Darrin Fresh Water Institute
AT LAKE GEORGE

EURASIAN WATERMILFOIL MANAGEMENT
IN
LAKE GEORGE, NEW YORK

prepared for

The Lake George Park Commission

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EXECUTIVE SUMMARY

The Darrin Fresh Water Institute has conducted aquatic plant (macrophyte) assessments of Lake George since the early 1970s. With the discovery of Eurasian watermilfoil (*Myriophyllum spicatum* L.) in 1985, aquatic plant assessments took on an added role of plant management. Eurasian watermilfoil management activities based on physical control techniques (hand and suction harvesting and benthic barrier) were initiated in 1989. Management activities were supported by state, federal and local sources however, federal support for Eurasian watermilfoil management in Lake George ended in 1993.

In 1994, a proposal for integrated aquatic plant management was developed by the Darrin Fresh Water Institute (DFWI) and submitted to the Lake George Park Commission (LGPC). The proposal involved a cooperative effort by LGPC and DFWI personnel to apply physical control methods for aquatic plant management. In 1995, the LGPC initiated a contract with the DFWI for $20,000 per year for a three-year program incorporating hand harvesting, suction harvesting and benthic barrier. In 1997, and again in 1998, funds were supplemented by a grant from the FUND for Lake George to the LGPC. These grants were divided between rehabilitation of the aging suction harvester, replacement of the support vessel for the suction harvesting system, and additional benthic barrier installation.

At the conclusion of the 1998 program, 127 sites had been identified where Eurasian watermilfoil had been reported on at least one occasion. A total of 113 sites have been managed for Eurasian watermilfoil in one or more years since the start of aquatic plant management efforts. Of these, 55 were cleared of Eurasian watermilfoil in 1998. Cleared, as used in this context, indicates removal of all visible milfoil plants, including roots. An additional 28 sites were found to be clear of Eurasian watermilfoil. At seven sites, milfoil abundance was reduced, but density of milfoil growth precluded complete removal. At four locations, milfoil was observed for the first time. Thirty-seven sites require a more intensive management strategy than hand harvesting (e.g. suction harvesting or benthic barrier). Of these, fourteen sites currently have populations of Eurasian watermilfoil toward which no management activity has been directed.

During 1998, the suction harvester was used at four locations - Bell Point (M-75), South Shelving Rock Pt (M-76), Diamond Island (M-113), and at South Jenkins Brook (M-98). A total of 98 person•hours were spent suction harvesting at these four sites. Suction harvesting removed the existing dense growth of Eurasian watermilfoil at all of the above locations with the exception of South Jenkins Brook, which will require additional suction harvesting in 1999. A total of 8 barrels of milfoil were removed from these four sites via the suction harvester in 1998.

Benthic barrier maintenance was conducted at all nine locations at which barrier was already in place. These sites include Dunhams Bay, West Brook, South Jenkins Brook, Sheriffs Dock, Shepards Park, North Sawmill Bay, East Brook, Sunset Bay, and South Sawmill Bay. The barrier at each of these sites was inspected by divers and repairs and adjustments made as necessary. Repairs included moving barrier to close gaps between panels, cutting vent holes in the barrier material to release trapped gases, and placing additional stakes in the barrier material to secure it to the lake bottom.

At one location, South Jenkins Brook (M-98), existing benthic barrier was relocated within that site to cover new growth of Eurasian watermilfoil. This barrier had been originally installed in 1997. A total of 15 panels of barrier (5250 ft^2) were moved, and areas where the barrier had been located were devoid of all plant life. Scattered milfoil growth around the perimeter of the barrier was reduced with hand harvesting effort, and some heavy growth was removed via suction harvesting (see above). These areas will need to be inspected annually to prevent recolonization of milfoil from adjacent populations. Additional work including intensive hand harvesting and some suction harvesting will be needed here in 1999 to ensure that the milfoil at this site remains at manageable levels.

In 1998, a total of 4803 Eurasian watermilfoil plants were removed by hand harvesting at 58 locations. On average, 83 plants were removed from sites with milfoil present at hand harvestable levels. This compares to the 1997 program where 5938 milfoil plants were removed from 53 sites with an average of 112 plants removed per site. Coupled with the sites cleared of milfoil in past harvesting efforts, 83 sites or 65% of the recorded milfoil sites were free of milfoil at the conclusion of the 1998 effort.

EURASIAN WATERMILFOIL MANAGEMENT IN LAKE GEORGE
1998 PROGRAM REVIEW

Introduction

The Darrin Fresh Water Institute has conducted aquatic plant (macrophyte) assessments of Lake George since the early 1970s. With the discovery of Eurasian watermilfoil (*Myriophyllum spicatum* L.) in 1985, aquatic plant assessments took on an added role of plant management. Eurasian watermilfoil management activities based on physical control techniques (hand and suction harvesting and benthic barrier) were initiated in 1989. Management activities were supported by state, federal and local sources. However, federal support for Eurasian watermilfoil management in Lake George ended in 1993.

In 1994, a proposal for integrated aquatic plant management was developed by the Darrin Fresh Water Institute and submitted to the Lake George Park Commission. The proposal involved a cooperative effort by LGPC and DFWI personnel to apply physical control methods for aquatic plant control. In 1995, a multi-year program incorporating hand harvesting, suction harvesting and benthic barrier was initiated. The following sections describe the current status of Eurasian watermilfoil in Lake George, past management efforts, and management activities conducted during 1998.

Eurasian watermilfoil (*M. spicatum*) Locations

As of the end of 1998, a total of 127 sites have been identified which have had Eurasian watermilfoil (Table 1, Figure 1). Half of these sites are located in the southern basin, with high concentrations near human population centers and boat-use areas including: Lake George Village, Bolton Landing, and the southeastern shallow bays (Dunhams, Harris and Warner). In the north basin, clusters of Eurasian watermilfoil populations are found near Huletts Landing, Putnam, Hague, and the outlet.

Table 1. Listing of all known milfoil sites in Lake George and their density of growth, 1998 management activities and projected future management needs.

Site #	Site Name	Density of Milfoil	# of Milfoil Plants	1998 Action	Management Options[1]
1	NWB-Brook inflow	bed		observed	1
2	BB Congers Point	scattered	55	cleared	3
3	SW Congers Point	moderate		observed	2
4	NW Sweetbriar Island	moderate		observed	2
5	West Green Island	bed		observed	1
6	Sunset Bay	bed		observed	1
7	Shepard's Park	bed		observed	1
8	West Brook Delta	bed		observed	1
9	Million S Beach	scattered	1	cleared	3
10	East Brook Delta	scattered	67	cleared	3
11	S end Warner Bay	scattered	19	cleared	3
12	L.G. Outlet	bed		observed	2
13	NE Mossy Point	bed		observed	1
14	SE Happy Family	none	0	cleared	3

EURASIAN WATERMILFOIL MANAGEMENT IN LAKE GEORGE
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Site #	Site Name	Density of Milfoil	# of Milfoil Plants	1998 Action	Management Options[1]
15	Finkle Brk-FWI	scattered	7	cleared	3
16	Middleworth Bay	bed		observed	1
17	E end Echo Bay	scattered	76	cleared	3
18	Hague Boat Launch	moderate		observed	4
19	Dunham Bay	bed		observed	1
20	Huddle Bay	bed		observed	1
21	Sheriff Dock	bed		observed	1
22	NWB-Shadow Bay	scattered	393	cleared	3
23	L.G. Yacht Club	bed		observed	1
24	NWB- W Tongue Mt.	bed		observed	1
25	Basin Bay	scattered	63	cleared	3
26	SW Cannon Point	bed		observed	1
27	NW Cooper Point	bed		observed	1
28	S Hearthstone	none	0	cleared	3
29	B-NE Tea Island	scattered	17	cleared	3
30	N Tea Is Bay	bed		observed	1
31	English Brook	none	0	cleared	3
32	Crosbyside-T37a	none	0	cleared	3
33	S Plum Point	none	0	cleared	3
34	Bay Plum & Woods Pt	scattered	1	cleared	3
35	NWB-Bay S Fan Pt	scattered	4	cleared	3
36	B-E Dark Bay	scattered	129	cleared	3
37	S Warner Bay	scattered	73	cleared	3
38	S Warner Bay -B	scattered	65	cleared	3
39	S Katskill Bay	scattered	9	cleared	3
40	B-S Red Rk Bay	scattered	151	cleared	3
41	Paradise Bay	bed		observed	1
42	Bolton Bay-T55	scattered	1148	cleared	3
43	Bolton Bay-T54a	scattered	94	cleared	3
44	Bolton B-NE Bridge	scattered	4	cleared	3
45	Tiroga/Black Point	scattered		observed	4
46	Leontine/Clay Island	scattered	647	reduced	3
47	Smith Bay	scattered	255	cleared	3
48	Gull Bay	bed		observed	1
49	S Burnt Point	none	0	cleared	3
50	Clark Hollow T5	scattered	191	cleared	3
51	Eichlerville Bay T11n	bed		observed	1
52	Rogers Rock Beach	none	0	cleared	3
53	West Tongue Mt	scattered	12	cleared	1
54	Cook's Bay, HL/T11	scattered	4	cleared	3
55	Indian Bay	scattered	1	cleared	3
56	S. Sawmill Bay	bed		observed	1
57	S. Green Island	moderate		observed	3
58	Silver Bay	scattered		observed	2
59	Hondah Cottages	scattered	344	reduced	3
60	Camp Andrew Bay	bed		observed	1
61	Harbor Is-Moonlight	bed		observed	1
62	Marine Village/T-40	scattered	3	cleared	3
63	S. Agnes Island	scattered	19	cleared	3

EURASIAN WATERMILFOIL MANAGEMENT IN LAKE GEORGE
1998 PROGRAM REVIEW

Site #	Site Name	Density of Milfoil	# of Milfoil Plants	1998 Action	Management Options[1]
64	Three Brothers Island	scattered	26	cleared	3
65	W. of 3 Bros. Island	none	0	cleared	3
66	N. Sawmill Bay	bed		observed	1
67	Bluff Head Creek/T8	scattered	2	cleared	3
68	Rock Dunder Island	scattered	59	cleared	3
69	Kitchal Bay Huletts	none	0	cleared	3
70	S Trib W Halfway Is	none	0	cleared	3
71	Hague Brook/T86	bed		observed	1
72	S Cooks Bay/T89	scattered	1	cleared	3
73	Trib Dark Bay/T91A	scattered	15	cleared	3
74	N. Meadow Point	none	0	cleared	3
75	Bell Point	moderate		cleared	3
76	S Shelving Rock Pt	bed		cleared	3
77	Walker Point	scattered	19	cleared	3
78	B. N. W. Tongue Mt.	moderate	80	reduced	2
79	Shore S. Bear Point	none	0	cleared	3
80	Bay S. Bear Point	none	0	cleared	3
81	Butternut Brook	scattered	1	cleared	3
82	Barber Bay/T-22	scattered	5	cleared	3
83	Van Warmer Bay	none	0	cleared	3
84	Harris Bay Inlet	scattered	5	cleared	3
85	Dunham Bay Inlet	scattered	32	cleared	3
86	East Shore/T-36d	none	0	cleared	3
87	Crosbyside/T-37b	none	0	cleared	3
88	Crosbyside/T-37c	none	0	cleared	3
89	Crosbyside culvert	none	0	cleared	3
90	S Tea Is culvert	none	0	cleared	3
91	Harris Bay - E. side	bed		observed	1
92	B. E Hens & Chicks Is	none	0	cleared	3
93	East of Refuge Island	scattered	3	cleared	3
94	NW 3 Sirens Island	scattered	11	cleared	3
95	NWB Head of Bay	none	0	cleared	3
96	Harris Bay/mid-bay	bed		observed	1
97	W. Side Clay Island	scattered	1	cleared	3
98	South Jenkins Brook	mod/bed		reduced	2
99	Holman Hill Creek	scattered	8	cleared	3
100	Temple Island	scattered	19	cleared	3
101	Brook. N Green Point	scattered	3	cleared	3
102	S Trib. 5 Mile Mt. Bk.	none	0	cleared	3
103	N N Meadow Point.	scattered	162	cleared	3
104	Assembly Pt. W. Bay	none	0	cleared	3
105	Assembly Pt. NW	none	0	cleared	3
106	Assembly SE Bay	scattered	2	cleared	3
107	Elizabeth Island	none	0	cleared	3
108	Harris Bay Culvert	bed		observed	1
109	SW Happy Family Is.	moderate	305	reduced	3
110	Diamond Point	none	0	cleared	3
111	NW Bay-NE Walker Pt.	none	0	cleared	3
112	Whale Rock-E. Agnes Is.	bed		observed	2

Site #	Site Name	Density of Milfoil	# of Milfoil Plants	1998 Action	Management Options[1]
113	Diamond Island	moderate		reduced	3
114	Sandy Bay-Mooring Post	bed		observed	2
115	Cape Cod Village Bay	scattered	6	cleared	3
116	Holman Hill Creek-N	scattered	148	cleared	3
117	Glenburnie-Blairs Bay	bed		observed	1
118	Blairs Bay-North	scattered	2	cleared	3
119	E Side HBYC	scattered	2	cleared	3
120	N Warner Bay Culvert (T28)	scattered	17	cleared	3
121	East Shore (T36c)	scattered	1	cleared	3
122	Still Bay	none		cleared	3
123	West Flirtation Island	bed		observed	1
*124	N of Shelving Rock Pt.	scattered	1	cleared	3
*125	E. of Sagamore Is.	scattered	1	cleared	3
*126	NW of Dollar Islands (T26a)	scattered	4	cleared	3
*127	SW French Pt (T69)	scattered	10	cleared	3

[1] Management:
1- Dense growth requiring intensive management efforts (e.g. benthic barrier)
2- Moderate growth requiring management efforts (e.g. suction harvest)
3- Scattered growth best managed by hand harvesting
4- Site characteristics not suitable for physical control

Descriptions of Eurasian watermilfoil Sites

Three different designations for the degree of milfoil infestation are used in the following summaries; beds, moderate density, and scattered plants. Beds are considered to be areas where 50 percent or more of the total macrophyte community by percent cover was milfoil. Moderate density areas are considered to be communities composed of significant amounts of milfoil, but totaling less than 50 percent cover. Zones of scattered plants were defined as macrophyte communities composed of less than 10 percent milfoil as determined by percent cover estimates.

Northwest Bay (M-1). The number of Eurasian watermilfoil plants have increased at this site since its discovery in 1986, and the bed has also increased in size to cover a substantial portion of the littoral zone. This site has fine, silty, organic-rich bottom sediments, due to wetland runoff from Northwest Bay Brook and wetland. Slope is moderately flat, except adjacent to the navigation channel into the wetland. The once diverse native aquatic flora has become severely impacted by the development of the dense bed of Eurasian watermilfoil. No management has occurred at this site.

Bolton Bay at Conger's Point (M-2). In the past, this site has included a small area with moderately dense growth of milfoil plants, a nearby small dense bed, and an extensive area of low density scattered plants throughout this small bay. Benthic barrier material was installed over the dense bed growth at this site during 1990. This barrier was removed and relocated elsewhere in 1997. Areas of moderate and low-density milfoil growth were also harvested in 1997. When visited in 1998, only 55 plants of Eurasian watermilfoil were found and remover via hand harvesting here. The bottom is silty, the slope moderately flat. Heavy boat traffic is found in the adjacent open water.

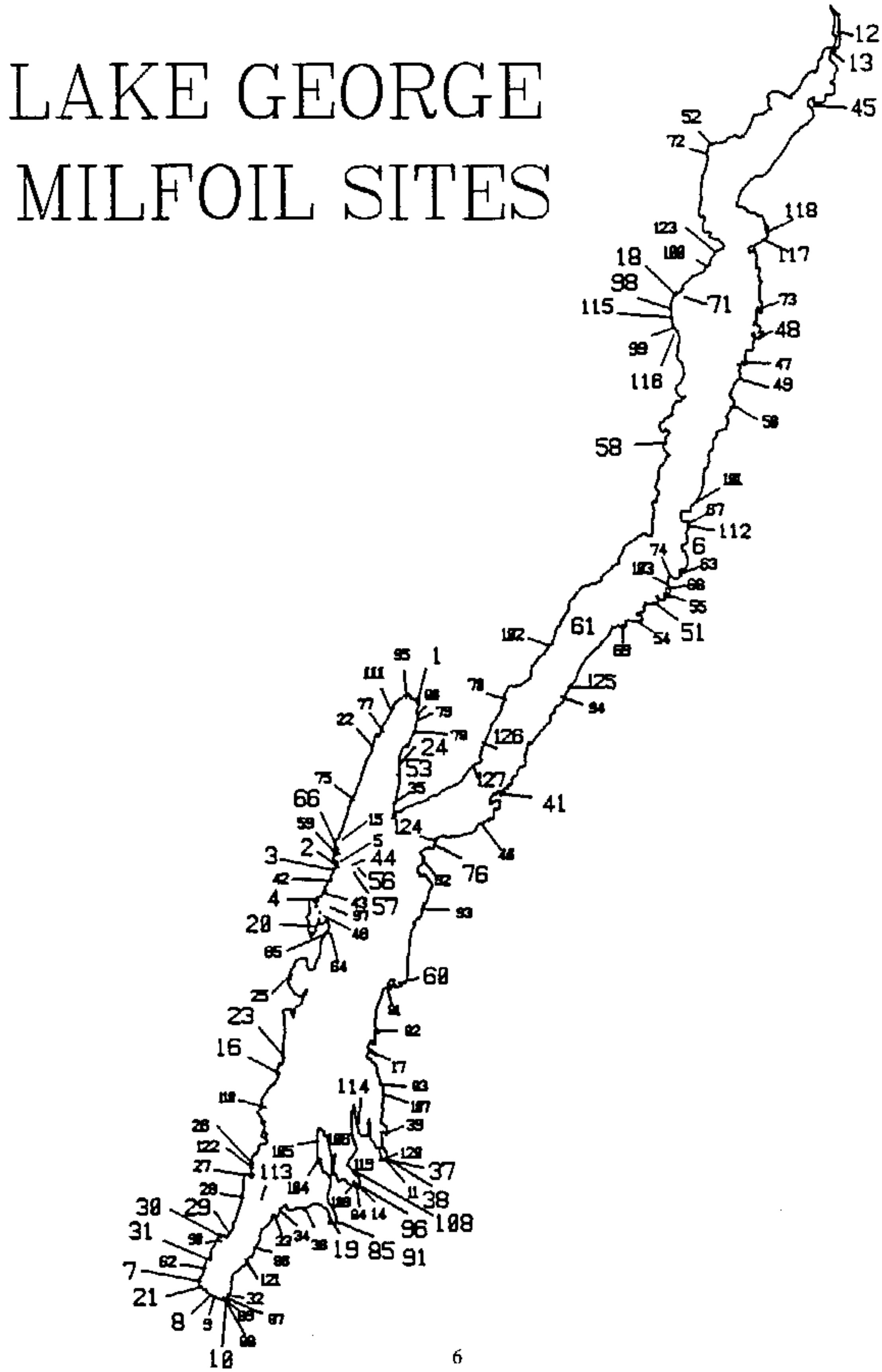
Bolton Bay SW of Conger's Point (M-3). Dense stands of milfoil were found among the docks of a marina, with adjacent areas of low to moderate density plants among the docks. This area has heavy boat traffic both among the docks, and in the adjacent open water area. Approximately 50 meters of shoreline was affected. This site was suction harvested in 1991, however substantial areas of moderate and low-density milfoil growth remain. Heavy boat traffic limits diver access to this site. No management occurred here in 1998.

Huddle Bay NW of Sweetbriar Is (M-4). Few scattered plants were found around the docks of a marina (low density) and commercial establishments (low to moderate density). The bottom is silty, and the slope is shallow. Curly-leaf pondweed (*Potamogeton crispus*) was also observed here. Boat traffic is heavy among the docks and in this small embayment. Approximately 100 m of shoreline was affected. The moderate density areas were suction harvested and the scattered plants were hand-harvested in 1991. Scattered and moderate density areas of milfoil plants were present at this location in 1998.

Sawmill Bay W shore of Green Is (M-5). Moderate density milfoil growth was found near a boat ramp for NYSDEC, and around a marine railway at an adjacent private facility. The bottom is composed of mixed silt and rubble, with numerous bottom obstructions. Boat traffic in the adjacent waterway and among the docks is heavy. The milfoil population at this site was managed via suction harvesting in the fall of 1990, however the bottom obstructions severely hampered this operation. Surveys in 1996 indicate the need for additional management efforts at this site. This location is within Sawmill Bay, a site proposed for treatment with the herbicide Sonar™ in 1999.

Sunset Bay (M-6). The moderate density area surrounding the small bed of milfoil reported in 1989 has increased in density and merged with the small milfoil bed. A majority of this area was covered with benthic barrier in 1992 and 1993. The remainder of this small bay contains scattered plants. A small patch of scattered plants to the north of the principal milfoil area has increased to moderate density. The slope is gradual, with a silty bottom. Eurasian watermilfoil was found from 1 to 4 meters of depth and the bed was in 2 to 3 meters depth. Substantial accumulations of silt on top of the benthic barrier were observed in 1998.

Figure 1. Map of Lake George showing the location of all known milfoil sites.



Shepard's Park (M-7). Substantial beds of Eurasian watermilfoil have become established to the north of the dock and along the shoreline outside the swim buoys. The milfoil beds increased in size from 1989 until 1992, and a large population of Curly-leaf Pondweed was also observed. The three beds were controlled using benthic barrier and suction harvesting in 1992. Much of the remaining area had either low-density scattered plants, or small clumps of moderate to dense growths, too small to be considered a bed. Hand harvesting removed a number of scattered plants. Sand imported for the public swimming beach was the predominant bottom sediment, but some areas of exposed silt were found at deeper depths. This site is a heavily used public beach. Additional panels (3500 ft^2) of benthic barrier were installed in 1996 to cover the majority of the remaining dense bed areas. In 1998, 3 moderate to large beds were observed off the northern section of the beach area, with many scattered plants along the perimeters of the beds. Future management efforts at this site are required.

West Brook Delta (M-8). Dense and moderately dense areas of milfoil growth extended in a semicircle from the outlet of West Brook to the western end of the cement seawall, with some low density scattered plants. Numerous Curly-leaf Pondweed plants were also found. This is a heavy use area, which is highly disturbed due to sediment deposition. Eurasian watermilfoil was found in a band from 2 to 4 meters depth, on the delta formed where West Brook enters Lake George. In 1992 and 1993 benthic barrier was installed in this area, however groundwater and surface water flow negatively effected the stability of the benthic barrier in this area. Barrier material was also frequently damaged as a result of boat anchors. Slope is moderately steep, with sediment grading from sand in the shallows to deep organic silt beyond 5 meters. Native plant growth was also extensive. Management and maintenance is still required at this site.

Million Dollar Beach (M-9). This site had a string of low-density scattered plants between East and West Brook deltas. The plants were located on the deep edge of a public swimming beach with the majority of plants located proximate to West Brook. Sediments grade from sand on the beach, to rock and silt on the steep slope beyond the beach. The steepness of the slope at this site restricts the potential growth of Eurasian watermilfoil. Hand harvesting has been conducted on a regular basis at this site with 198 plants removed to clear the site in 1996. The management here appears to have been effective, as only three plants were removed in 1997, and one in 1998.

East Brook Delta (M-10). There was a moderately large dense bed, which was covered with benthic barrier material in 1992-3. An area of moderate to low density scattered plants surrounds the bottom barrier material, requiring further effort to control. Barrier material was also frequently damaged as a result of boats anchoring in this area. As with West Brook Delta, the Eurasian watermilfoil was found in a band from 2 to 4 meters of depth, on the delta formed by the drainage of East Brook into Lake George. Curly-leaf Pondweed was also found at this site. Sediments grade from sand in the shallow areas, to thick organic silts in deeper areas. Native plant growth was also extensive. The site is adjacent to Million Dollar public swimming beach. In 1996, slits were cut in the mat to vent gases and the general condition of the mat was good. Several panels of benthic barrier were relocated at this site and hand harvesting conducted to complete management. Frequent maintenance visits (annual) to this location are recommended. Hand harvesting of Eurasian watermilfoil plants and routine maintenance of the benthic barrier here in 1997 (189 plants) and 1998 (67 plants) appears to keep the site under control.

Warner Bay, South End (M-11). The entire southern, inner bay had very low-density scattered plants. This site description is also applicable to M-37. The slope in this area is flat and the bottom is highly organic silt. Water transparency in the bay tends to be less than the average for Lake George. This site also supports *M. sibiricum* (formerly taxonomically classified as *M. exalbescens*), so care should be taken in identifying the extent of Eurasian watermilfoil. Warner Bay is an area of intense boating activity, but does have a restrictive speed limit. This area was cleared of milfoil in 1991 through a combination of hand harvesting and suction harvesting. Scattered milfoil plants were harvested in this area in 1993, and 1995 through 1998. Small pockets of moderate density growth as well as larger areas of scattered plants will require management. Regrowth will require continued maintenance.

Lake George Outlet (M-12). Several beds were identified throughout the entire outlet area in 1998. The survey also indicated an overall low-density of scattered plants throughout the outlet region, between the natural dam (end of lake) and the end of navigation. Since *M. sibiricum* is also found at this site, special care is indicated in evaluating the extent of Eurasian watermilfoil. Water clarity was very poor making survey work difficult. Given the shallow, silty nature of the outlet area, it is an ideal location for the spread of Eurasian watermilfoil. No management activities have occurred at this site.

Mossy Point Boat Launch (M-13). The NYSDEC boat launch facility had dense beds around the southern docks, with moderate density areas in the launch ramp. Eurasian watermilfoil plants were also scattered at the fringes and into an adjacent wetland. The bottom becomes very rocky out from the boat launch facility, restricting the expansion of the milfoil community. The slope in this area was slight, and the bottom very silty around the dock facility and wetland. Water clarity here tends to be lower than average for Lake George. This site has heavy boat traffic due to the boat launch facility and its proximity to the navigable channel to the outlet region. Benthic barrier material was installed over the milfoil bed areas at this site in 1990. Barrier removal and hand harvesting was done in the year following the barrier installation. Scattered plants were found in follow up surveys in 1996 with high-density growth on the fringes of the adjacent wetland. A small bed was observed in front of the pumphouse in 1998, and a larger bed near the mouth of the marsh, to the southeastern end of the boat launch area. Low densities of scattered plants were found within the launch area as well.

Harris Bay - Happy Family Islands (M-14). A small bed in mid-channel and numerous scattered plants in the marina were originally observed. *Myriophyllum alterniflorum*, currently considered a rare plant in New York State, was also found at this location. Slope is shallow, bottom silty. A moderate amount of boat traffic occurs in this area as a result of the adjacent marina, but boat speed is restricted. Benthic barrier material was installed over the small bed in 1990, and a portion removed in 1993. The remainder of the benthic barrier was removed in 1997. Hand harvesting in 1997 removed 32 plants scattered over the area. No milfoil plants were found here when surveyed in 1998.

Sawmill Bay - Outflow of Finkle Brook (M-15). This was one area of moderately dense scattered plants of limited areal extent. The slope is flat, with sediments grading from sand in the shallows to silt in deeper water. The plants were growing on the edge of the delta formed by the inflow of Finkle Brook to Lake George. All of the Eurasian watermilfoil at this site was removed as part of hand harvesting operations from 1989 to the present.

Middleworth Bay (M-16). Low to moderate density scattered Eurasian watermilfoil was found in both arms of this bay, in among an unusually dense growth of native plants. The southern arm of this bay had the largest amount of milfoil. Bottom slope is flat, with a silty bottom. Curly-leaf Pondweed was observed in the north arm of the bay. The south arm of the bay was cleared of milfoil in 1991 through hand and suction harvesting. Surveys in 1995 found a large number of scattered milfoil plants in the south arm of the bay around the docks of a marina, requiring future management. In 1996, this scattered population had grown to bed density. By 1998, the milfoil in the southern arm had become a moderately sized, oval shaped bed along the shoreline off the boathouse on the southern shore and extending westward into the bay.

Echo Bay - East End (M-17). Scattered Eurasian watermilfoil was observed at this location in the 1991 survey, after not being found in 1989. The majority of plants were found at the eastern end of the bay around and adjacent to a marina. This area is unusually silty, and supports large growths of benthic filamentous algae. Some low-density scattered plants were found in shallow water, in the interior portion of the bay in 1988. Plants were removed by hand harvesting in 1991, 1993, and 1995 to present. *Potamogeton crispus* is also found here among the extremely diverse flora.

Hague Boat Launch (M-18). The area of Eurasian watermilfoil growth is restricted to the boat slip for the boat launch, where the bottom is silty. Low-to-moderate density scattered Eurasian watermilfoil and Curly-leaf Pondweed were observed. The boat launch also supports a dense, near-nuisance growth of native plants and filamentous algae. No management has occurred at this site.

Dunhams Bay (M-19). The inner bay has had Eurasian watermilfoil growth to 4 meters of depth. Scattered plants of low to moderate density occurred from the former bed site towards the wetland, and in shallow water throughout the inner bay. This is one location in which the Lake George Park Commission (LGPC) installed benthic barrier in 1986 over a dense bed of milfoil. The slope is uniformly gentle, with a bottom of predominantly silty material. Water clarity is reduced by the wetland drainage. Boat traffic is moderately heavy at this site. A moderately sized bed has developed adjacent to the matted area on the eastern side, just inside the reduced speed zone. Scattered growth of Eurasian watermilfoil to the northwest of the bridge was removed via hand harvesting in 1998. Moderate density growth of milfoil is found to the west of the barrier material, with sediment buildup on the barrier supporting a number of milfoil plants as well.

Huddle Bay (M-20). Currently the largest milfoil beds in Lake George, the two beds in Huddle Bay are located along the eastern portion of the bay in water depth of from 1 to 4 meters. They are separated by an area mainly consisting of the native *Potamogeton amplifolius*. Extensive areas of moderate to low density scattered Eurasian watermilfoil plants occurred throughout the eastern half of the bay, and in deeper water (5 to 6 meters) past Hiawatha Island. The populations at this site have changed little since 1988. Slope is slight, with deep silty substrates in water depths greater than 2 meters. No management has occurred at this site.

Sheriff Dock Area (M-21). This former bed area was reduced to a zone of moderate density scattered plants, in the zone of water deeper than the benthic mats installed by the LGPC in 1986. Further expansion is restricted by depth, however a zone of dense milfoil growth at the deep margins of the benthic barrier is now evident possibly growing on accumulated silt at the margins of the barrier. Scattered and moderate density plants were found around both benthic mats in shallower waters. Inspection of the mat in 1995 revealed substantial silt deposits on the surface of the mat, particularly at the end nearest the outfall of the Sheriff's Dock storm sewer. Scattered plants were also found growing on the surface of the mats and in seams of the barrier material. The mat material was also showing signs of deterioration with large sections removed when new docks were installed. Curly-leaf Pondweed was also found at this site. Slope is moderately steep, with bottom sediments generally sand and silt. This area has extremely high traffic, but also has a restricted speed limit. The 1998 survey observed a large bed of Eurasian watermilfoil stretching from King Neptune's Pub to the pump station on Beach Road. No management, other than that conducted by the LGPC, has occurred at this site.

Shadow Bay (M-22). Initial surveys in 1989 found this bay almost entirely filled by a Eurasian watermilfoil dense bed, with few scattered plants. Being a quiet, sheltered area, it is one site at which Eurasian watermilfoil flowers and fruits have been observed. Curly-leaf Pondweed was also observed. Slope is moderately flat, with bottom sediments predominantly silt. The dense bed at this site was covered with benthic barrier material in 1990. Hand harvesting has continued, on an annual basis, since the removal of the bottom barrier (1991). A large number of scattered plants (393) were removed at this site in 1998.

Lake George Yacht Club (M-23). This site had low to moderate density scattered plants among the docks, with little or no vegetation found beyond the dock area. Curly-leaf Pondweed was also observed in moderate densities. This area has heavy boat traffic. Slope is moderately steep, with variable bottom sediments. The dense milfoil growth at this site was covered with benthic barrier and the scattered plants were hand-harvested in

1990 - 1993. Hand harvesting of this site was discontinued in 1993 and substantial regrowth has occurred. Moderate to dense growth of milfoil is now found in the swim area. This site is suitable for intense suction harvesting, or a combination of benthic barrier, suction harvesting, and hand harvesting.

NW Bay - Bay Between Fan and Bear Point (M-24). This small bay currently has low, moderate and dense growth areas of Eurasian watermilfoil. Scattered growth of Curly-leaf Pondweed was also observed. Slope is moderately flat, with highly variable bottom sediments from rocks to silt. The bottom also has numerous logs and other bottom obstructions. All of the Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. Intermittent hand-harvesting efforts since that time have not kept this site in control. By 1998, this site had become a large bed. Density levels now suggest more intensive management efforts. This location is proposed for treatment with the herbicide Sonar™ in 1999.

Basin Bay - North tributary (M-25). Scattered plants of Eurasian watermilfoil were found as a result of the survey, along with numerous Curly-leaf Pondweed. Plants were found on the delta formed by the inflow of an unnamed brook. The slope was moderately flat out to 4 meters depth, at which point the slope increased greatly. Bottom sediments graded from sand to silt. Eurasian watermilfoil was removed from this site as part of the 1989-90 hand harvesting project and harvesting has continued through 1997, maintaining milfoil populations at a maintenance level. In 1998, 63 plants were removed, and compared to the 629 plants removed in 1997, this demonstrates the effect of continued hand harvesting.

Bay SW of Cannon Point (M-26). This is a small bay with a moderate size bed of Eurasian watermilfoil and an additional area of moderate density scattered plants that is substantially larger than the area of the bed. An abundant population of Curly-leaf Pondweed was also found. A few individuals of *M. alterniflorum* were also found. Slope is moderately flat, with a silty bottom. Some boat traffic occurs in this area as a result of a sailboat mooring area, and docks for a motel complex constitute the activities using this site. Benthic barrier material was installed over the milfoil bed at this site in 1990 and limited suction harvesting conducted in a portion of the moderate density areas. Barrier was removed in 1991 and without maintenance activities, substantial regrowth of *P. crispus* and *M. spicatum* has occurred since that time. This site currently supports a large area of dense growth of Eurasian watermilfoil. No management occurred here in 1998.

Bay NW of Cooper Point (M-27). Scattered plants were found near the docks of a marina, at the north end of the bay and in the southwest corner of the bay adjacent to the seawall. An area of low growing moderately dense plants was also observed in the wetlands at the northern end. Eurasian watermilfoil was removed from this site as part of the 1989, 1990, 1993, 1995 and 1996 hand harvesting projects. The short stature of the plants in the wetland area and the shallow depth (0.5 meters) make hand harvesting of plants in this location difficult. A small area of dense growth was observed in 1996, and continued to flourish in 1998. This site may be a good candidate for barrier in the future. Slope is flat, and the bottom is silty.

Bay S of Hearthstone (M-28). The only Eurasian watermilfoil shoot found was removed for a voucher specimen in 1987. No Eurasian watermilfoil was found since that date. The bottom was moderately steep, with sediments grading from sand to silt.

Bay NE of Tea Is (M-29). Moderate density Eurasian watermilfoil is found near and to the north of the tributary outlet. A few low-density scattered Eurasian watermilfoil plants were also found among an extensive area of Curly-leaf Pondweed. Slope is moderately steep, with sediments grading from sand to silt. Suction harvesting was used to manage the milfoil at this site in 1990, with hand harvesting conducted in 1991 and 1992. No maintenance occurred between 1992 and 1995. Moderate density growth required intensive hand harvesting in 1996. The site was cleared of 25 plants via hand harvesting in 1997 and 17 in 1998.

North Tea Is Bay (M-30). A large area of moderate to high-density plants was found around the periphery of this bay, in 1 to 4 meters of water. A dense bed had formed in 2-3 meters water depth. A significant amount of Curly-leaf Pondweed was also present. The bottom is generally silty with a flat slope. No management has occurred at this site, however the large area of dense milfoil growth suggests an intensive management strategy.

English Brook (M-31). A limited area of low density scattered Eurasian watermilfoil plants were found south of the delta. However, all of the Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting projects. In 1993, scattered milfoil plants were cleared from this area, however, a small area of moderate density growth of milfoil plants was found at this time. Sediments grade from sand to silt, with a moderately flat slope. This area is in a zone of heavy boat traffic. From 1995 through 1996, the scattered plants were removed by hand harvesting, however the moderate density area was only reduced in density. Hand harvesting removed 84 plants to clear this site in 1997. No milfoil plants were found here in 1998.

Crosbyside Culvert T-37a (M-32). A single Eurasian watermilfoil shoot was harvested for a voucher specimen in 1987. No Eurasian watermilfoil was found in 1989 or 1990. During the 1991 tributary survey scattered milfoil plants were discovered at this site and harvested. The plants were growing to 5m depth directly in front of Usher's Park beach and in front of a white boathouse to the south of the beach. Twelve milfoil plants were found and removed in 1995 and an additional four removed in 1996. There were no plants found here in 1997 or 1998. The slope is moderately steep, and sediment is sand and silt.

South of Plum Point (M-33). Eurasian watermilfoil plants were removed for voucher specimens in 1987, and none have been sighted since that time. The bottom is predominantly sand and cobblestone, with a moderately flat slope.

Bay Between Plum Point and Woods Point (M-34). Low density scattered Eurasian watermilfoil plants along the shore north of the stream in 1987 were removed for voucher specimens. Eurasian watermilfoil was not sighted in 1989 or 1990, but 2 additional plants were removed during the 1993 and 1995 surveys. No milfoil was found at this site in 1996 or 1997, and only one milfoil plant was removed in 1998. The slope is moderately steep, with a sandy bottom.

NW Bay - Bay South of Fan Point (M-35). All Eurasian watermilfoil stems found were harvested for voucher specimens in 1987. No plants were found in 1989, however a single plant was found and removed as a voucher specimen in 1990, and 2 plants were removed in 1992. No milfoil was observed at this site in 1995, however a single plant was found and removed in 1996 as well as in 1997. Four milfoil plants were harvested in 1998. This steep and rocky site is an unlikely Eurasian watermilfoil site.

Bay E of Dark Bay (M-36). An area of low density scattered Eurasian watermilfoil plants were found on the eastern side of the bay in 1988. In 1989, a small bed within a boat slip, as well as a few scattered plants were observed. This steep slope site has a sandy/rocky bottom. The scattered plants at this site were removed by hand harvesting in 1989 and 1990. The small bed was covered with benthic barrier in 1990. Hand harvesting at this site has continued since the removal of the benthic barrier with only limited regrowth observed until 1997, when a substantial number of plants (190) were removed from the boat slip. Moderate growth occurred in 1998 as well with 129 plants removed, almost entirely from the boat slip.

South Warner Bay culvert (M-37). [See site M-11].

North Warner Bay Culvert (M-38). In 1990 this site was suction harvested, and in 1991 the area was hand harvested. Due to the dense growth of native macrophytes and the presence of native watermilfoil, not all of the Eurasian watermilfoil in the area was removed. In 1992 this site was resurveyed and an area of moderately scattered plants was discovered. In 1993, this site was upgraded to its current description of moderate density growth of Eurasian watermilfoil. Continued hand harvesting in 1997 and 1998 cleared the milfoil plants in this area. Maintenance visits should continue on an annual basis. The slope at this site is flat, and the sediment is soft silt.

South Kattskill Bay (M-39). Eurasian watermilfoil was found in 1 meter of depth, behind a boathouse in an area of lily pads on the southern shore. Slope is moderately flat, with a mixture of sand and silt substrates. All of the Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. Several plants have been taken from this site in subsequent years although none were found in 1995 and very few plants were removed in 1996, 1997, and 1998.

Bay South of Red Rock Bay (M-40). There was a small area of low density scattered Eurasian watermilfoil plants. A moderately dense area of Curly-leaf Pondweed was also found amongst a highly diverse community of native plants. Slope is flat, with an organic silt substrate. The Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. Hand harvesting has continued during the recent revisits with three milfoil plants removed in 1995 and 5 in 1996 and 1997. The milfoil population appears to have surged here in 1998, with 151 plants removed to clear the area. This patch was found near the northeastern point at the base of a rock pile.

Paradise Bay (M-41). There was a moderate-sized area of low density scattered plants in the northern arm of the bay. Eurasian watermilfoil was found at depths of from 1 to 4 meters. The native plant community appears disturbed. This area receives heavy boat traffic. Slope is moderately flat, with a silty substrate. Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. Hand harvesting continued at this site until 1992. Since 1993, no maintenance has occurred and growth of milfoil has grown to large areas of heavy to moderate bed growth on the east shore. Moderate to scattered density of plants on the southwestern shore are also found within this enclosed bay. Due to its sheltered nature and distance from residential shorelines, this site is also proposed for treatment with herbicide, Sonar^{TM}, in 1999.

Bolton Bay (M-42). A small area of low density scattered Eurasian watermilfoil plants had been found at this site, but all the plants were collected for voucher specimens in 1987. No Eurasian watermilfoil was observed in 1989; however, several hundred plants were removed by hand harvesting 1993. In 1995, 251 milfoil plants were removed to clear this location. An additional 40 plants were removed in 1996. By 1997, the population had increased to 210 hand harvested plants. In 1998, a small bed of moderate density of milfoil plants was found on the southern tip of the point south of the Bixby boathouse. A total of 1,148 plants were hand harvested from this new location, in 2-4 meters of water on a steep slope of soft silt, amongst large boulders and deadfalls. This site is adjacent to a small tributary south of Bixby Point.

Bolton Bay (M-43). A small area of low density scattered Eurasian watermilfoil plants were found around a submerged dock crib at the foot of Mohican Road. The sediment is a mixture of rock and silt, with sand in shallow areas, the slope is moderately flat. Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. In 1993, over 300 milfoil plants were removed by hand harvesting at this site. In 1995, all milfoil plants found (58) were removed. In 1996, an additional 91 milfoil plants were harvested to clear this location. In 1997, 67 milfoil plants were found scattered across the bay. A total of 94 milfoil plants were removed in 1998.

Bolton Bay - NE of Bridge (M-44). This site was found in 1988, the area has a small dense bed. The bottom is silty, grading to sand in the boat channel. The site experiences heavy boat traffic under the adjacent bridge. The milfoil at this site was managed via suction harvesting in 1990. Hand harvesting was conducted in 1992, however moderately dense growth of Eurasian watermilfoil was reported for this site in 1993. In 1995, this site remained a small moderately dense growth area of milfoil. Suction harvesting was employed to clear this site in 1996, with hand harvesting included as a follow-up measure. Frequent maintenance of this site may prove necessary. In all, 117 plants were hand harvested to clear the site in 1997. When visited in 1998, only four plants were found and removed.

Tiroga Point Channel (M-45). Scattered Eurasian watermilfoil plants were observed throughout the channel, increasing to a moderate density near the southern end along with *M. verticillatum* in this shallow man-made channel, draining a wetland. The depth was 1-2 meters, with a bottom consisting of organic silt. No management has occurred at this site. Water clarity and quality in this channel is much poorer than the norm for Lake George.

Leontine Island (M-46). A few Eurasian watermilfoil plants were found on the reef to the east of Leontine Island in 1989, and all plants were removed. In 1990, five plants were found along the shoreline near the southern end of the reef. The plants were removed as voucher specimens. In 1993, 255 plants were removed by hand from this site. A small number (19) of milfoil plants were found and removed in 1995. The slope is moderately steep, with a rocky bottom. In 1996, several small dense patches of milfoil were found and removed from areas adjacent to anchors for navigation markers on this reef. Hand harvesting in 1997 removed nearly 400 plants, but the population was only reduced. The survey in 1998 found a small dense bed near the southern navigation marker, and hand harvesting removed nearly 650 plants scattered throughout the rest of that rocky area. A more intensive management such as suction harvesting supported with hand harvesting will be required to remove the bed that has formed here.

Smith Bay (M-47). In 1988, a single plant of Eurasian watermilfoil was found and removed from this moderately sloping, silty bay. Moderately dense Curly-leaf Pondweed was found in 1989, but no Eurasian watermilfoil was observed. In 1990, a small area of moderate density growth of milfoil was observed with an outlying area of scattered plants. These plants were in depths of 3 to 4 meters. The milfoil was managed at this site in 1990 with suction harvesting. During follow up visits in 1993 and 1995, hand harvesting removed 33 and 157 milfoil plants, respectively. In 1996, 176 milfoil plants were removed, primarily along the southern shore of the bay in an area remote from that suction harvested in 1990. The 267 milfoil plants removed in 1997 and 255 in 1998 were scattered near the base of a steep drop off on the southeastern shore of the bay, about 5 meters deep. A few plants were also removed along the opposite shore on the northern side of the bay. There is a very diverse population of native plants here, and heavy filamentous algal growth on the southern side of the bay.

Gull Bay (M-48). Numerous low-density scattered Eurasian watermilfoil plants were found off of the stream adjacent to the public beach in this bay. Curly-leaf Pondweed was also found at this location. During revisits to this site a small bed of Eurasian watermilfoil was found at the end of a "T" dock. The slope was moderately flat, the bottom grading from sand in the shallows to silt past 3 meters in depth. The Eurasian watermilfoil was managed at this site as part of the 1989 hand-harvesting project. In 1990, both hand and suction harvesting were used for plant management. A small moderate density patch and large area of scattered milfoil growth was observed in 1995. In 1997 and 1998, three large areas of dense growth were observed. Two of these were near the speed restriction buoys at the mouth of the bay. The remaining bed was centrally located in the bay, though not near the area that was suction harvested in 1990. There appears to be a healthy *Potamogeton* population existing here as well.

South of Burnt Point (M-49). A single specimen of Eurasian watermilfoil was found, and collected as a voucher specimen, in 1988. No additional Eurasian watermilfoil has been found since 1989. The slope was moderate at this site, with a rocky bottom.

Clark Hollow Bay Brook (M-50). Scattered Eurasian watermilfoil plants were found in 2-3 meters depth parallel to the shoreline in 1989. The slope is moderately flat, with a bottom grading from sand in shallow water to silt in deeper water. All of the Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project, and during subsequent revisits. Five milfoil plants were removed in 1997. In 1998 a small patch of moderate density was found near a boathouse on the northern side, approximately 4 meters deep. A total of 191 milfoil plants were hand harvested to clear the site.

Eichlerville Bay (M-51). Moderate and low-density Eurasian watermilfoil plants were found at this site. The majority of plants were in two areas along the outer fringe of the delta, in depths of 3-4 meters. The bottom slope was gradual and sediments consisted mainly of silt with large amounts of detrital material. Milfoil at this site was managed via suction harvesting in 1990, and hand harvesting in 1991 and 1992. Since that time, limited maintenance has occurred and the milfoil populations are similar to those observed in 1989, with dense growth of milfoil observed at the deep margin of the littoral zone.

Rogers Rock Park Beach (M-52). Low density scattered Eurasian watermilfoil plants were found along the boat mooring line at the park, adjacent to the public swimming beach, and around the boat launch ramp. The slope at this site was flat, with a predominantly sandy substrate. The plants were restricted to depths of 1-2 meters. All of the Eurasian watermilfoil was removed from this site as part of the 1989 and 1990 hand harvesting project. No milfoil plants have been found at this site through 1998.

Southwest Tongue Mountain [Clay Bay] (M-53). Numerous low-density scattered Eurasian watermilfoil plants are annually found in this small bay immediately to the south of the first-named West Tongue Mountain site (M-24). The bottom is composed of clay and silt surrounding numerous exposed boulders. Water clarity is unusually poor due to and eroding clay bank at this location. Slope is moderately flat. Eurasian watermilfoil has been removed from this site on an annual basis since 1989, with a minimal number of plants found and removed since that time.

Cooks Bay, Hulett's Landing (M-54). Nine milfoil plants were removed from this site in 1993, and a single Eurasian watermilfoil plant was found and collected in 1990. No

Eurasian watermilfoil was found at this site in 1989. All milfoil plants were found in the northeast shore of the bay near a small tributary. The slope is gradual with sediment predominantly sand and silt. In 1995, 4 milfoil plants were found and removed. No Eurasian watermilfoil was found in 1996 or 1997. Four plants were removed near a red roof boathouse on the north side of the bay in 1998.

Indian Bay, Hulett's Landing (M-55). Two Eurasian watermilfoil plants were found by a local resident, and sent to the Fresh Water Institute for identification in 1988. Slope in this bay is gradual with a silt/sand bottom adjacent to the tributary with a highly diverse native plant community. No Eurasian watermilfoil had been found since 1988 until 1998 when a single plant was removed.

South Sawmill Bay (M-56). A large dense bed of Eurasian watermilfoil was found southeast of Veteran's Memorial Park in the middle of Sawmill Bay, in 3-5 meters water depth. Adjacent areas of moderately dense and low-density scattered plants were also observed. Benthic barrier was installed in both 1991 and 1992, however considerable amounts of milfoil remain in the area predominantly to the east and north of the matted zone. In 1997 and 1998, barrier at this location was inspected and found to be in good condition with small quantities of silt present. This location is within Sawmill Bay, a site proposed for treatment with the herbicide Sonar™ in 1999.

South End, Green Island (M-57). Moderate to bed density Eurasian watermilfoil was found within the dock complex at the extreme south end of Green Island. Water depth within the dock area is 2-3 meters, with gradually sloping bottom and soft silty sediments. Numerous obstructions including pipes and old pieces of dock cribbing were found at this site. The milfoil at this site was managed via suction harvesting in 1990. By 1993, the area that was harvested had returned to bed density, and inside the east crib dock a small, new area of moderately dense milfoil has been discovered. This condition was observed in 1995. In 1996, suction harvesting and hand harvesting were used to manage this location. Annual maintenance is recommended. A total of 289 milfoil plants were hand harvested in 1997, and site conditions may warrant suction harvesting in 1999.

Silver Bay (M-58). A large number of scattered Eurasian watermilfoil plants were found within the dock and boathouse complex in Silver Bay in 1990, along with a few individuals of Curly-leaf Pondweed. Water depth in this area ranged from 1 to 2 meters. The sediment in this area is sand to clay with a gradually sloping bottom. Milfoil was removed from this area by hand harvesting in 1991. In 1995 and 1996, a small bed of milfoil and a large area of scattered plants were observed at this location. The 1998 survey found scattered Eurasian watermilfoil throughout the entire dock area, at a moderate density. Intense recreational use limits management options at this location.

Hondah Cottages (M-59). Approximately 550 low-density scattered Eurasian watermilfoil plants were found and removed from among the docks south of the Veteran's Memorial Park beach in 1993. Sediments in this area were sand and silt and the bottom slope is gradual. There is a high density of native plants located here. Boat traffic in this area is high. In 1995, 259 milfoil plants were removed. In 1996, 283 milfoil plants were removed. In 1997, 407 milfoil plants were removed via hand harvesting and 344 in 1998. This location is within Sawmill Bay, a site proposed for treatment with the herbicide Sonar™ in 1999.

Camp Andrew Bay (M-60). Moderate and low density Eurasian watermilfoil plants were observed in two distinct areas at this location in 1989. Milfoil was found in depths of from 2-3 meters. The bottom sediments are silt and the slope is gradual. Eurasian watermilfoil was removed from this area by suction harvesting in 1990, and hand harvested in 1991. In both 1992 and 1993 an area of moderately dense milfoil was observed at this site. In 1995, a bed of milfoil and larger area of moderate density growth was observed in this bay. This condition persisted through 1998.

Moonlight Bay, Harbor Island (M-61). An area of dense Eurasian watermilfoil growth remains at this site, along with an extensive area of scattered low-density plants. The dense area is near a beaver lodge in the southern end of this small bay. Numerous small milfoil plants were observed growing in the edges of the beaver lodge, making management of this population difficult. Sediments in the bay consisted of clay and the bottom slope was moderate. Milfoil was managed in this area by suction harvesting in 1990 and hand harvesting in 1991. This location is proposed for treatment with the herbicide Sonar™ in 1999.

Marine Village (M-62). A small number of scattered Eurasian watermilfoil plants were found among the docks at this site. Bottom sediments were sandy and slope was gradual. The plants were removed by hand harvesting in 1990, 1991, 1993, and 1995 through 1998.

South of Agnes Island (M-63). In 1989, approximately 25 Eurasian watermilfoil plants were found near submerged dock cribs at this northern basin tributary site. Surrounding sediments are sand and clay; however, silt has accumulated between the dock cribs. Hand harvesting has occurred here every year since 1990. One Eurasian watermilfoil plant was removed from this location by hand harvesting in 1993. No milfoil plants were observed in 1995 and one plant was removed in 1996. The site was cleared with the removal of 24 plants in 1997, and 19 in 1998.

Three Brothers Island (M-64). Few scattered plants of Eurasian watermilfoil were found along the western side of these islands within a small area of lily pads. Sediments are sandy to boulders with a moderate slope. All plants were hand-harvested in 1993, and 1995 - 1998.

West of Three Brothers Island (M-65). Approximately 5 plants of Eurasian watermilfoil were found at the docking facility for Three Brothers Island in 1989. No milfoil has been found at this site since 1989.

North Sawmill Bay (M-66). A large area of moderate-density Eurasian watermilfoil plants were found clumped along the western speed and hazard buoys at the north end of Sawmill Bay. Depth of this population was 4-5 meters. Eurasian watermilfoil populations now rim the entire Sawmill Bay area. A portion of the milfoil at this site was covered with benthic barrier in 1990. The barrier positioned in 1990 remains in place at this time. Milfoil now surrounds the barrier at this site. This location is within Sawmill Bay, a site proposed for treatment with the herbicide Sonar™ in 1999.

Bluff Head Creek T-8 (M-67). Two Eurasian watermilfoil plants were found in 1990 at this northern basin tributary site. Surrounding sediments are sand and clay however silt has accumulated between the dock cribs. Both Eurasian watermilfoil plants were removed from this location for voucher specimens in 1990. A single milfoil plant was removed during the 1993 site revisit and two plants were removed in 1995. In 1996, 18 milfoil plants were removed. One milfoil plant was removed in 1997 and 2 in 1998.

Rock Dunder Island T-10A (M-68). Eight scattered plants and a number of fragments of Eurasian watermilfoil were found on the north side of the tributary in 1993. Sediments are sand and clay with a moderate slope. No Eurasian watermilfoil plants were found in 1995. In 1996, 9 milfoil plants were found and removed. In 1997, 37 plants were found scattered along the base of the drop-off on the southwestern side of the island. A total of 59 plants were removed from this same location in 1998.

Kitchal Bay T-11S (M-69). Four Eurasian watermilfoil plants were found and removed during the 1991 survey. All plants were found between two covered boathouses on the east end of the bay. The slope is gradual to moderate and the sediment consists of a mixture of clay and sand at this site. Milfoil had not been recorded at this site until one plant was found and removed in 1997. None were found here in 1998.

West Halfway Island T-71 (M-70). A single Eurasian watermilfoil plant was found and removed as a voucher specimen during the 1990 Tributary Survey. The following year four more plants were removed. No plants were found between 1991 and 1996. In 1997, one plant was harvested. None were found here in 1998.

Hague Brook T-86 (M-71). Two Eurasian watermilfoil plants were found and removed as voucher specimens in 1990. Later in the 1990 season, a number of Eurasian watermilfoil plants were observed at the outer edge of the delta near the pin buoys. This site was upgraded to a bed in 1991. A large dense bed of Eurasian watermilfoil now extends along the outer edge of the delta in water depth of from 2 to 5 meters. Sediments at this site are sandy on the delta grading to silt at the edges of the delta. The slope on the delta is gradual with a relatively sharp drop-off at the edge.

South Cooks Bay T-89 (M-72). This site is located at the south edge of the bathing beach at Rogers Rock State Park, adjacent to the mouth of a small tributary. Slope at this site is gradual with sediments of sand and silt. A single Eurasian watermilfoil plant was found in 1990 and 1991, both were removed as voucher specimens. An additional four plants were removed during the 1993 Tributary Survey. In 1995, 27 milfoil plants were removed. A single milfoil plant was removed in 1996. In 1997, a total of nine plants were harvested. During the 1998 survey, one plant was found and removed.

Tributary in Dark Bay T-91A (M-73). Nine scattered Eurasian watermilfoil plants were hand harvested adjacent to a white boathouse north of the tributary in this bay during the 1993 survey. In 1995, 53 milfoil plants were found and harvested from this site. In 1996, an additional 21 milfoil plants were removed. In 1997, only five plants were found and removed from this site. The number increased to 15 when this site was visited in 1998. Sediments are sand and rock with steep slopes.

North Meadow Point (M-74). Four Eurasian watermilfoil plants were found and removed as voucher specimens after receiving a letter in 1990 from a resident describing the location. Seven plants were removed during the 1993 survey. The slope is gradual near shore and moderate beyond a depth of 4 meters. Sediments are silt and sand. No plants were observed at this site in 1995. In 1996, 91 milfoil plants were found behind an existing boathouse in a marshy area, and removed. Fifteen plants were removed from behind the boathouse in 1997, and 3 in 1998.

Bell Point (M-75). An area of moderate density milfoil was located within the dock area at Bell Point following a description of the area by a local resident. The slope in this area is steep with soft sediments at the south edge of the docks and bedrock at the north. Numerous obstructions are present on the bottom in this area. Hand harvesting removed 144 plants at this site in 1995, with and additional 385 milfoil plants removed in 1996. Extensive management was done on this site in 1997. A total of 655 plants were hand harvested from inside the dock area before suction harvesting was attempted later in the season. Unfortunately the site could not be cleared due to a malfunction with the harvesting equipment, and approximately 1/3 of the milfoil population was removed. One 30 gallon can of Eurasian watermilfoil was hand harvested to clear milfoil from this site in 1998. It was not suction harvested due to the condition of the existing plants, many of which were low growing, scattered, and did not appear healthy.

South Shelving Rock Point (M-76). An area of scattered Eurasian watermilfoil plants adjacent to a dock on the south side of the point was hand harvested in 1993. In 1996, the density in this area had increased to moderate. The slope of the bottom in this area is gradual and the sediment is sandy. A small section of benthic barrier may be appropriate for this location. This site was originally designated for suction harvesting in 1997, but due to equipment failure, a "raking" technique was applied. This technique was somewhat effective, and resulted in the removal of approximately ¼ of the existing milfoil population. In 1998, this site was cleared via suction harvesting and hand harvesting. A total of 2 ½ cans were removed.

Walker Point (M-77). An area of scattered milfoil plants was found north of the point and stretched to the boathouses of the Loines estate. The slope in this area was steep; the sediments were soft silt and cobble. All plants were found 1 to 4 meters in depth and were removed during 1993. No milfoil had been found at this site until the 1998 survey, when 19 plants were removed. These plants were found around the boathouse of the Loines estate, in a similar locale to previously existing populations. Dense growth of the native pondweed *Potamogeton foliosus* was also noted.

Bay North of West Tongue Mountain (M-78). This site is approximately 0.5 km north of the West Tongue Mountain site. The milfoil was found growing among a pair of fallen trees just off shore. The slope at this site is moderately steep, and the sediments consisted of sand, gravel, and silt. Fewer than 10 plants were removed from this area in 1992, 1993 and 1995. Eighteen milfoil plants were removed in 1996. In 1997, a moderately dense grouping of 405 milfoil plants were found and removed via hand harvesting on the southern side of the bay, on the edge of a very steep drop off. Eighty plants were removed by hand harvesting in 1998, however this site was not cleared. A large area of moderate density growth of milfoil remains to the south of the point. Suction harvesting is recommended for this site in 1999.

Shore South of Bear Point (M-79). The site is approximately 0.5 km south of Bear Point. This site had 2 milfoil plants at the base of a fallen tree in 1993. The slope was very steep, and the plants were located on a small shelf in soft silt. No milfoil was found in 1995. In 1996, five milfoil plants were harvested, and three in 1997. The 1998 survey did not reveal any milfoil plants present here.

Bay South of Bear Point (M-80). An area of widely scattered milfoil plants was found in this bay. The site was cleared of 15 plants at 1 to 3 meters in depth in 1993. In 1995, one milfoil plant was found with an addition two milfoil plants removed in 1996 and 1997. None were found here in 1998. The slope was gradual; the sediment was a mixture of wood chips and silt.

Butternut Brook T-21 (M-81). This site was located south of Point Comfort at the mouth of Butternut Brook. A single milfoil plant was found and removed in 1991, from the culvert in the end of the bay. The slope of the bay is very gradual, the sediment is sand and soft silt. No additional milfoil had been found since the original harvest in 1991 until the 1998 survey, when one plant was removed.

Barber Bay T-22 (M-82). Scattered milfoil plants were found in the center of the bay during the 1991 tributary survey. The majority of the plants were removed from 2-5 meters of water. The slope was gradual, and the sediments consisted of sand and silt. In 1995, all milfoil plants observed (204) were removed by hand harvesting. In 1996, 168 milfoil plants were harvested. Fourteen plants were cleared from amongst the logs in the central portion of the bay in 1997. In 1998, the population was cleared with the removal of five plants.

Van Warmer Bay T-25a (M-83). This site had a single milfoil plant found along a dock just south of a hazard buoy in front of the Brodeur camp on the east shore. One milfoil plant was removed from this site in 1991, 1992 and 1993. The slope is gradual, and the bottom sediment is sand. No milfoil was observed from 1995 through 1998.

Harris Bay Inlet T-30a (M-84). In 1991 milfoil was found in an area stretching from the tributary culvert to the boat docks in less than one half meter of water. Approximately 50 milfoil plants were observed. A number of milfoil plants were removed as voucher specimens. This area was exposed (dry) during 1993. No milfoil was observed in 1995 or 1996. Twenty-nine plants were found and removed in 1997 and 5 in 1998. The sediment in this area is very soft silt, and the slope at this site is flat.

Dunham Bay Inlet T-32 (M-85). Three milfoil plants were found scattered between the bridge and a boat dock to the east in approximately 2 meters of water during the 1991 survey. There were also a large number of milfoil fragments found covering the bottom in the south end of the bay. Since that time, this site has only been surveyed due to large milfoil populations throughout the bay. In 1996, no milfoil was observed in this area, but 18 plants were removed in 1997 and 32 in 1998. The plants located in 1998 were mainly found scattered at the edges of the boat channel. The slope at this site is gradual, the sediment is a combination of sand, soft silt and cobble.

East Shore T-36d (M-86). Two milfoil plants were found at this site during the 1991 tributary survey. No milfoil plants have been found at this site since. The site has a sheer rock wall to the north, and a storm culvert between two docks. The slope at this site which is adjacent to the Crosbyside area, is steep, the sediment is sand, light silt, and rock.

Crosbyside T-37b (M-87). This site is approximately 100m north of T-37a. It is adjacent to a culvert in a wooden seawall. A total of 4 milfoil plants were taken for voucher specimens in 1991. No milfoil was found in 1995, however 2 milfoil plants were harvested in 1996. There were no plants found here in 1997 or 1998. The slope is gradual, and the sediment is sand and rock.

Crosbyside T-37c (M-88). Six milfoil plants were removed in 1991 for voucher specimens at this site, which is at the mouth of a seasonal tributary. No milfoil plants were found at this site in 1993. In 1995, two milfoil plants were removed. No milfoil was observed in 1996, 1997 or 1998. The tributary runs to a double slip dock approximately 50m south of T-37d. The slope is moderately steep, the sediment is a combination of silt, sand, and rock.

Crosbyside T-37d (M-89). A pair of milfoil plants were found in 1991 and removed from this site directly in front of a private beach with drainage culverts on each side. This site is approximately 50m north of T-37c, the slope is moderately steep, and the sediment is a combination of sand, silt, and cobble. No milfoil was found in 1995 through 1998.

South Tea Island Culvert T-41a (M-90). This site is located to the southwest of Tea Island adjacent to the Lake George water treatment plant. A large culvert drain under a dock and into the lake at this location. Milfoil was first found in 1991 in the outwash area of a culvert. A total of 7 milfoil plants were removed from this site in 1993. Eleven milfoil plants were removed in 1995 and an additional 7 in 1996. One plant was harvested in 1997, and none in 1998. The slope at this site was moderate, the bottom sediment consisted of sand and rock.

Harris Bay-East Side (M-91). Milfoil was located in 1991 in the outwash area of a culvert, on the northeast shore of the bay. An area of scattered to dense growth of milfoil runs from the marina south along the east shore. The slope is gradual, and the sediment is a mixture of sand, silts, and cobble. Milfoil plants were too numerous to count in 1993, 1995 and 1996. This site has received no management activity to date.

Bay East of Hens and Chickens (M-92). The site is on the east shore at Shelving Rock Point. The slope is moderate near shore to a depth of 3 meters, the bottom is rocky in shallow waters (less than 2 meters) and changes to sand and silt with logs and debris covering the bottom in deeper waters. The shoreline slopes steeply to the lake edge and a pump house and water intake are found at this location. Milfoil was first found at this location in 1992, when 1 plant was removed. Seven milfoil plants were removed in 1993. No milfoil plants were observed in 1995 or 1996. Hand harvesting of this site in 1997 removed 61 milfoil plants. None were located here in 1998.

East of Refuge Island (M-93). A single milfoil plant was found and removed from a small cove on the east shore across from Refuge Island in 1992. No milfoil was found at this site in 1993, 1995 or 1996. Eighteen plants were removed from this site in 1997, and three in 1998. The sediments in this area are sand and cobble from 0 to 2 meters, and sandy silt and detritus from 2 to 4 meters. The slope was flat to 2m depth, then moderate.

Northwest of 3 Sirens Islands (M-94). The site is on the eastern side of Tongue Mountain in a small cut along the shoreline. The slope is steep and rocky with small pockets of silt sediments. A single milfoil plant was found in 1992 and removed. None were found between 1993 and 1997. In 1998, 11 milfoil plants were removed.

N.W.B. Head of Bay (M-95). Two plants were harvested from this site in 1992 and a single milfoil plant in 1993. The site is located at the extreme north end of the bay, between two boathouses in approximately 2m of water. The slope is gradual to moderate with sand and silt inshore and soft silt after a depth of 4m. No milfoil plants were found in 1995 through 1998.

Harris Bay/mid-bay (M-96). The small milfoil bed at this site, which was first observed in 1992, is located south of the 5 mile per hour buoy line and north of a small rock outcropping in the middle of Harris Bay. The slope is flat and the bottom is rocky with large areas covered by bedrock, the plants are growing in large pockets of silt on top of the bedrock. No management has occurred at this site.

West Side Clay Island (M-97). The milfoil at this site was located in 1992, in a sunken coal barge in 3 meters of water. A fine silt sediment was inside the barge along with the majority of the milfoil plants, very few plants were found outside of the barge where the sediments was a mixture of sand and silt. All milfoil observed was hand harvested in 1993, 1995 - 1998.

South Jenkins Brook (M-98). First observed in 1993, the site is just south of a small tributary (Jenkins Brook) on the north side of Jenkins Point, Hague. Approximately 30-50 plants were discovered under a white mooring float. In 1995, a small area of dense growth around a water intake was observed. This condition persisted in 1996. In 1997, a small bed approximately 100 feet in length was observed, encompassing the original site around the mooring. Benthic barrier was installed at this site in 1997. Management in 1998 included further installation of benthic barrier, including maintenance of the existing barrier, supported by suction harvesting and hand harvesting. Suction harvesting will continue here in 1999 supported by intense hand harvesting to bring this site under control. The slope at this site is moderate, with bottom sediment of sand and light silt.

Holman Hill Creek (M-99). A scattered area of milfoil (50-100 plants) was first located during the 1993 tributary survey. The site is in front of the boathouse on the north side of Holman Hill Creek. In 1995, 125 plants were removed from this site. In 1996, 54 milfoil plants were removed, and 81 in 1997. The number of plants removed from here in 1998 had been reduced to eight. The slope is moderate for the first 20m and the bottom is a sand delta from the stream. Twenty meters from shore there is a steep drop off.

Temple Island T87 (M-100). Two milfoil plants were found at this location in 1993 and removed. The plants were found 100m from the west shore and 100m south of the culvert across from the Island. The slope is flat to gradual, the bottom sediments are sand and light silt. No milfoil was found in 1995 or 1996, and one plant was harvested in 1997. Nineteen plants were removed from here in 1998. These plants were primarily located on the western shore of the bay, just north of the docks on that shore.

Brook North of Green Point (M-101). A single milfoil plant was found in 1993 and 1995 on the delta of this stream in about 1 meter of water. Close to shore the bottom was rocky with numerous logs. Sand and silt dominated the sediments beyond 1 meter depth. The slope is moderate to steep. No milfoil was found in 1996 or 1997. The 1998 survey found three plants at this site in a marshy area behind a red boathouse.

South Tributary at 5 Mile Mountain (M-102). The site is in a small cut in the shoreline along the eastern side of the Tongue Mountain range, the slope is moderate and the sediment consisted mainly of shallow silt in rock depressions. Eight plants were removed during 1993 and twelve in 1995. No milfoil was found in 1996, 1997, or 1998.

North of North Meadow Point (M-103). Five milfoil plants were hand-harvested from this site in approximately 3m of water in 1993. The site is on the north side of the point east of a large rock on the shore, a small green shed is on shore even with the location of the site. No milfoil was found at this site in 1995 and a single plant was removed in 1996. None were found in 1997. In 1998, a resident reported a number of possible milfoil plants inside the bay north of Meadow Point, and 162 plants were cleared from around their dock area. There is a diverse native population of plants in existence here as well.

Assembly Point/West Bay (M-104). A small area of moderate density growth of milfoil plants was found in 1993. This site is 100 meters south of the wetland outlet on the western side of Assembly Point. Milfoil plants were found near a sailboat mooring. In 1995, 27 milfoil plants were removed from this location. There was no presence of Eurasian watermilfoil in 1997or in 1998. Slope was moderate and sediments were sand and silt.

Assembly Point/Northwest (M-105). A single milfoil plant was found and removed, approximately a quarter mile southwest of the tip of Assembly Point, in front of a white boathouse. The plant was in water 3m deep in a sand/silt sediment mixture, and the slope was gradual to moderate. No milfoil was found at this site in 1995-1998.

Assembly Point/Southeast Bay (M-106). The site was in the bay on the southeast side of Assembly Point. Three plants were found in the mouth of the bay in 1 to 2 meters of water in 1993. The sediments consisted of sand and silt, the slope in this area was flat to gradual. No milfoil was found at this site in 1995, 1996 or 1997. Two were removed in 1998.

Elizabeth Island (M-107). The site is located on the delta of a small tributary to the east of Elizabeth Island. Bottom slope is gradual and sediments are mainly sand with sand and silt mixed at the deeper margins. A single milfoil plant was found at this site in 1994. No milfoil was found at this site in 1995 through 1998.

Harris Bay Culvert (M-108). This site is immediately adjacent to site M-91 and should probably be combined. The culvert is found at the Lake George Boat Company. Moderate density growth of milfoil is found at the mouth of the culvert and extending into the docks of the marina complex.

SW Happy Family Islands (M-109). Scattered patches of milfoil west observed adjacent to a covered boathouse (Cedar Rock Lodge). In 1995, 27 milfoil plants were observed and removed by hand harvesting. In 1996, moderate density patches of milfoil were found to the north of the original site and hand harvested. The population was reduced with the removal of 346 plants in 1997 and 305 in 1998. A more aggressive management technique will be needed at this location to be effective. The bottom slope is gradual and the sediments composed of sand and cobblestones with scattered rock outcrops.

Diamond Point (M-110). Sparsely scattered milfoil plants were found in a small embayment just north of Diamond Point in 1994 at depths of 2 to 3 meters. Bottom slope at this site is gradual and sediments are sand and silt. No milfoil was found at this site in 1995 through 1998.

NWB-NE Walker Point (M-111). In 1995, scattered milfoil plants were first found around an "L" shaped dock and boat launch approximately 500m north of Walker Point. The milfoil plants (106) were removed by hand harvesting. In 1996, six milfoil plants were removed, and none were located in 1997 or 1998. Slope is moderate and the sediment is mainly silt with some sand.

Whale Rock, East of Agnes Island (M-112). In 1996, a moderate density area of milfoil growth was observed in pockets of silt on the eastern side of Whale rock. Slope is steep and the sediment is mainly silt on this bedrock outcrop. By 1998, these patches had grown together to form a moderate sized bed along the eastern edge of the rock.

Diamond Island (M-113). In 1996, several small dense patches of milfoil plants were observed on the western side of Diamond Island. The milfoil plants (112) were removed by hand harvesting. A total of 248 plants were hand harvested in 1997, however several small areas of dense growth remained. In 1998, this site was suction harvested, and two cans of milfoil were removed to clear the site. Slope is moderate to steep and the sediment is mainly silt between boulders.

Sandy Bay - Mooring Post (M-114). In 1996, scattered and moderate density milfoil plants were first found within a marina on the southwest side of Sandy Bay. No management was performed here in 1997 or 1998. This site is recommended for suction harvesting. Slope is moderate and sediment is mainly silt with some sand.

Cape Cod Village Bay (M-115). In 1996, a single milfoil plant was found around a series of finger docks at the Cape Cod Village Resort. A return visit in 1997 did not indicate the presence of Eurasian watermilfoil. However, six plants were found and removed here in 1998. Slope is moderate and sediment is mainly sand.

Holman Hill Creek - North (M-116). An area of scattered milfoil plants was first found in 1996. The milfoil plants (54) were removed by hand harvesting. In 1997, 92 plants were removed. A total of 148 milfoil plants were removed from a spot on the southern edge of an old steel pier in 1998. The main presence of the plants was concentrated at the edge of the delta, as well as some scattered plants around a boathouse at the mouth of the creek. Slope is moderate and sediment is mainly a silt composition with some sand.

Glenburnie - Blairs Bay (M-117). A small area of moderate density growth of milfoil was observed under a swim float near the steamboat landing in Blairs Bay. Slope is moderate and sediments are mainly sand. No management has been conducted here to date. By 1998, the site had become a large bed, and was in flower at the time of visit.

Blairs Bay, North (M-118). Scattered milfoil plants were observed within a dock area to the south of the Association beach. Slope is gradual and sediments are a sand/clay mixture with some silt ad detritus material. No management was conducted in 1996. Twenty plants were hand-harvested within a dock crib and boathouse in 1997. Two were removed in 1998.

East Side HBYC (M-119). Eurasian watermilfoil plants were observed scattered off the northeast corner of the marina in 1997. Four plants were harvested to clear the site. Two were removed here in 1998. Slope is gradual and sediments are composed of soft silt over a sandy bottom with a mixture of wood chips and other detritus material.

North Warner Bay – Culvert T-28 (M-120). Eurasian watermilfoil was first observed off the entrance to the tributary in 1997. One plant was harvested about three meters deep. Seventeen were removed from a rock outcropping located on along the western shore in about 2 meters of water. The bottom is sandy, with a gradual slope out to three or four meters. There is a minimal population of native plants here.

Bay South of Paulist Fathers T-36E (M-121). Eurasian watermilfoil was first observed in rocks at the edge of old crib docks in 1997. Four plants were harvested here in 1997 and 1 in 1998. Sediments are of a soft sand/silt composition.

Still Bay T-49 (M-122). Eurasian watermilfoil was first found here in 1997 at the mouth of the tributary. Six plants were harvested, scattered between the docks as well as out in water approximately three meters deep. None were found in 1998. Sediments are composed primarily of firm sand and bottom slope is gradual.

West Flirtation Island (M-123). A small bed of Eurasian watermilfoil was found here in 1997, about 75 yards off of the docks of the Northern Lake George Yacht Club about three or four meters deep. It will require some intensive management, such as a small section of benthic barrier. No management was conducted here in 1997 or in 1998.

North Shelving Rock Pt. (M-124). This was first found in 1998, and was pointed out by a resident. A single plant was found at the Knapp estate, inside the slips of the first docks to the north of the South Shelving Rock site (M-76). Bottom sediment consists of soft sand, and the slope is very steep a few meters out from shore.

East of Sagamore Island (M-125). First reported in 1998, a single milfoil plant was found and removed from this site. This site is located on the eastern shore of the Narrows adjacent to Sagamore Island. Bottom slope is moderate and sediments are a combination of sand and silt.

NW of Dollar Islands T-26a (M-126). Milfoil was first observed at this tributary site in 1998. Four plants were removed from around a large rock and downed tree at the southern end of the site. The site is located on the western shore of the Narrows. The bottom consists of soft silt and the slope is moderate to steep.

SW French Point T-69 (M-127). All Eurasian watermilfoil found here was located in a brush pile at the mouth of the tributary to a depth of four meters. First located in 1998, ten plants were removed to clear this location of milfoil.

Aquatic Plant Management

In the Integrated Aquatic Plant Management Program developed for Lake George, physical plant management techniques form the basis for management activities. Preferred physical management approaches are based on density of milfoil growth. Scattered plant sites are managed by hand harvesting, moderate density growth is addressed by a combination of suction and hand harvesting and dense bed growth is generally managed with benthic barrier and maintained with suction and hand harvesting. A pilot program to evaluate the use of the herbicide Sonar^{TM} for "spot treatment" of small areas of dense growth of Eurasian watermilfoil is also proposed for 1999.

A five year permit for aquatic plant management in Lake George was issued by the Adirondack Park Agency in 1992 and transferred from NYS DEC to the LGPC in 1994. This permit was renewed in 1997, and allows physical controls to be applied to manage the growth and spread of Eurasian watermilfoil through the spring of 2002.

Year	Total # of Milfoil Sites	Density of Milfoil Growth			Status	
		Bed	Moderate	Scattered	New[1]	Cleared[2]
1985	3	3	0	0	3	0
1986	22	9	0	13	19	0
1987	43	8	0	29	21	6
1988	55	8	0	35	12	12
1989	66	12	6	23	11	25
1990	76	13	8	19	10	36
1991	91	11	7	27	15	46
1992	97	16	4	40	6	37
1993	106	21	13	10	9	62
1995	111	26	13	5	1	67
1996	118	25	11	9	7	73
1997	123	28	11	13	5	72
1998	127	31	7	6	4	83

Table 2. The number of reported milfoil sites and their status from 1985 through 1998.

[1] First year in which Eurasian watermilfoil was observed at a particular site.
[2] Indicates all visible Eurasian watermilfoil removed by management activities.

A total of 113 sites have been managed for Eurasian watermilfoil in one or more years since the start of aquatic plant management efforts. Of these, 55 were cleared of Eurasian watermilfoil in 1998. Cleared, as used in this context, indicates removal of all visible milfoil plants, including roots. An additional 28 sites were found clear of Eurasian watermilfoil. At seven sites, milfoil abundance was reduced, but density of milfoil growth precluded complete removal at these sites. Thirty-seven sites require a more intensive management strategy than hand harvesting (e.g. suction harvesting, benthic barrier or herbicides). Of these, 14 sites currently have populations of Eurasian watermilfoil toward which no management activity has been directed.

Hand Harvesting

In 1998, a total of 4803 Eurasian watermilfoil plants were removed by hand harvesting at 58 locations. On average, 83 plants were removed from sites with milfoil present at hand harvestable levels. This compares to the 1997 program where 5938 milfoil plants were removed from 53 sites with an average of 112 plants removed per site. Coupled with the sites cleared of milfoil in past harvesting efforts, 83 sites or 65% of the recorded milfoil sites were free of milfoil at the conclusion of the 1998 effort (Figure 3).

Survey and hand harvesting required a total of 247 person•hours at sites where hand harvesting was appropriate (83 sites). This total includes time spent at sites where no milfoil was found. Effort was divided between travel, equipment setup, areal surveys, and harvesting. The relative percent of effort allocated to each of these tasks is presented in Figure 2. A total of 171 person•hours were spent at the 58 sites where hand harvesting was necessary to remove Eurasian watermilfoil, for an average of 2.9 person•hours per site. This compares to 1997 where 53 hand harvestable sites required a total of 202 person•hours for an average of 3.8 person•hours.

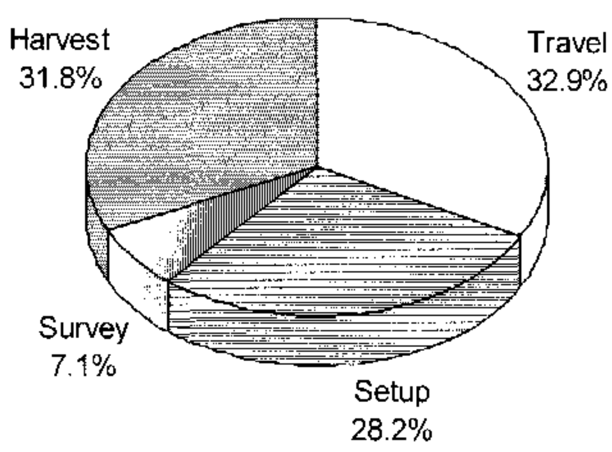
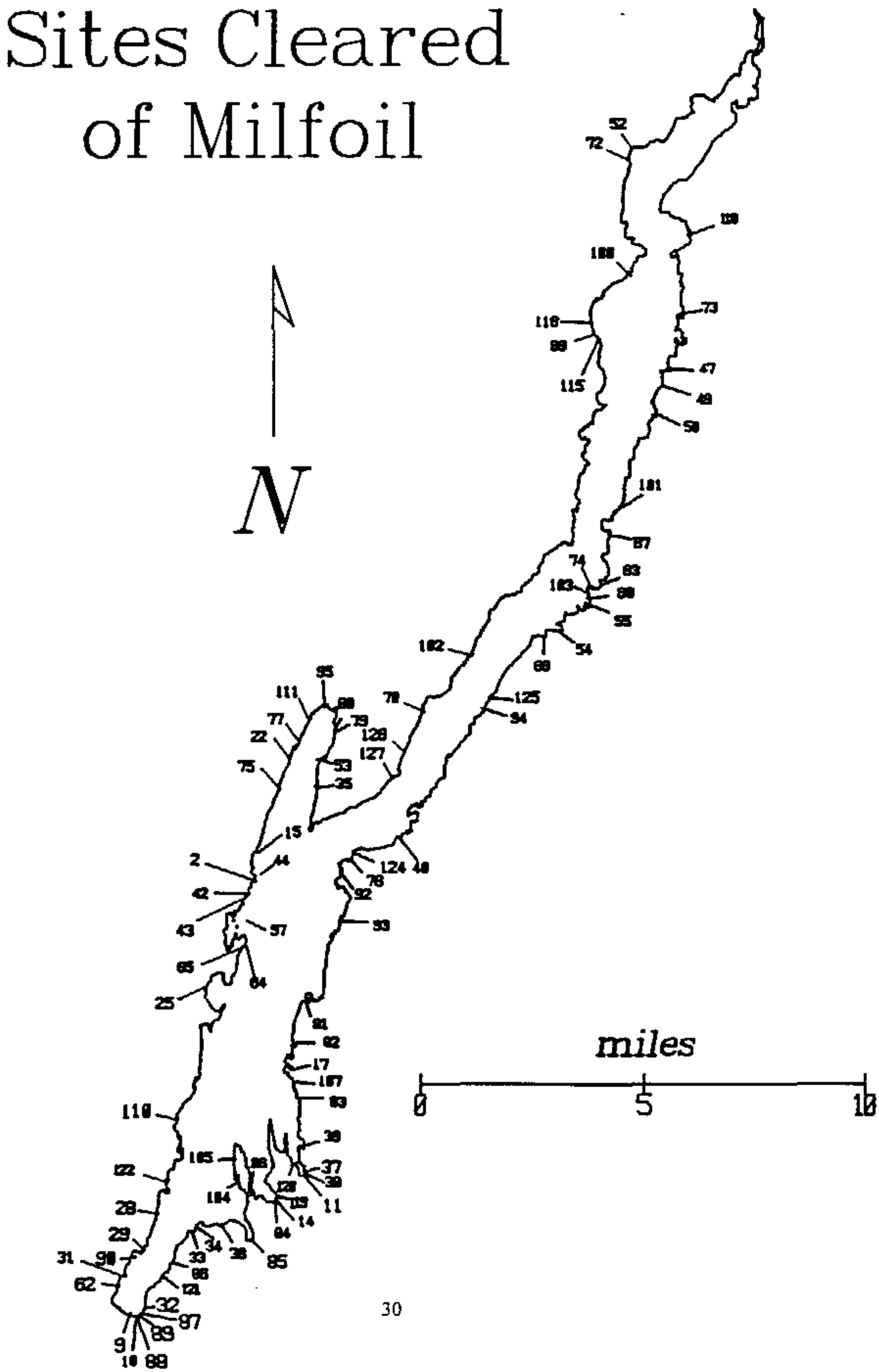


Figure 2. Distribution of effort for the hand harvesting program.

Figure 3. Eurasian watermilfoil sites documented as clear of milfoil in 1998



Benthic Barrier

Sites managed with benthic barrier during past programs were inspected and maintenance was performed where necessary. Maintenance activities centered on releasing gas trapped beneath the barrier material and readjusting stakes and weight bars. Milfoil fragments present on the surface of the barrier were also removed. There are a total of 9 locations where benthic barrier remains in place in Lake George. These include the following:

Dunhams Bay	West Brook	South Jenkins Brook
Sheriffs Dock	Shepards Park	North Sawmill Bay
East Brook	Sunset Bay	South Sawmill Bay

Benthic barrier maintenance was conducted at all nine locations noted above. The barrier at each of these sites was inspected by divers and repairs and adjustments made as necessary. Repairs included moving barrier to close gaps between panels, cutting vent holes in the barrier material to release trapped gases, and placing additional stakes in the barrier material to secure it to the lake bottom.

At one location, South Jenkins Brook (M-98), existing benthic barrier was relocated within that site to cover new growth of Eurasian watermilfoil. This barrier had been originally installed in 1997. A total of 15 panels of barrier (5250 ft^2) were moved, and areas where the barrier had been located were devoid of all plant life. This work required a total of 29 person•hours. The scattered growth around the perimeter of the barrier was reduced with nearly four person•hours of hand harvesting effort, and some heavy growth was removed via suction harvesting (see below). These areas will need to be inspected annually to prevent recolonization of milfoil from adjacent populations. Additional work including intensive hand harvesting and some suction harvesting will be needed here in 1999 to ensure that the milfoil at this site remains at manageable levels.

Suction Harvesting

The suction harvester was used at 4 locations - Bell Point (M-75), South Shelving Rock Pt (M-76), Diamond Island (M-113), and at South Jenkins Brook (M-98). A total of 98 person•hours were spent suction harvesting at these four sites.

South Shelving Rock Pt was cleared of Eurasian watermilfoil primarily by suction harvesting, and some follow-up hand harvesting. This site required 38 person•hours to remove the milfoil, including 6 hours of suction harvesting, and nearly 27 hours to setup the suction harvester for operation. A total of 2 ½ barrels of milfoil were removed from this site. A barrel consists of a 30 gallon garbage can packed tightly with Eurasian watermilfoil. Bell Point was cleared of milfoil via a combination of hand and suction harvesting. Survey and suction harvesting required a total of 5 person•hours. These efforts were divided between travel, equipment setup, areal surveys, and harvesting. The Eurasian watermilfoil population located at Diamond Island was reduced primarily by the suction harvester. This site required 24 person•hours, divided between travel, equipment setup, survey, and actual harvesting. A total of 2 barrels of milfoil were removed. This site will need to be hand harvested in 1999 to clear the remaining plants not removed during the suction harvesting effort. The suction harvester was also used at South Jenkins Brook to clear a few thick patches of milfoil that had grown up on the perimeter of the existing barrier. This required approximately 5 person•hours of actual work as well as some additional travel and setup time for the suction harvester. A total of 2 ½ barrels were removed from this site via suction harvesting in 1998.

A number of sites remain with milfoil populations of densities suitable for suction harvesting either as a primary management tool or in conjunction with other management practices. These include:

Silver Bay	Sandy Bay
NW Cooper Point	LG Yacht Club
Whale Rock – E Agnes Isl.	Bay NW Tongue Mt.
South Jenkins Brook	

Summary

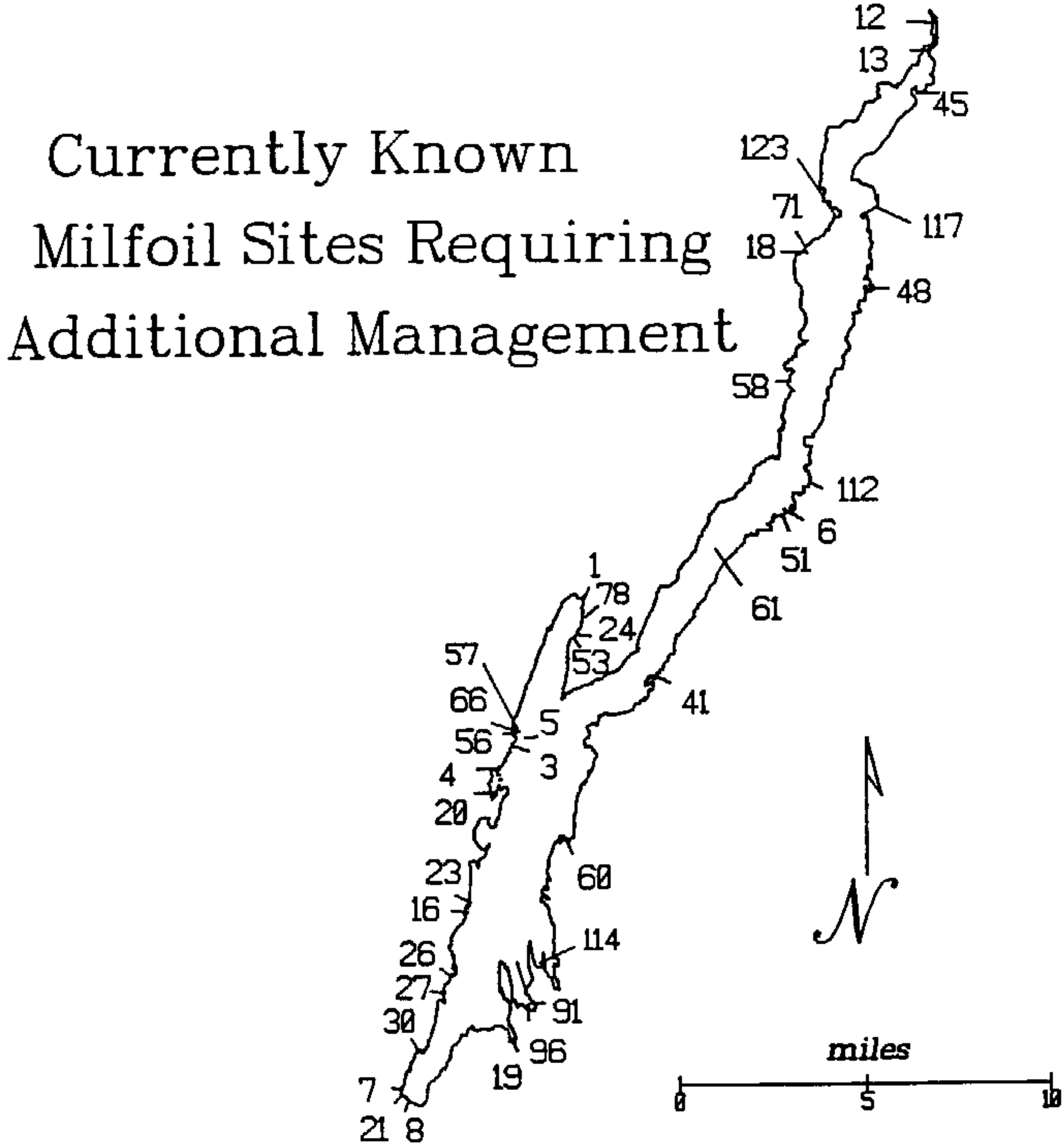
Hand harvesting new scattered plant sites as they are found, especially if they contain only a few plants appears to be an effective management strategy. At 34 sites where fewer than one hundred milfoil plants were found and cleared by hand harvesting, milfoil was absent for at least two years after removal. Of these 34 sites, nine have not had milfoil since the initial survey and removal. Very limited numbers of milfoil plants have been found at 24 of the other 25 sites. At present, 28 sites that produced milfoil in at least one previous survey were found to be free of milfoil in 1998.

Results of hand harvesting areas with elevated numbers of milfoil plants present (Eichler et al., 1991) indicate that while this technique may not eliminate milfoil populations in a single season of harvesting, a substantial reduction in the number of plants present and management effort necessary to maintain these locations can be achieved.

Evaluation of the effectiveness of benthic barrier (Eichler et al., 1995) and suction harvesting (Eichler et al., 1993) suggested that these techniques can also be valuable tools for aquatic plant management. Sites managed by these techniques are referred to as "managed" rather than "cleared", since removal of all visible milfoil plants by these techniques is not practical or cost effective. Used in conjunction with each other and hand harvesting, these efforts can yield cleared areas. Active maintenance of suction harvest and benthic barrier sites on an annual basis is necessary to prevent regrowth and recolonization of milfoil in these areas. This is particularly important if other active milfoil sites are in close proximity to managed areas or if sites are not cleared of milfoil before benthic barrier removal.

Sixteen of the 32 bed sites (Figure 5) have been greatly reduced with the use of benthic barrier. However, ten of the sixteen remain on the active list of milfoil sites pending

Figure 4. Eurasian watermilfoil sites requiring future management efforts.



further evaluation, management and maintenance. Six sites previously managed with benthic barrier are now maintained with hand harvesting. A serious concern is the availability of annual funding for maintenance. Future management and maintenance is uncertain and the loss of even a single season of management can negate previous efforts. Examples of this are two sites, Sheriff's Dock (M-21) and Dunhams Bay (M-19), which were managed with benthic barrier by the Lake George Park Commission in 1986. These sites have not been maintained since that time and both require extensive additional management activities.

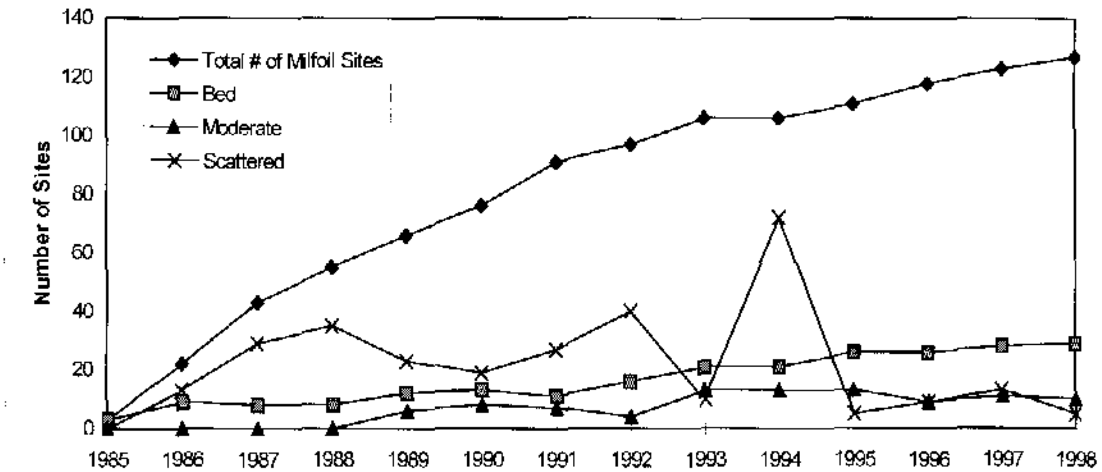


Figure 5. Eurasian watermilfoil sites and their status from 1985 through 1998.

Figure 5 shows the relationship of scattered plant sites to bed sites in the past fourteen years. The rise in the number of beds is caused not only by finding new densely populated areas, but also by the growth of moderately dense patches into the status of beds. Without management activities, the number of sites classified as beds would be much greater. Even with current management levels, the number of bed sites has continued to increase, suggesting the need for even greater efforts.

A pilot program to evaluate the herbicide Sonar™ at four locations is proposed for 1999. The use of this herbicide for milfoil control in Lake George is somewhat atypical. In Lake George, the majority of dense milfoil growth is present as small beds, generally less than 2 acres in size. Typical Sonar™ applications include whole lake treatments at low dosages or "spot treatments" of dense growth zones at least 5 acres in area. In the Lake George pilot project, treatment of smaller dense growth areas or sequestering small bays with booms to reduce water movement, will be experimentally evaluated. The results of this program may provide an additional tool for use in an Integrated Aquatic Plant Management Program for Lake George.

The decline in the number of active scattered plant sites is a result of management efforts, mainly hand harvesting these scattered populations. Substantial effort was made to reach all known milfoil sites in 1998.

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