



May 29, 1995

**An Open Letter to all Metro Councillors**

Dear Councillor,

**Re: Bedrock Resources Inc. Application for Aggregate Dredging in Lake Ontario**

Great Lakes United (GLU), the largest public interest coalition advocating for the protection and restoration of the Great Lakes, has many concerns about the proposal which has recently surfaced from Bedrock Resources to mine the bottom of Lake Ontario. Our concerns are wide ranging. They include the impacts on : the integrity of the Lake Ontario ecosystem, the food web and health of the fish and aquatic life of the Lake, the potential of human health risks, the risks to the shoreline, habitat, the Bluffs and adjacent land uses from erosion, as well as the risk to other governments' pollution prevention, clean-up, remediation and shoreline management initiatives which this proposal not only ignores but contradicts. We are also very concerned with the approvals course which this proposal has taken, which has avoided public scrutiny of the need for the project, the alternatives to this undertaking and its impacts which a full environmental assessment would provide.

Our Board members and organizational members have been active in numerous initiatives both local and lakewide, to improve the ecosystem. These include; the Keating Channel Environmental Assessment (of dredge disposal at the Leslie Street Spit), efforts which led to the Lakefill Quality Assurance Program at the Spit, the Environmental Assessment of the Expansion of the Ashbridges Bay Sewage Treatment Plant, the City of Toronto Waterfront Remedial Action Plan, the Toronto Remedial Action Plan, the deliberations of the Royal Commission on the Future of the Toronto Waterfront, and the binational Lake Ontario Toxics Management Plan. From these efforts we have gained a lot of technical information on this area and the ecosystem of Lake Ontario and the whole Great Lakes to bring to this evaluation. **On both technical and ethical grounds we would urge you to oppose this application currently before the Ontario government because it poses real risks to the local environment and will work against the public vision embodied in numerous other efforts to restore our waterfront and Lake Ontario.**

**Risks to the Ecosystem from Dredging**

It is well documented that dredging causes bottom sediments to be resuspended to the water column and bioavailable to biota and fish in the region. As well, dredging creates under water plumes which can carry these sediments great distances. This is particularly a grave concern when sediments are known to be contaminated, have the characteristics that contribute to contaminate mobility, are near significant discharges of pollution, and are near to drinking water intakes. All of these conditions exist in the area where Bedrock has applied to dredge 1.5 km offshore from the Asbridges Bay sewage treatment plant and 400 m from one of

Toronto's drinking water intakes.

Fortunately, a lot of information is available on this area from monitoring done in the 1980's on the impacts of the dredging of the contaminated bottom sediments of the Keating Channel (at the mouth of the Don River) and the disposal of those sediments in cells at the Leslie Street Spit. These studies demonstrated the risks to this area posed by stirring up contaminated sediments. During the five years that project was under going an environmental assessment, local residents and the City of Toronto's Department of Health and their Medical Officer of Health repeatedly voiced concerns about the disposal of contaminated dredgate at the Spit because it was several kilometres from two of Metro's drinking water intakes, the R.C. Harris Plant intake to the east and the Island Filtration Plant intake to the west. Aerial photos of the plumes showed that impacts were much magnified underwater travelling along the sloping lake bottom they could reach distances of three kilometres in each direction along shore in some weather conditions. To prevent contamination of drinking water supplies, restrictions were put on disposal practices and the disposal cells were closed to Lake Ontario by the final terms of the Environmental Assessment (EA).

Studies done around the same time by the Ontario Ministry of the Environment, The Effect of Contaminants Associated with Suspended Sediment on Water Quality in the Toronto Waterfront during 1985 reveal the quality and characteristics of the sediments in the area where Bedrock Resources now proposes to dredge near the Ashbridges Main Sewage Treatment Plant (STP) outfall. This report found that "Ministry water quality objectives for the protection of aquatic life and recreational use (MOE 1984) were exceeded within the study area ....Remedial measures will be required if provincial water quality objectives are to be met on all occasions at all locations (particularly in the vicinity of the sewage treatment plant outfalls, river mouths, and lakefilling at the East Headland)....Suspended materials sampled at the sewage treatment plants had generally higher concentrations of nutrients, metals and organochlorine compounds than sampled at the river mouths or the lakefilling site...In general the Main STP exhibited greater concentrations of contaminants than the Humber STP." Attached are tables from that report showing daily loadings from the Main STP at Ashbridges. Deposits to the vicinity since this report have certainly continued, may have cumulated nearby and are likely to have increased with increases in volumes treated at Ashbridges STP. Much more rigorous testing of sediment quality and threats to Metro's drinking water supply are necessary. Bedrock's lack of attention to impacts on drinking water impacts is inadequate. Their willingness to cover new drinking water treatment costs is woefully inadequate insurance for the protection of the public health.

On December 27, 1985 your Metro Works committee considered a report on the currents of Lake Ontario which pointed out some troubling information the unpredictability of the currents of Lake Ontario under certain temperature, wind and wave conditions . This report suggested that during certain periods dispersion of STP discharges might not be taken out into the lake but might run in "rivers along the shoreline of Lake Ontario. Further studies of this phenomena should Have been undertaken by the proponents of this proposal.

Great Lakes United is very concerned that the "state of the art" suction dredging equipment shown in Bedrock's proposal is not currently available in the Great Lakes. The suction dredging equipment which has been used in the Great Lakes has no capacity for settlement

and simply churns sediment up with overflow waters and contributes to the resuspension of contaminants in the water column dramatically. Attached is a section from one of our publications showing the "state of the practice" in the Great Lakes which led our organization to call for a ban of the use of suction dredges in the Great Lakes.

In the last several years, Great Lakes fishery scientists have expressed their alarm at the depletion of the smelt populations in Lake Ontario. This decline could lead to the crash of the delicate and already stressed web of life in Lake Ontario. These fish are an important food source of nourishment for larger species and their decline could threaten the biodiversity of all of Lake Ontario. Bedrock's proposal to mine the bottom of the Lake evokes the tragic destruction of the cod stocks off Newfoundland, caused in part by the raking of their spawning grounds by large trawler operations.

### **Shoreline Compromises and Contradictions**

Bedrock's proposal could compromise many of the regeneration and reclamation efforts alive on the shores of Lake Ontario by causing erosion of the whole area from Asbridges Bay to Bluffer's Park and beyond. It doesn't take an engineer to know that if you dig a hole in a lake near to shore that wave and weather will move the sands from the shore into that hole over time. What are the implications of this to the recreational uses along this shoreline and the linkages around this area with the Waterfront Trail which the Waterfront Regeneration Trust has masterfully pieced together. What is particularly baffling to us is the role which the Ontario Ministry of Natural Resources (MNR) and their agent The Metropolitan Toronto Region Conservation Authority (MTRCA) has played in stewarding Bedrock's application through the Province quietly since 1990. Ostensibly, Bedrock's proposal flies in the face of these agencies other green works in the area of the proposed dredging site. To the west the MTRCA has spent years and considerable capital building shoreline protective structures to protect the eroding Scarborough Bluffs, north of the site they are mentors for the marinas in Ashbridges Bay and to the East they are administering the Lakefill Quality Assurance Program to prevent further contaminated fill from coming in contact with the water at their filling sites on the Leslie Street Spit while managing the conservation and habitat creation programs at Tommy Thompson Park. For the past three years the Ministry of Natural Resources has been developing a Great Lakes Shoreline Management Policy now enshrined in Planning Act Reforms in Bill 163 stringent new measures for the protection of shorelines and beaches from erosion, wave action through a variety of land use controls on land. Why has this resolve fallen off at the water's edge ? It's likely that the things are looking greener at the bottom of their Crown waterlots on the bottom of the Lake for MNR and MTRCA and the green is in the profits that will overflow to them as they suck their 50 cents a tonne from the profits they will share with the development industry who will be using the sandy sediment to sustain development by churning out more concrete to pave the ever Greater Toronto Area (GTA).

**Great Lakes United,**

*David Mahony*  
David Mahony, Field Coordinator

**THE EFFECT OF CONTAMINANTS ASSOCIATED WITH  
SUSPENDED SEDIMENT ON WATER QUALITY  
IN THE TORONTO WATERFRONT  
DURING 1985**

**Duncan Boyd**

**Great Lakes Section  
Water Resources Branch**

**MAY 1988**

**c Queen's Printer for Ontario, 1988  
ISBN 0-7729-3702-8**

**D0476A/GL-8**

TABLE 8: Total Daily Loadings at Toronto Waterfront Inputs

| Location        | Sampling Date | Daily Flow<br>( $\times 10^3 \text{ m}^3$ ) | Sus. Sol.<br>(Kg/day) | Total P<br>(Kg/day) | TKN<br>(Kg/day) | Cadmium<br>(g/day) | Chromium<br>(Kg/day) | Copper<br>(Kg/day) | Iron<br>(Kg/day) | Lead<br>(Kg/day) | Mercury<br>(g/day) | Nickel<br>(kg/day) | Zinc<br>(Kg/day) |
|-----------------|---------------|---------------------------------------------|-----------------------|---------------------|-----------------|--------------------|----------------------|--------------------|------------------|------------------|--------------------|--------------------|------------------|
| Humber<br>STP   | 25/04/85      | 319                                         | 7,040                 | 242                 | 3,828           | 130                | 8.6                  | 3.8                | 1,148            | 1.3              | 26                 | 26.5               | 38.3             |
|                 | 02/05/85      | 339                                         | 7,024                 | 297                 | 4,983           | 980                | 6.1                  | 3.4                | 970              | 1.0              | -                  | 35.3               | 32.9             |
|                 | 27/06/85      | 385                                         | 9,979                 | 885                 | 6,353           | 190                | 1.5                  | -                  | 327              | -                | -                  | 12.7               | 5.8              |
|                 | 17/10/85      | 356                                         | 6,871                 | 320                 | 4,094           | 710                | 22.8                 | 8.5                | 3,026            | 5.7              | 39                 | 57.0               | 81.9             |
|                 | 21/10/85      | 371                                         | 3,409                 | 152                 | 5,639           | 370                | 5.9                  | 5.2                | 705              | 6.3              | 19                 | 63.1               | 36.0             |
| Main<br>STP     | 24/04/85      | 635                                         | 6,966                 | 635                 | 18,098          | 1,270              | 28.6                 | 25.4               | 825              | 8.3              | 38                 | 76.2               | 44.5             |
|                 | 01/05/85      | 681                                         | 6,246                 | 306                 | 17,842          | 610                | 17.0                 | 16.3               | 42               | 4.8              | -                  | 26.6               | 21.8             |
|                 | 01/06/85      | 616                                         | 10,423                | 385                 | 15,831          | 550                | 19.1                 | 14.2               | 450              | 12.3             | 49                 | 40.0               | 28.3             |
|                 | 28/06/85      | 673                                         | 13,797                | 491                 | 2,356           | 1,350              | 27.6                 | 20.2               | 740              | -                | 20                 | 33.0               | 45.8             |
|                 | 18/10/85      | 703                                         | 25,744                | 1,476               | 21,231          | 4,220              | 53.4                 | 49.9               | 1,687            | 27.4             | 105                | 45.7               | 119.5            |
|                 | 22/10/85      | 630                                         | 7,535                 | 425                 | 17,640          | 3,150              | 34.0                 | 35.9               | 945              | 18.9             | 44                 | 39.1               | 63.0             |
|                 |               |                                             |                       |                     |                 |                    |                      |                    |                  |                  |                    |                    |                  |
| Mimico<br>Creek | 22/04/85      | 27                                          | 979                   | 3                   | 22              | 8                  | 0.4                  | 0.3                | 30               | 0.4              | 2                  | 0.1                | 0.9              |
|                 | 04/05/85      | 21                                          | 820                   | 2                   | 21              | -                  | 0.3                  | 0.2                | 36               | 0.7              | 1                  | 0.1                | 1.1              |
|                 | 01/06/85      | 23                                          | 382                   | 1                   | 13              | -                  | 0.1                  | 0.1                | 18               | 0.3              | 0.5                | 0.05               | 0.5              |
|                 | 24/06/85      | 23                                          | 363                   | 1                   | 15              | -                  | -                    | -                  | 1                | -                | 0.2                | -                  | -                |
|                 | 19/10/85      | 239                                         | 31,261                | 67                  | 201             | -                  | 6.9                  | 6.2                | 1,291            | 17.9             | 17                 | 2.2                | 52.6             |
|                 | 23/10/85      | 15                                          | 203                   | 1                   | 11              | -                  | 0.2                  | 0.1                | 11               | 0.2              | 0.5                | 0.1                | 0.5              |
| Humber<br>River | 23/04/85      | 669                                         | 15,628                | 40                  | 381             | 134                | 4.0                  | 4.0                | 428              | -                | 13                 | -                  | 6.0              |
|                 | 04/05/85      | 381                                         | 11,681                | 19                  | 229             | -                  | 1.9                  | 1.9                | 457              | 6.5              | 8                  | -                  | 6.9              |
|                 | 01/06/85      | 647                                         | 45,258                | 91                  | 550             | -                  | 1.9                  | 1.9                | 1,035            | 11.6             | 13                 | -                  | 9.1              |
|                 | 27/06/85      | 219                                         | 9,785                 | 20                  | 155             | -                  | 0.2                  | -                  | 74               | -                | -                  | -                  | -                |
|                 | 19/10/85      | 902                                         | 29,847                | 42                  | 379             | -                  | 10.8                 | 9.0                | 902              | 22.6             | 18                 | 3.6                | 24.4             |
|                 | 23/10/85      | 311                                         | 4,077                 | 12                  | 168             | -                  | 1.2                  | 1.2                | 183              | 1.9              | 9                  | 0.6                | 3.4              |
| Don<br>River    | 03/05/85      | 184                                         | 5,562                 | 35                  | 432             | 37                 | 2.4                  | 1.8                | 164              | 2.4              | 2                  | 0.9                | 4.0              |
|                 | 04/05/85      | 199                                         | 2,511                 | 35                  | 541             | -                  | 1.6                  | 2.0                | 175              | 4.8              | 8                  | 1.0                | 5.8              |
|                 | 01/06/85      | 275                                         | 4,700                 | 39                  | 547             | -                  | 1.1                  | 1.4                | 253              | -                | 6                  | 4.4                | 4.7              |
|                 | 28/06/85      | 141                                         | 6,490                 | 23                  | 169             | -                  | 0.4                  | 0.4                | 128              | -                | 3                  | 0.7                | 1.7              |
|                 | 19/10/85      | 959                                         | 83,097                | 172                 | 556             | -                  | 7.7                  | 14.4               | 2,781            | 41.2             | 115                | 5.8                | 71.9             |
|                 | 22310/85      | 181                                         | 1,767                 | 24                  | 235             | -                  | 1.3                  | 1.1                | 119              | 1.8              | 5                  | 0.9                | 4.9              |

"- " = no results available

**TABLE 9: Particulate Daily Loadings at Toronto Waterfront Inputs - Nutrients and Metals**

| Location     | Sampling Date | Total P (Kg/day) | TKN (Kg/day) | Aluminum (Kg/day) | Arsenic (g/day) | Cadmium (g/day) | Chromium (Kg/day) | Copper (Kg/day) | Iron (Kg/day) | Lead (Kg/day) | Mercury (g/day) | Nickel (kg/day) | Zinc (Kg/day) |
|--------------|---------------|------------------|--------------|-------------------|-----------------|-----------------|-------------------|-----------------|---------------|---------------|-----------------|-----------------|---------------|
| Humber STP   | 25/04/85      | -                | -            | 43                | 64              | 134             | 3.8               | 2.9             | 704           | 1.1           | 2.5             | 0.7             | 11.3          |
|              | 02/05/85      | 349              | 328          | 22                | 32              | 211             | 3.9               | 3.0             | 702           | 0.8           | 4.1             | 0.8             | 14.0          |
|              | 27/06/85      | 239              | 466          | -                 | 38              | -               | -                 | -               | -             | -             | 7.8             | -               | -             |
|              | 17/10/85      | 198              | 253          | 23                | 30              | 213             | 0.5               | 3.2             | 502           | 1.0           | -               | -               | -             |
|              | 21/10/85      | 102              | 141          | 17                | 20              | 375             | 4.1               | 0.2             | 293           | 0.9           | 2.5             | 0.7             | 10.6          |
| Main STP     | 24/04/85      | 334              | 204          | 216               | 80              | 975             | 15.3              | 12.5            | 627           | 6.5           | 5.0             | 2.2             | 25.1          |
|              | 01/05/85      | 280              | 190          | 169               | 76              | 618             | 13.7              | 10.6            | 525           | 5.4           | 11.2            | 1.2             | 21.2          |
|              | 01/06/85      | -                | -            | 167               | 75              | 709             | 17.7              | 13.5            | 469           | 5.3           | -               | 1.1             | 24.0          |
|              | 28/06/85      | 781              | 215          | 510               | 170             | 1,794           | 33.1              | 30.4            | 924           | 11.9          | -               | 2.3             | 48.3          |
|              | 18/10/85      | 824              | 1,030        | 412               | 210             | 2,291           | 51.4              | 33.5            | 901           | 11.3          | 51.5            | 3.3             | 74.7          |
|              | 22/10/85      | 379              | 253          | 241               | 87              | 1,281           | 19.6              | 14.3            | 445           | 5.7           | 6.9             | 1.4             | 27.1          |
| Mimico Creek | 22/04/85      | 2                | 3            | 21                | 11              | 4               | 0.1               | 0.1             | 29            | 0.3           | 0.1             | 0.04            | 0.6           |
|              | 04/05/85      | 1                | 3            | 19                | 11              | 3               | 0.1               | 0.1             | 26            | 0.2           | 0.2             | 0.03            | 0.5           |
|              | 01/06/85      | 1                | 3            | 8                 | 5               | 2               | 0.1               | 0.1             | 12            | 0.1           | 0.1             | 0.01            | 0.2           |
|              | 24/06/85      | 1                | 2            | -                 | 1               | -               | -                 | -               | -             | -             | -               | -               | -             |
|              | 19/10/85      | 56               | 119          | 782               | 308             | 156             | 5.0               | 4.1             | 938           | 9.7           | 5.0             | 1.2             | 27.2          |
|              | 23/10/85      | 1                | 1            | 4                 | 2               | 1               | 0.03              | 0.05            | 6             | 0.1           | 0.04            | 0.01            | 0.2           |
| Humber River | 23/04/85      | 20               | 61           | 281               | 93              | 22              | 0.7               | 1.0             | 422           | 2.7           | 1.3             | 0.4             | 3.6           |
|              | 04/05/85      | 2                | 3            | 20                | 4               | 2               | 0.1               | 0.1             | 28            | 0.1           | 0.1             | 0.02            | 0.2           |
|              | 01/06/85      | 50               | 77           | 1,131             | 311             | 24              | 2.4               | 2.7             | 1,403         | 2.9           | 2.7             | 1.2             | 6.8           |
|              | 27/06/85      | 15               | 31           | 264               | 45              | 13              | 0.9               | 0.7             | 333           | 0.9           | 0.7             | 0.3             | 1.9           |
|              | 19/10/85      | 46               | 104          | 507               | 170             | 72              | 2.1               | 3.0             | 686           | 6.0           | 6.3             | 0.8             | 10.4          |
|              | 23/10/85      | 6                | 18           | 82                | 28              | 9               | 0.4               | 0.4             | 106           | 0.4           | 0.5             | 0.1             | 1.2           |
| Don River    | 03/05/85      | 16               | 46           | 100               | 30              | 15              | 0.6               | 0.9             | 150           | 1.6           | 2.2             | 0.2             | 2.8           |
|              | 04/05/85      | 6                | 9            | 48                | 21              | 6               | 0.3               | 0.6             | 70            | 0.6           | 1.0             | 0.1             | 1.1           |
|              | 01/06/85      | 14               | 24           | 94                | 32              | 7               | 0.4               | 0.5             | 132           | 0.9           | 0.8             | 0.1             | 1.6           |
|              | 28/06/85      | 21               | 23           | 130               | 48              | 19              | 1.1               | 0.7             | 233           | 1.2           | 0.8             | 0.2             | 2.3           |
|              | 19/10/85      | 126              | 258          | 1,413             | 372             | 166             | 5.2               | 8.1             | 1,911         | 19.9          | 17.5            | 2.1             | 34.1          |
|              | 22/10/85      | 7                | 10           | 34                | 12              | 6               | 0.2               | 0.3             | 53            | 0.4           | 0.6             | 0.1             | 0.9           |

"-" = no results available

**TABLE 10: Particulate Daily Loadings (Grams per Day) at Toronto Waterfront Inputs - Organochlorine Compounds**

| Location: Number STP |                |         |            |            |  |  |
|----------------------|----------------|---------|------------|------------|--|--|
| Compounds Detected   | Sampling Dates |         |            |            |  |  |
|                      | May 2          | June 27 | October 17 | October 21 |  |  |
| PCBs                 | 1.51           | 2.20    | 0.45       | 1.21       |  |  |
| HCB                  | 0.07           | -       | 0.02       | 0.03       |  |  |
| beta - BHC           | nd             | nd      | 0.01       | nd         |  |  |
| alpha - chlordane    | nd             | nd      | nd         | 0.07       |  |  |
| gamma - chlordane    | 0.06           | nd      | nd         | 0.04       |  |  |
| oxychlordane         | nd             | 0.20    | nd         | nd         |  |  |
| p,p - DDT            | nd             | nd      | nd         | 0.10       |  |  |
| p,p - DDE            | 0.09           | 0.06    | 0.08       | 0.12       |  |  |
| DMDT                 | nd             | nd      | 1.17       | 0.05       |  |  |
| endosulphan sulphate | nd             | nd      | nd         | 0.10       |  |  |
| dieldrin             | nd             | 1.60    | nd         | nd         |  |  |
| endrin               | nd             | nd      | 0.07       | 0.03       |  |  |
| heptachlor epoxide   | nd             | 0.20    | nd         | nd         |  |  |

| Location: Main STP   |       |        |         |            |            |  |
|----------------------|-------|--------|---------|------------|------------|--|
| Compounds Detected   | May 1 | June 1 | June 28 | October 18 | October 22 |  |
|                      |       |        |         |            |            |  |
| PCBs                 | 2.34  | 3.54   | 2.55    | 16.73      | 6.56       |  |
| HCB                  | 0.56  | 0.68   | 0.51    | 2.14       | 0.56       |  |
| beta - BHC           | nd    | nd     | 0.01    | nd         | nd         |  |
| gamma - BHC          | nd    | nd     | 0.01    | nd         | nd         |  |
| alpha - chlordane    | 0.04  | 0.21   | nd      | nd         | 0.07       |  |
| gamma - chlordane    | 0.06  | 0.16   | nd      | nd         | 0.07       |  |
| oxychlordane         | 0.06  | nd     | nd      | nd         | nd         |  |
| p,p - DDE            | 0.03  | 0.25   | 0.10    | 0.85       | 0.41       |  |
| p,p - DDD            | nd    | 0.21   | nd      | nd         | nd         |  |
| DMDT                 | 0.21  | nd     | nd      | 6.44       | 0.61       |  |
| endosulphan I        | 0.32  | 0.46   | nd      | nd         | 0.24       |  |
| endosulphan sulphate | nd    | 0.93   | nd      | 1.13       | 0.20       |  |
| dieldrin             | 0.23  | 1.01   | nd      | 1.08       | 0.27       |  |
| endrin               | nd    | 0.68   | nd      | 1.42       | 0.26       |  |
| heptachlor epoxide   | nd    | nd     | nd      | 0.90       | 0.22       |  |

## SAGINAW BAY

Overflow dredging is used to deepen the shipping channel in the Saginaw River and Bay. Accompanied by local Michigan Department of Natural Resources' (DNR) officials and leaders of the Saginaw Bay Advisory Council, we took local members of the media out on the Bay the afternoon of the hearing to see this practice first hand. A 200-foot-long boat with a hydraulic dredge unit prowls the shipping channel sucking up sediment and water. As the vessel's hopper fills up, brown, muddy water washes over the sides of the boat, back into Saginaw Bay. The dredging operator lets the boat overflow in order to fill the boat's hopper with as high a proportion of sediment and as little water as possible.

The water slopping over the sides of the boat is far from clean. The larger particles have settled out into the hopper, but the overflowing water is still heavily laden with fine particles of silt. According to Bernie Uhlmann, who lives along the Bay and watches the dredge daily, a typical dredging cycle lasts 45 minutes. During the last 15 minutes, the hopper is allowed to overflow.

Representatives of the Saginaw Bay Advisory Council and the DNR explained the problems with overflow dredging. The sediment in Saginaw Bay must be disposed of in a confined disposal facility because it is contaminated. Many toxic contaminants have an affinity for silt and clay particles. The finer particles, because they have more surface area, are more highly contaminated. The material overflowing the boat's hopper has a high concentration of these finer, highly contaminated particles because the smaller particles settle out more slowly.

When we visited the Saginaw Bay region, people were still cleaning up from a flood that left hundreds of people homeless and caused thousands of dollars of property damage. Millions of tons of sediment, containing phosphorus and other pollutants, were dumped into area waterways during the flood. Because the Saginaw River and Bay are already shallow, this will increase the need for dredging. Residents like Uhlmann recognize the need to dredge, but insist that the practice of overflow dredging be banned.

As the vessel's hopper fills up, brown, muddy water washes over the sides of the boat.

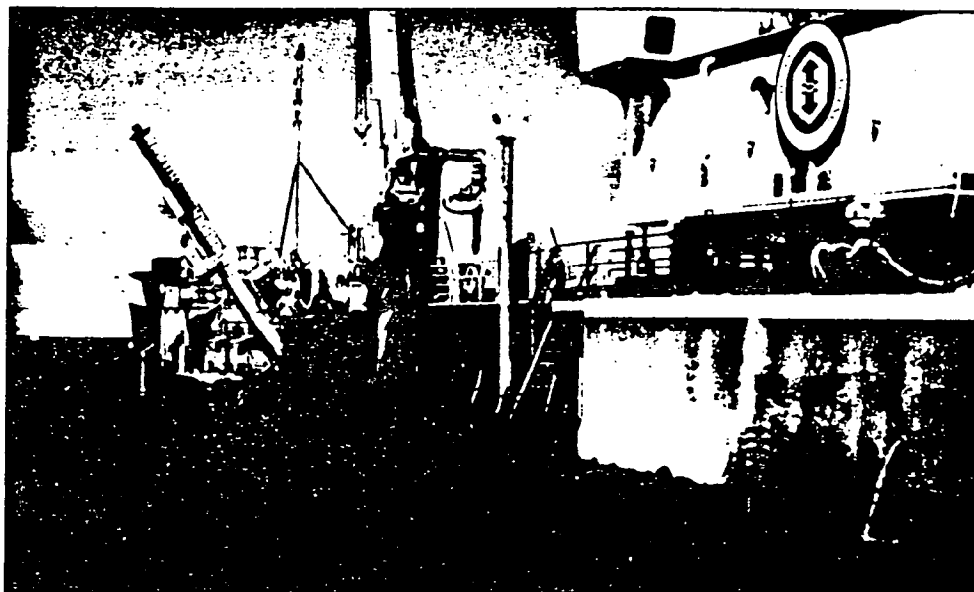


Photo Credit: Bernard Uhlmann