, how much and in how short a period of time. Major flooding on Maine rivers does not generally occur from snowmelt alone. However, given this year's above normal snowpack this late in the season, a moderate amount of rain coupled with warming temperatures could lead to serious flooding.

The National Weather Service Forecast Offices in Caribou and Gray will issue Flood Potential Statements every two weeks throughout the spring or more often if conditions warrant. The next scheduled report for both offices is

Friday, April 13. These reports will examine all current hydrologic factors and give an overall assessment of flood potential.

For more information on flood potential and for flood watches and warning should they arise:

NWS Gray	**www.nws.noaa.gov/er/gyx/hydrology.htm**
NWS Caribou	**www.nws.noaa.gov/er/car/hydro.htm**
NWS Flood Forecasts/MEMA site	**www.state.me.us/mema/weather/flood.htm**

Preparedness and Mitigation:

Flood Insurance and Floodplain Management:

In a recent press release, the State Floodplain Management Program states:

> "With winter's ice and with the expected spring rains, spring flooding is always a threat to those properties that are in the floodplain. One very important item that property owners and renters should consider is the purchase of flood insurance. Unfortunately, many individuals think that their homeowner's or business owners insurance policy will cover any losses. These insurance policies typically do NOT cover damages from flooding. Flood Insurance must be purchased separately. There is a 30 day waiting period before the policy goes into effect. Some estimates indicate that only 21% of those structures in the floodplain in Maine are covered by flood insurance.

Too frequently, renters and homeowners who have flood insurance discover that their coverage was not enough to cover the loss. The Maine Floodplain Management Program strongly recommends that all individuals and business owners check with their insurance agents and determine if their flood insurance is adequate. It is never too late to buy flood insurance — floods can happen at any time.

The State Planning Office and the Maine Emergency Management Agency, in partnership with the Federal Emergency Management Agency (FEMA) have ongoing programs stressing "mitigation", or the reduction of risk from disasters. Flood mitigation can be as simple as moving perishable items out of a basement, elevating a furnace, installing back flow preventers or improving drainage for a road that always floods. It can be as far-reaching as moving entire neighborhoods out of the floodplain.

Flooding is Maine's most costly hazard, affecting some community in the state every year, sometimes with disastrous results. Mitigation measures can not only save repair dollars in the long term, but may even make a community more attractive to development and business investment.

For more information on floodplain management and mitigation:

State Planning Office, Floodplain Management Program	**janus.state.me.us/spo/flood/flood.htm**

Preparedness and Safety:

Preparedness is key to minimizing the impact of flooding or any emergency. The current heightened flood potential should prompt individuals and families, businesses, schools and communities to review their vulnerability to flooding and ensure that they have workable plans for dealing with the event. Everyone should stay aware of National Weather Service forecasts as the spring progresses, and talk to local officials and County Emergency Management Agencies if they have questions about flood preparedness in their communities, or how to build an emergency plan for family, business or school. NOAA Weather Radio can provide prompt notification of emergency conditions for those who live within weather radio reception areas.

It is also critical during a flood event that all citizens heed all official warnings. In particular, the Maine Department of Transportation stresses that during a flood no one should drive on submerged roads, as the stability of the road may have been severely damaged by flood waters. Highway crews will place signs and barricades to warn of flooded sections of road. Motorists who ignore these warnings and drive through flooded areas are gambling with their own safety and that of their passengers. Motorists should always seek an alternate route around flooded areas and avoid taking unnecessary chances by driving through flooded areas. A flooded road may be damaged to the point that it will not support a vehicle.

According to the National Weather Service, even 6 inches of fast-moving flood water can knock you off your feet, and a depth of two feet will float your car. In the southern Maine flood of October, 1996, a life was lost as a result of a vehicle being trapped in flood water.

The National Weather Service Forecast Offices in Caribou and Gray conducted a Flood Awareness Day on Thursday, March 8. Both offices put out special flood preparedness and safety information. For more information on flood preparedness and safety, including the text of the NWS messages, see the links below:

MEMA Flood Preparedness Page	**www.state.me.us/mema** (follow link to Flood Preparedness)
NWS Caribou	**www.nws.noaa.gov/er/car/hydro.htm**
NWS Gray	**www.nws.noaa.gov/er/gyx**
County Emergency Management Agencies	**www.state.me.us/mema/county.htm**

Important Factors for Springtime Floods (in order of relative importance):

1) **RAINFALL:** This is the most important factor in determining the magnitude of significant floods in Maine. If precipitation during April and May are normal and evenly distributed, then streamflow will be in the normal range. However, if significant rainfall occurs over a short period of time, flooding could result.
2) **SNOW COVER:** This is a secondary factor and can add to rainfall events. As the snow pack becomes more "ripe" (nearly saturated), it can melt quickly and significantly add to a flood peak. The most accurate measurement of snow cover is "snow water equivalent". Snow water equivalent is the amount of liquid water contained in the snow. Snowmelt alone should not produce major floods.
3) **RIVER ICE:** Ice jams can cause increased damage by temporarily blocking rivers and streams and causing higher water levels behind the jam. Peak flows downstream increase when jams break up and quickly release stored water.
4) **TEMPERATURE:** Warm days with freezing night temperatures allow a gradual melting and runoff of the snowpack. A sudden warm up, especially when coupled with significant rainfall, can send large amounts of runoff into rivers and streams.
5) **RESERVOIR STORAGE:** Maine's headwater storage reservoirs typically reach their annual low water levels in March. These reservoirs can moderate downstream flood peaks if rainfall occurs above the storage dams while the reservoir's water levels are down. The reservoir systems have limited ability to moderate flood peaks in the lower parts of the river basins if large amounts of rain fall or if heavy rains fall downstream of the storage dams.

Conclusion:

The River Flow Advisory Commission found that as of April 11, flood potential in the state remained much above normal. This is primarily due to water content in the snowpack which remains above normal for this time of year despite beneficial melting which has occurred in the past week. The current conditions information in this report represents a "snapshot" of conditions throughout the state as of April 11, 2001; many new factors will influence the flood potential in Maine as the spring progresses.

National Weather Service and emergency management reports should be watched throughout the spring, and local officials should monitor the flood-prone areas for each community. Property owners, business owners and renters

in flood-prone areas should check their insurance coverage to be sure that they are adequately protected against flooding damages.

Because of the elevated flood potential, the Commission will reexamine conditions and issue a revised report on April 18, 2001.

The Maine River Flow Advisory Commission is composed of representatives from major river basin management operations, state agencies, federal agencies and the University of Maine. The Commission was originally formed after the spring floods of 1983 to improve the exchange of hydrologic information collected by the members, to review the data, and to provide information to emergency action agencies and the public. It was created in statute by the Legislature in 1997.

Additional Information:

Links to continuously updated hydrologic data, as well as preparedness and mitigation information, can be found at **www.state.me.us/rfac.** For additional information on particular aspects of this report, please contact:

Art Cleaves, Department of Defense, Veterans and Emergency Management	Flood preparedness and mitigation	207-626-4503
Bob Lent, U.S. Geological Survey	Stream flow, ice conditions, snow survey	207-622-8202
Tom Hawley, National Weather Service, Gray, Maine	Flood potential for central and southern Maine; flood forecasting	207-688-3216
Hendricus Lulofs, National Weather Service, Caribou, Maine	Flood potential for northern and eastern Maine; flood forecasting	207-496-8931
Marc Loiselle, Maine Department of Conservation	Snow survey	207-287-2801
Lou Sidell, State Planning Office, Floodplain Management Program	Floodplain management, flood insurance and mitigation	207-287-8063

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