supplemental aid in special cases. The Corps would become involved in ice jam breaking only as a last resort, when local resources are exhausted, and then only at the request of the governor.

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Department of Environmental Conservation

ICE JAMS

Preventing Ice Damage in New York State

New York State
Department of Environmental Conservation

In communities where ice blockages often cause damage, local government officials and emergency response teams should know how ice jams are formed and what local agencies can do to prevent damage. The New York State Department of Environmental Conservation (DEC) can help local officials decide on the best solutions for their ice jam problems.

The Problem with Ice Jams

While ice jams eventually melt without human intervention, they can create temporarily dangerous conditions that cause environmental and property damage. The force of moving ice can damage or destroy bridges and shore structures and can scour river banks. Severe flooding sometimes occurs when water backs up behind ice blockages. In some New York State communities, ice jams can be an annual problem.

How Ice Jams Form

During New York's cold winters, lakes and streams are normally ice-covered. Ice becomes a problem only when it blocks stream flow and threatens property and human safety.

In the coldest weather, frazil, a type of ice that forms thick masses in super-cooled moving water, often builds up under the stable surface ice. Frazil reduces the capacity of river channels and forms underwater dams, restricting or even blocking streamflow.

Another kind of ice jam occurs during mid-winter or spring thaws when the ice cover breaks. Where conditions are right, flat chunks of ice begin to run, stopping, piling up, breaking loose and forming new jams downstream.

Ice jams are most likely to form where the stream channel has been modified by construction, where the stream bed gradient flattens out into a flood plain, where the channel is restricted or bends sharply, where a tributary enters a river, or where a stream meets a stable ice sheet, as at a pool or a lake. Man-made or natural channel obstructions can also cause ice to pile up. Severe and frequent ice jamming is most likely where these conditions occur in some combination. Damage is worst where homes and businesses have been built on the floodplain.

Breaking Ice Jams

In most cases, there is no practical way to break a large ice jam. Where it is possible to break a jam, the process is neither quick nor easy; it requires planning, proper equipment and financial resources. The "cure" for an ice jam is to create a channel through the ice blockage. This can be done by bulldozing or dredging a passage upstream through the ice, or by using explosives under the ice. Blasting can only be done by licensed operators. Blasting is dangerous work and is effective only when the conditions are right. Any ice blasting must comply with state and federal regulations.

Preventing Damage

The best way to solve damage problems is to prevent ice jams from forming. In some cases, a permanent bypass channel can be built around an ice jam area to divert floodwaters. Upstream holding ponds or reservoirs reduce ice jamming as they keep ice from moving downstream. Regulated releases from impoundments may be effective in reducing the volume of sheet ice development or in breaching a downstream ice jam. Floating booms are used to catch and hold floating ice, keeping it from the damage-prone area. Perhaps the best solutions are to relocate damage-prone equipment and to build away from the flood plain.

Local Responsibility

The decision to break an ice jam rests with local officials. But state and federal governments can provide technical assistance to help local officials evaluate potential damage and to assess dangerous conditions. The Department of Environmental Conservation (DEC) works with the State Emergency Management Office (SEMO) to help communities develop disaster preparedness plans, including those for flood emergencies.

Since 1976, DEC's Flood Protection Bureau has provided training to guide local officials in ice jam-prone communities. However, the bureau cannot provide financial aid, lend equipment or obtain rights-of-way to a problem area.

The U.S. Army Corps of Engineers will also give technical assistance to local governments and is authorized to provide