

HOW QUICKLY, AND IN WHAT AMOUNT, IS SAND TRANSPORTED IN THE RIVER?

Biologists from the DEC Fisheries office in Ray Brook, concerned about stream embeddedness, placed simulated redds in the streambeds of the AuSable and Saranac Rivers to see how quickly spawning gravels became embedded. They used Whitlock/Vibert boxes (small plastic boxes used to incubate fish eggs), modified them slightly, filled them with spawning gravels 0.5 to 1.0 inch diameter, and dug them into the substrate flush with the river bottom. In two to three weeks they were removed and the contents dried, sieved and weighed.

BRASS also placed a few Whitlock/Vibert boxes in the Boquet and on the E. Branch of the AuSable. Results from the box collections are being assessed by the DEC.

To get a sense of how much sediment moves along the river bottom, at least during times when the river can be entered safely, BRASS placed larger pit boxes (10"x7"x5") flush into the streambed. Sediments were collected periodically, especially after a heavy rain. The first collection in '94, following spring run-off, resulted in the following sand weights without great variation between sights:

site	mean weight (g.)
Rte. 73 bridge	3434
Scriver Road	2385
E-Town cemetery	3976
Lee Bridge	3064
Willsboro	2989
Rte. 9N The Branch	2666
N. Branch at Reber	3775

Discharge volumes during the spring often surged higher than 1500 cubic feet per second (cfs). Therefore, boxes may have filled and had sediments scoured out several times. A collection a month later, however, with discharge volumes averaging 250 cfs during the month and the highest discharge only at 510 cfs, the sand collected was:

site	mean weight (g.)
Rte. 73 bridge	3250
Scriver Road	1761
E-Town cemetery	trace
Lee Bridge	2744
Willsboro	1102
Rte. 9N The Branch	538
N. Branch at Reber	273

The total amount of sand transport into the boxes decreased at all sites, although the Boquet's main stem still moved a significant amount of sand (over half the amount collected earlier). Only behind the Elizabethtown cemetery (a slow moving water area) was there a dramatic decline. Large declines on The Branch and the North Branch probably occurred due to a reduction by half in current speed.

Total collections of sand and fines for '94 are shown in the graphs. It is interesting to note that areas of high embeddedness were not necessarily areas of heavy sand transport. The Route 73 bridge site, near the Boquet's headwaters, transported large quantities of sediment but, due to a steep gradient, sediments were not packed into the substrate. Transport and accumulations of sediment depend upon gradient, flow, alignment (curves, meanders or straight paths), streambed composition, and confluences, diversions and dams.
