

May 26, 2023

Andrew Hultin
Conservation Administrator
Town Hall
75 Middle Street
Weymouth, Massachusetts 02189

Re: Whitman's Pond Annual Work Plan – 2023 (MassDEP File No. 81-1300)
 Weymouth, Massachusetts
 TRC Project No. 479512.0000.0000

Dear Mr. Hultin,

In accordance with the Superseding Order of Conditions (SOC) issued by MassDEP (MassDEP File No. 81-1300), TRC submits this Annual Work Plan for the 2023 management season at Whitman's Pond. This Annual Work Plan is provided pursuant to Pre-Work Condition 31 of the Order of Conditions issued by the Weymouth Conservation Commission, which is incorporated by reference into the SOC.

A brief description of existing conditions and past management actions is presented below, followed by the proposed management and monitoring activities for 2023.

Background

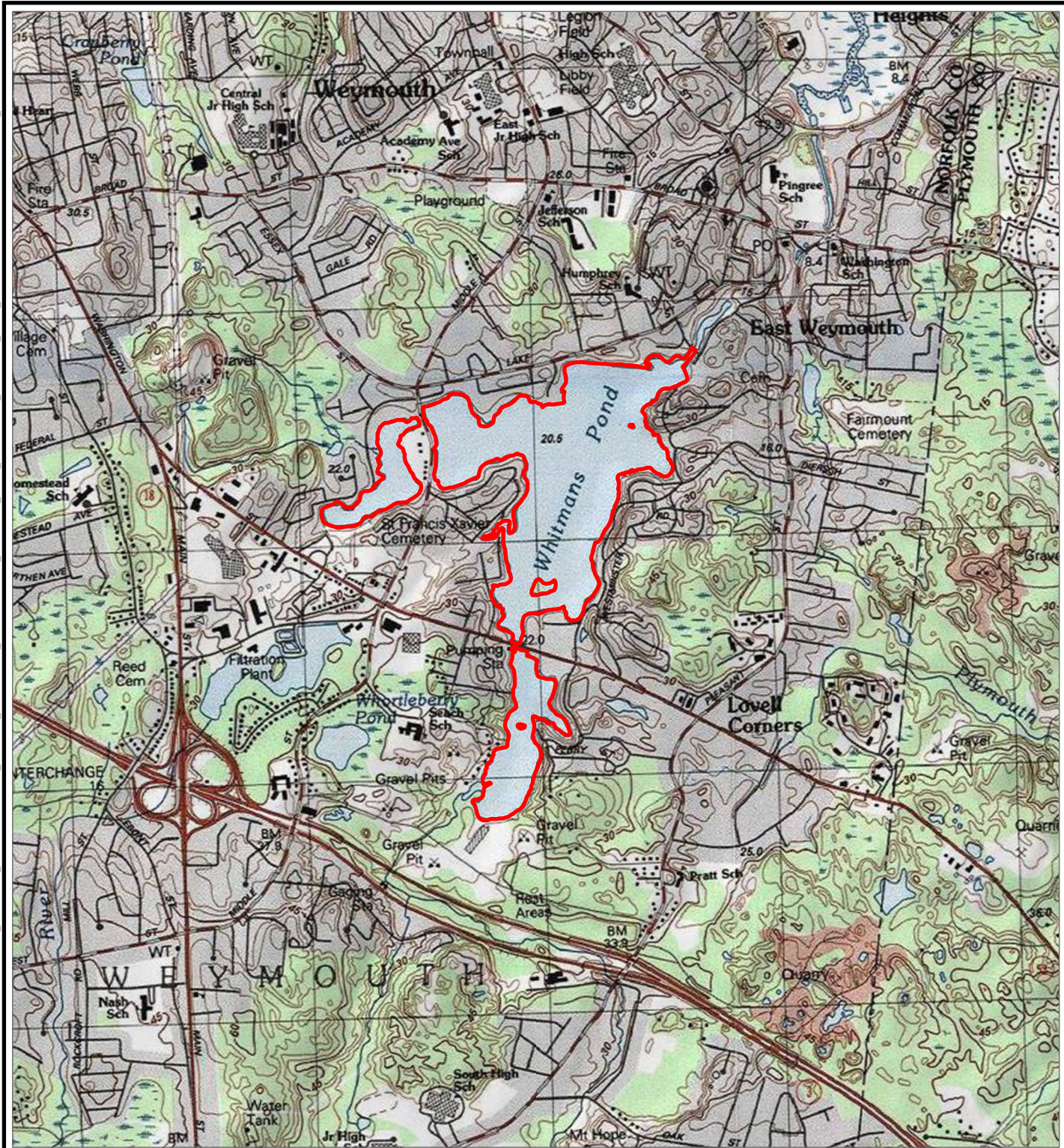
Whitman's Pond, located in the Town of Weymouth, is approximately 176 acres in size. The pond is comprised of three basins; the South Cove (located south of Washington Street), the West Cove (located west of Middle Street), and the Main Basin (located between Lake Street and Washington Street) (Figure 1). The pond supports outdoor recreation, wildlife habitat, and use as a drinking water supply (South Cove only). Whitman's Pond also provides spawning habitat for river herring.

TRC performed field monitoring activities in the summer of 2022 at Whitman's Pond. Results from the field activities guided the proposed management strategies described in the Notice of Intent (NOI) application for "Whitman's Pond Management Strategy" dated October 27, 2022 and were provided in TRC's "Whitman's Pond 2022 Annual Report" dated January 13, 2023. Several invasive aquatic plant species were observed at Whitman's Pond during the summer of 2022. Fanwort (*Cabomba caroliniana*) was the dominant species observed and formed dense beds in the South Cove and the western cove of the Main Basin (Figure 2). Growth of variable-leaf milfoil (*Myriophyllum heterophyllum*) was also present but was observed to be less dense than fanwort (Figure 3). Based upon results of the 2022 monitoring program, the 2022 Annual Report suggested that excessive growth of nuisance aquatic plants is likely stressing the aquatic life in Whitman's Pond, affecting the pond's ability to support a healthy aquatic ecosystem, and impacting use of the waterbody for recreation and as a drinking water supply source.

The main goal of the management strategy is to manage nuisance aquatic vegetation growth in Whitman's Pond. The proposed management strategy included use of herbicides, benthic barriers, hydroraking, hand harvesting/diver assisted suction harvesting (DASH), and mechanical harvesting to control nuisance aquatic vegetation.

An Order of Conditions was issued under MassDEP File No. 81-1300 by the Weymouth Conservation Commission on January 4, 2023. Following an appeal, MassDEP issued a SOC on May 5, 2023 affirming the original town-issued Order of Conditions, with the following modifications; 1) the work shall be completed within three years from the date of the Superseding Order, 2) requests for extensions, proof of recording, and requests for certificate of compliance shall be filed with MassDEP and 3) annual work plans, monitoring reports, vegetation surveys, and annual reports shall be sent to MassDEP in addition to the Weymouth Conservation Commission and the Division

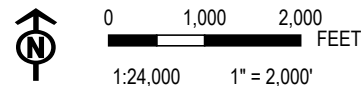
COORDINATE SYSTEM: NAD 1983 STATEPLANE MASSACHUSETTS MAINLAND FIPS 2001; MAP ROTATION: 0
-- SAVED BY: JBERTHMAN ON 9/16/2022, 15:39:51 PM. FILE PATH: T:\PROJECTS\TOWN OF WEYMOUTH\479512 WHITMANS POND\2-APPROX\FIG01 PROJECT LOCUS\FIG01 CLEANED\479512 WHITMANS POND FIG01 APPR. LAYOUT NAME: 8.5X11P NOINSET



 Project Locus

PROJECT: TOWN OF WEYMOUTH WHITMAN'S POND WEYMOUTH, MA	
TITLE: PROJECT LOCUS	
DRAWN BY: J. BERTHERMAN	PROJ. NO.: 479512.0000.0000
CHECKED BY: S. DEHAINAUT	FIGURE #1
APPROVED BY: L. LEE	
DATE: SEPTEMBER 2022	

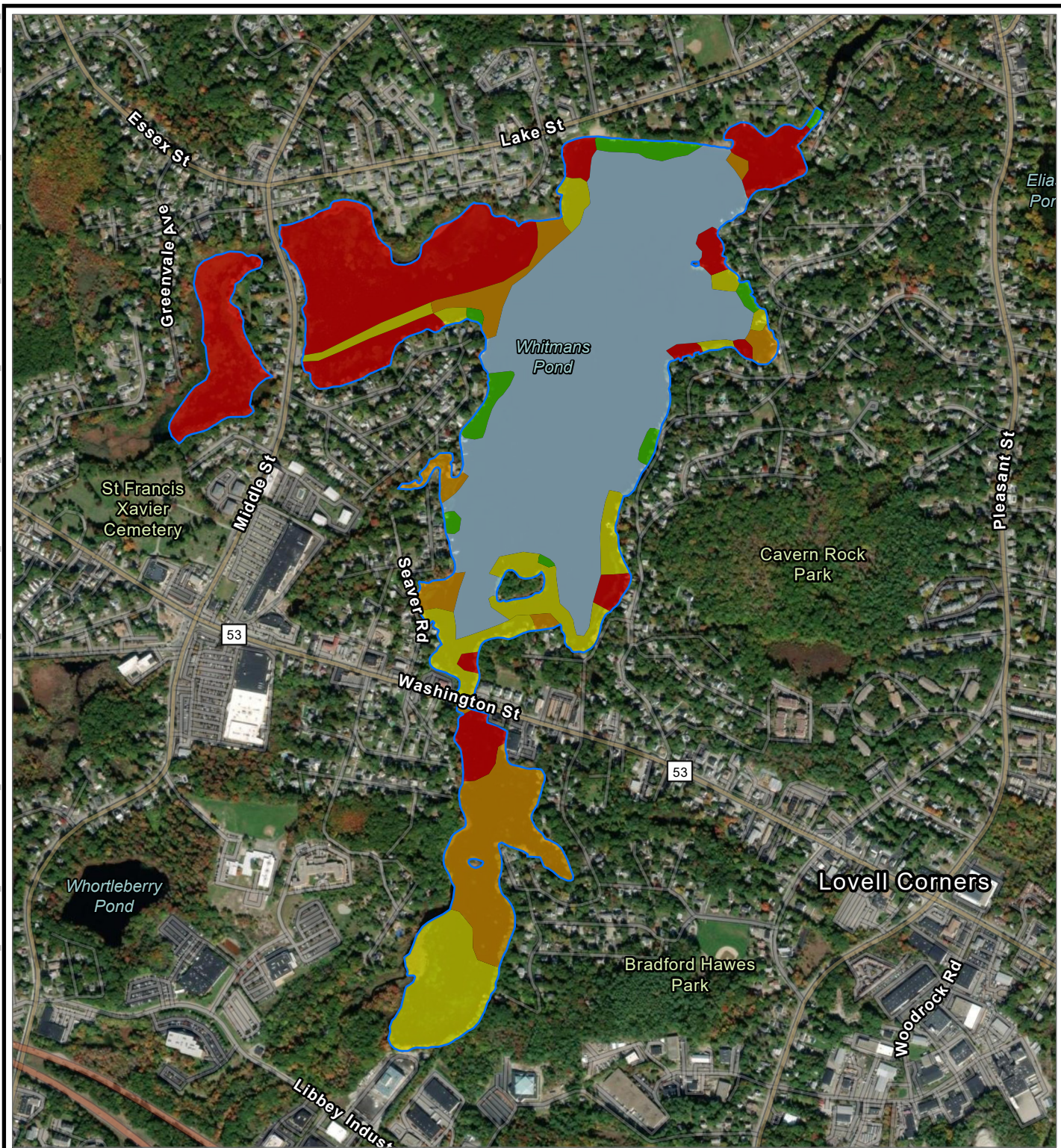
BASE MAP: USGS, TOPOGRAPHIC MAP, 2011
DATA SOURCES:
MASSDEP, HYDROGRAPHY, 2019








10 HEMINGWAY DRIVE
2ND FLOOR
EAST PROVIDENCE, RI 02915
PHONE: 401.330.1236

FILE: 479512_WHITMANS_POND_FIG01

COORDINATE SYSTEM: NAD 1983 STATEPLANE MASSACHUSETTS MAINLAND FIPS 2001; MAP ROTATION: 0
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FANWORT COVERAGE*

	0% (84.3 ACRES)
	1% - 25% (5.0 ACRES)
	26% - 50% (25.0 ACRES)
	51% - 75% (21.9 ACRES)
	76% - 100% (49.6 ACRES)

*NOTE: WEST COVE COVERAGE ESTIMATED DUE TO LOW WATER LEVELS.

BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC, GPS DATA, 2022
MASSDEP, HYDROGRAPHY, 2019



0 500 1,000
1:12,000 1" = 1,000'

PROJECT:

TOWN OF WEYMOUTH
WHITMAN'S POND
WEYMOUTH, MA

TITLE:

EXISTING CONDITIONS:
FANWORT COVERAGE

DRAWN BY: J. BERTHERMAN

PROJ. NO.: 479512.0000.0000

CHECKED BY: S. DEHAINAUT

APPROVED BY: L. LEE

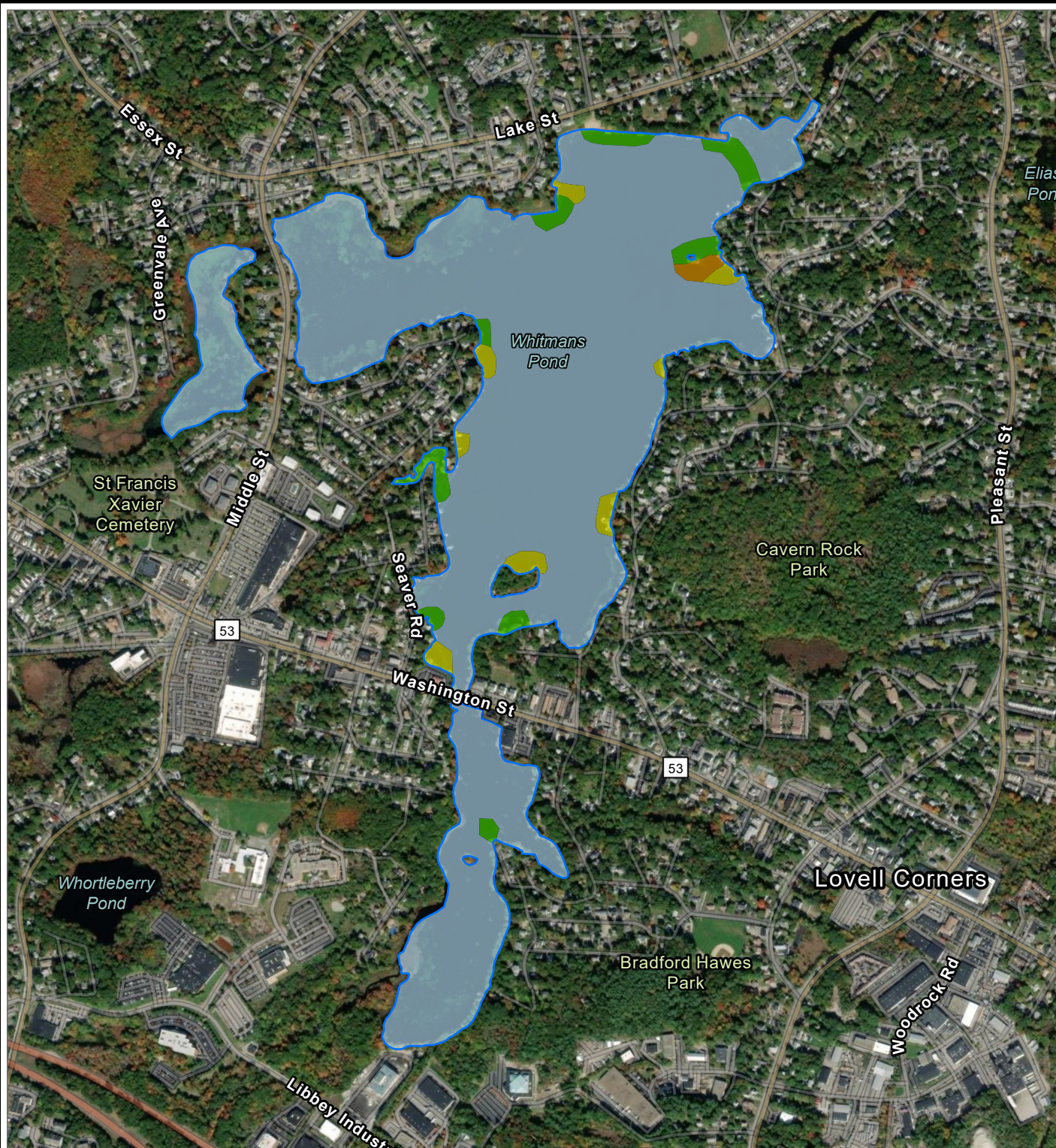
DATE: JANUARY 2023

FIGURE #2

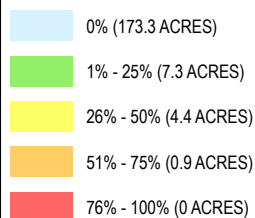


10 HEMINGWAY DRIVE
2ND FLOOR
EAST PROVIDENCE, RI 02915
PHONE: 401.330.1236

FILE: 479512_WHITMANS_POND_FANWORT_FIG3B

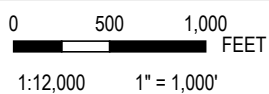


VARIABLE-LEAF MILFOIL COVERAGE*



*NOTE: WEST COVE COVERAGE ESTIMATED DUE TO LOW WATER LEVELS.

BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC, GPS DATA, 2022
MASSDEP, HYDROGRAPHY, 2019



PROJECT:	TOWN OF WEYMOUTH WHITMAN'S POND WEYMOUTH, MA
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TITLE: **EXISTING CONDITIONS:
VARIABLE-LEAF MILFOIL COVERAGE**

DRAWN BY: J. BERTHERMAN

PROJ. NO.:	479512.0000.0000
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CHECKED BY: S. DEHAINAUT

APPROVED BY: L. LEE

DATE: DECEMBER 2022

FIGURE #3



10 HEMINGWAY DRIVE
2ND FLOOR
EAST PROVIDENCE, RI 02915
PHONE: 401.330.1236

FILE: 479512_WHITMANSPOND_MILFOILCOVERAGE_FIG3C

of Marine Fisheries. TRC prepared this annual work plan in accordance with the Superseding Order of Conditions for Whitman's Pond.

Proposed Management

For 2023, TRC recommends focusing on physical measures of nuisance aquatic plant control, including mechanical harvesting and a pilot DASH program. The schedule for the proposed management activities is included in Table 1.

Mechanical Harvesting

Mechanical harvesting, which involves cutting and pulling aquatic plants using a specially equipped watercraft, is an effective short-term approach and is recommended for control of plant biomass in areas where vessel traffic is likely to be highest at Whitman's Pond. The Town owns and operates its own mechanical harvester, so contractor involvement is unlikely to be needed.

Mechanical harvesting is proposed to focus on the area approximately along and north of a line between the Middle Street boat launch at the west end and the Lake Street public access at the north (Figure 4). Depending on the skill of the operator, water levels, and amount of aquatic vegetation observed, the mechanical harvester may also be used to clear small portions of adjacent areas.

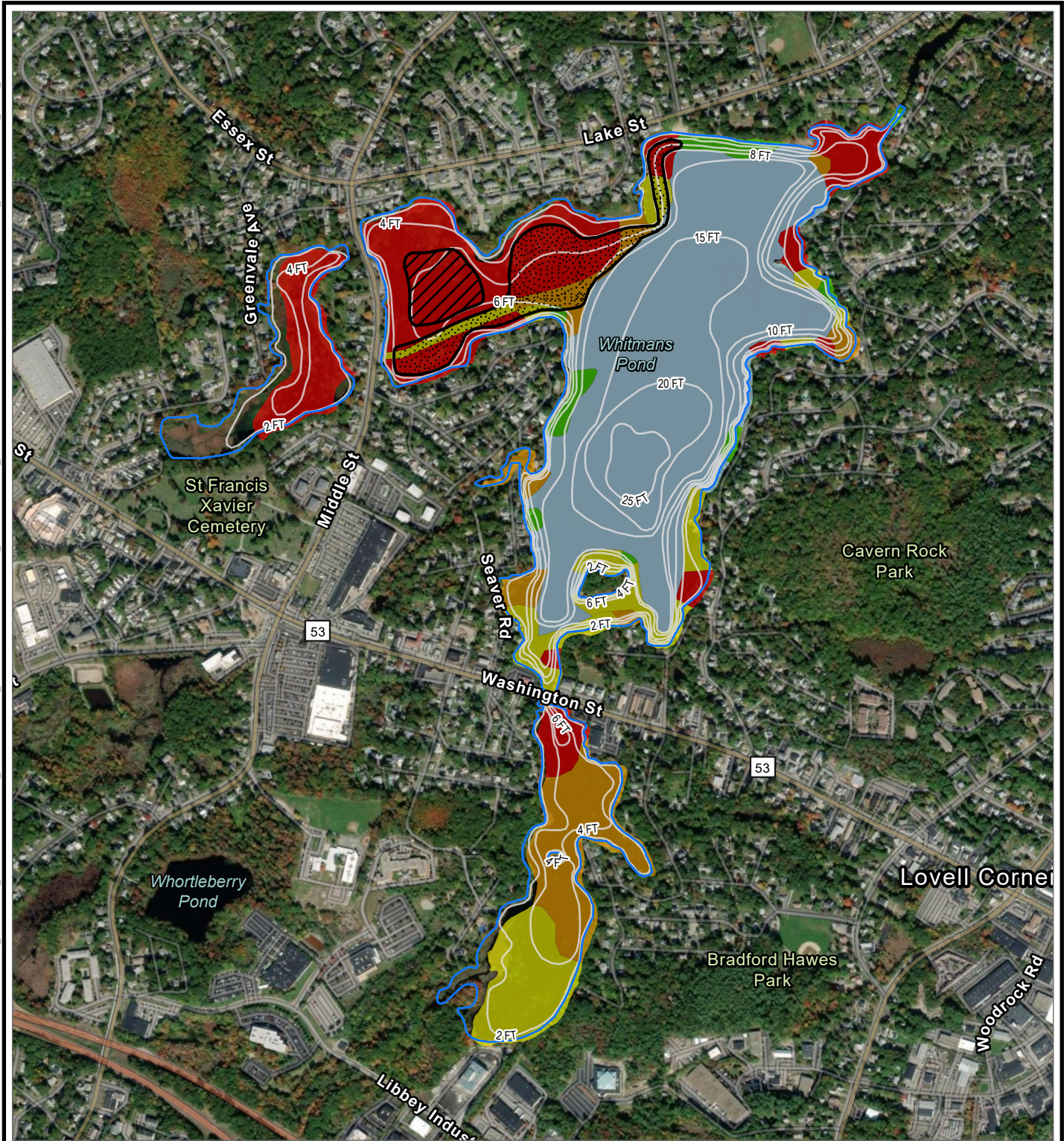
Harvesting in the target area will help maintain clear boat channels from the Middle Street boat launch to deeper waters of the Main Basin and will help to maintain clear launch points at the Lake Street public access for canoes and kayaks. Aquatic vegetation has been mechanically harvested in this area by the Town in previous years, and TRC recommends that the Town continue this management approach in 2023. Harvesting is recommended for the period during which aquatic plant biomass is at its peak, from July through August and possibly into September, as the need for clearing arises and resources allow.

Diver Assisted Suction Harvesting (DASH)

During DASH operations, divers harvest plants by using a hose lift system to transport pulled plants to a collection vessel at the surface. DASH is effective in minimizing fragmentation that may occur during dive operations and is efficient in reducing the time it takes for divers to return to the water's surface with harvested plants. Unlike mechanical harvesting, DASH allows for selective control of nuisance plants and can be used for precision management. DASH efforts in Whitman's Pond will primarily target fanwort but variable-leaf milfoil and other confirmed invasive species will also be removed if they are observed in the identified management area.

TRC proposes a pilot-scale DASH project to focus on the western cove of the Main Basin, an area known to contain very dense fanwort growth (Figure 4). The project area intends to be deep enough (greater than 5 feet) to allow operations to continue should drought conditions occur during the summer season. The project area is also located north of the mechanical harvesting corridor to allow for simultaneous management if necessary. TRC proposes a larger project area that encompasses an area of approximately 5 acres. However, subject to the bids received and the density of plant growth in the target area this summer, the actual harvested area might be smaller (closer to one acre). The area actually harvested will be delineated at the completion of DASH operations so that it can be compared to pre-management conditions as part of the monitoring program. A duration of at least five days is anticipated for pilot study DASH operations, to allow for measurable progress in controlling beds within the

COORDINATE SYSTEM: NAD 1983 STATEPLANE MASSACHUSETTS MAINLAND FIPS 2001; MAP ROTATION: 0
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<p>— WHITMAN'S POND OUTLINE</p> <p> APPROX. DASH PILOT STUDY AREA (5.0 ACRES)</p> <p> APPROX. MECHANICAL HARVESTING AREA (13.9 ACRES)</p> <p>— BATHYMETRY CONTOURS (FEET)</p>		<p>FANWORT COVERAGE*</p> <table><tr><td></td><td>0% (84.3 ACRES)</td></tr><tr><td></td><td>1% - 25% (5.0 ACRES)</td></tr><tr><td></td><td>26% - 50% (25.0 ACRES)</td></tr><tr><td></td><td>51% - 75% (21.9 ACRES)</td></tr><tr><td></td><td>76% - 100% (49.6 ACRES)</td></tr></table>		0% (84.3 ACRES)		1% - 25% (5.0 ACRES)		26% - 50% (25.0 ACRES)		51% - 75% (21.9 ACRES)		76% - 100% (49.6 ACRES)	<p>PROJECT: TOWN OF WEYMOUTH</p> <p>WHITMAN'S POND</p> <p>WEYMOUTH, MA</p>	
	0% (84.3 ACRES)													
	1% - 25% (5.0 ACRES)													
	26% - 50% (25.0 ACRES)													
	51% - 75% (21.9 ACRES)													
	76% - 100% (49.6 ACRES)													
		<p>TITLE: PROPOSED PHYSICAL MANAGEMENT AREAS</p>												
		<p>DRAWN BY: K. BACHAND</p>	<p>PROJ. NO.: 479512.0000.0000</p>											
		<p>CHECKED BY: T. LATHAM</p>	<p>FIGURE #4</p>											
		<p>APPROVED BY: M. O'BRIEN</p>												
		<p>DATE: MAY 2023</p>												
<p>*NOTE: WEST COVE COVERAGE ESTIMATED DUE TO LOW WATER LEVELS.</p> <p>BASE MAP: USGS COLOR ORTHO IMAGERY DATA SOURCES: TRC, GPS DATA, 2022 MASSDEP, HYDROGRAPHY, 2019</p> <p></p> <p>0 500 1,000 FEET</p> <p>1:12,000 1" = 1,000'</p>		<p></p> <p>10 HEMINGWAY DRIVE 2ND FLOOR EAST PROVIDENCE, RI 02915 PHONE: 401.330.1236</p>												
		<p>FILE: 479512_WHITMANS_POND_OTHERFIGURES2022</p>												

designated management area. TRC recommends that the DASH pilot study be performed in the August to September timeframe for 2023. The results of this pilot study will be used to help the Town assess the viability of DASH as a nuisance vegetation control measure going forward.

Proposed Monitoring

TRC recommends the following proposed monitoring activities for the summer of 2023. A schedule of the monitoring activities is included in Table 1.

Aquatic Vegetation Mapping

TRC proposes two rounds of mapping aquatic vegetation to monitor the effectiveness of the 2023 management activities and to guide recommendations of future management. Mapping efforts will be conducted from a vessel and will be completed using sampling devices (e.g., plant rakes) and/or underwater cameras. At each sampling location, the distribution, cover, and biovolume of aquatic plant species will be mapped, with a focus on invasive species.

TRC proposes that early season/pre-management vegetation mapping at Whitman's Pond be conducted in late May or early June to capture the presence of curly-leaf pondweed (*Potamogeton crispus*). Curly leaf pondweed is an invasive species that has been documented at the pond but has not previously been thoroughly mapped due to its early emergence in the spring and die-back by mid-summer. A second vegetation mapping (post-management) event is proposed following DASH efforts to track the effectiveness of the pilot study and to capture the net effect of the mechanical harvesting operations over the course of the summer.

Water Quality Monitoring

TRC proposes to assess water quality at five sampling sites within Whitman's Pond in 2023: surface waters of the outlet, South Cove, and West Cove, and surface and bottom waters of the Main Basin at the deep hole location (Figure 5). Water quality sampling will be consistent with the water quality assessment performed in the summer of 2022. Parameters to be measured at each water quality sampling site include temperature, dissolved oxygen, specific conductance, pH, turbidity, apparent color, transparency, total nitrogen, total phosphorus, dissolved phosphorus, and *E. coli*. In addition, chlorophyll a will be collected at the surface of the Main Basin. Surface waters of the Main Basin will also be sampled and analyzed for phytoplankton enumeration and identification.

TRC proposes that three rounds of water quality sampling be conducted in May, July, and September of 2023 (Table 1).

Table 1. 2023 Management and Monitoring Activities at Whitman's Pond

Proposed Activity	Month					Basin	Notes
	May	June	July	August	September		
Mechanical Harvesting			X	X	X	Main Basin	To focus on area along and north of line between Middle Street boat launch and the Lake Street public access.
DASH				X	X	Main Basin	To focus on western cove of Main Basin for a duration of at least 5 days.
Aquatic Vegetation Mapping	X				X	Main Basin, South Cove, West Cove	To occur late spring/early summer to capture <i>P. crispus</i> , and following DASH pilot study.
Water Quality Monitoring	X		X		X	Main Basin, South Cove, West Cove	To occur May, July, and September following completion of the DASH pilot study management efforts.

Annual Report

TRC will develop an annual monitoring report to document the management activities completed at Whitman's Pond over the course of the calendar year. This report will summarize the monitoring results, including both water quality and aquatic vegetation mapping data. The results will be used to track conditions at Whitman's Pond and to assess the effectiveness of the 2023 management activities. The annual report will also provide recommendations for management and monitoring actions to be performed at the pond in 2024. The annual report will be submitted to the Weymouth Conservation Commission by November 15, 2023 and will also be provided to MassDEP and the Division of Marine Fisheries (DMF) per requirements of the Superseding Order of Conditions.

Conclusions

All work proposed in this work plan is intended to comply with the Superseding Order of Conditions for MassDEP File No. 81-1300 dated May 5, 2023. All annual work plans, water quality monitoring reports, vegetation mapping surveys, and annual reports will be provided to MassDEP, DMF, and the Weymouth Conservation Commission. Only mechanical harvesting and DASH, as permitted under the OOC, are proposed for management of aquatic invasive species in Witham's Pond in 2023. Other permitted management actions, including benthic barriers, herbicide use, and hydrotanking, are not currently proposed for 2023.

Should the Commission have any questions or comments regarding the 2023 proposed management activities at Whitman's Pond, feel free to contact the undersigned at mladewig@trccompanies.com or at (401) 330-1204.

Sincerely,

TRC ENVIRONMENTAL CORPORATION



Matt Ladewig, CLM
Project Director

and



Margaret O'Brien
Environmental Scientist