2.6 PROTOCOL FOR SAFETY IN SAMPLING THROUGH ICE

Overview

When sampling on ice, always proceed with caution and do not jeopardize your safety. You should test the ice thickness with a rod or ice chisel every few steps. When on ice, you should always wear a personal flotation device and safety harness that is tethered to ice anchors or to something solid on shore. Ice thickness over moving water can vary, and the strength of the ice cannot be estimated from the apparent thickness near the shore (see Table 4). You should be aware that ice downstream from bridge supports and other structures may be thin as a result of modified flow patterns and de-icing agents. Honeycombed ice, areas over rapids, and confluences with other rivers and streams should be avoided as ice thickness in these areas will vary. Special care must be exercised during freeze-up and melt (rotting ice) conditions.

Sources

Environment Canada and B.C. WLAP (2005 c), EMAN-N (2005), Environment Canada (2003 a)

At a glance

1 Water quality samplers must have the required ice safety training and recommended equipment prior to collecting water samples through ice.

safety assessment

2 Ideally, Rescue Canada will perform an ice safety station assessment at all sites to be sampled. This may require that some sites sampled at certain times of the year be attended by at least two people.

3 For safety reasons, any work on ice and/or in cold weather should be carried out by at least two people.

4 Wear an approved flotation or survival suit when working on ice over deep or swift water.

use extreme caution

5 Always proceed with caution over ice, and be attached to a tether. Use an ice bar to test the thickness and condition of the ice to make sure that it is safe to work on it. River ice can be thin even in the Arctic if there is a current or warm groundwater inflow (see Table 4). Carry ice safety picks to help in pulling yourself back onto the ice if you fall through.

6 Carry an extra change of dry clothing with you.

7 Never drive a vehicle over the ice except where a winter ice road exists and then do so with caution.

8 If the ice is unsafe, do not take a sample.

Other sources

Newfoundland and Labrador Environment and Conservation (1999), Environment Canada (1999) draft, Saskatchewan (Undated)

Load	Required Ice Thickness (mm)[1]			
	Continuous Travel		Stationary Load	
	Lake	River	Lake	River
1 person on foot	50	60	75	90
Group, single file	80	90	120	135
Passenger car (2000 kg)	180	210	300	350
Light truck (2500 kg)	200	230	340	390
Medium truck (3500 kg)	260	300	425	500

[1] Effective thickness = Thickness (clear ice) + ½ Thickness (white ice)

Where water lies between layers, use only the depth of the top layer of ice. Under thawing temperatures above average air temperature exceeds zero degrees Celsius, increase the required thickness by 20%.

Source: EMAN-N (2005) from the Alberta Occupational Health and Safety Council 1990.

Table 4: General guidelines for ice strength (clear blue ice)