East Haddam Lakes Association (EHLA)
2019 - 2020 Fiscal Year
Budget Request

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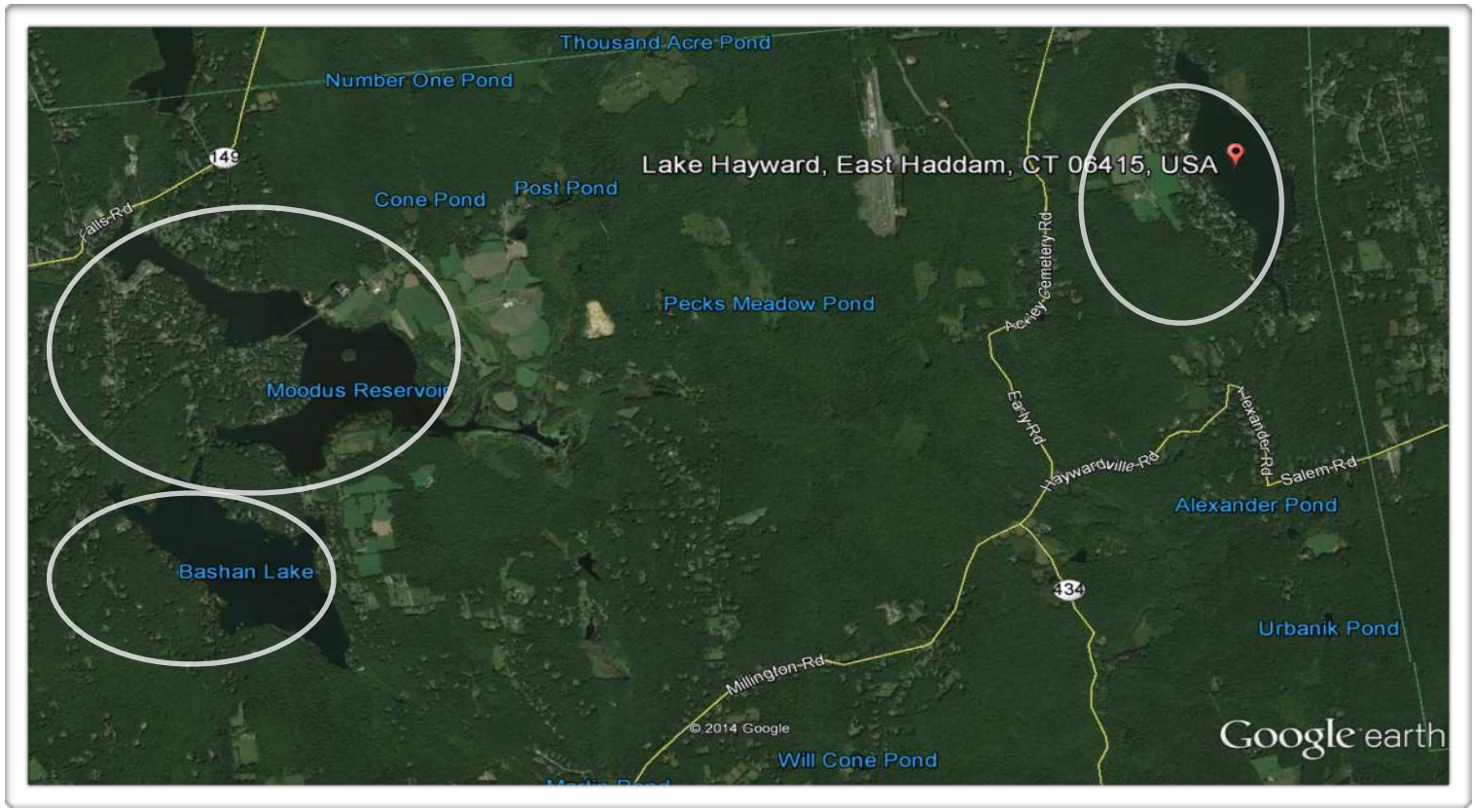
East Haddam's 3 Lakes

Bashan Lake	273 acres	35 MPH limit
Lake Hayward	174 acres	No internal combustion engines permitted
Moodus Reservoir	486 acres	35 MPH limit

State Boat Launches at All 3 Lakes



Lakes *Are Critical* to East Haddam

East Haddam's lakes are environmental, recreational, tourism and economic assets.

This document:

- Defines the economic value of Bashan Lake, Lake Hayward and Moodus Reservoir properties;
- Highlights key problems facing the lakes and lake community homeowners;
- Requests Town financial support consistent with maintaining lake values and addressing problems.

"We speak for the lakes, for the lakes have no tongues"

... with a nod to The Lorax

I. Economic Value of East Haddam's Lakes

Lakes are a significant component of East Haddam's Grand List and tax revenue!

Why is lake protection important?

Poor lake water quality leads to a <u>decline</u> in taxable real estate values resulting in <u>upward</u> pressure on the mill rate and/or <u>decreased</u> municipal expenditures/services.

Real Estate Grand List/Tax Revenue

- Properties in the lake zones represent almost 20% of the Real Estate Grand List of Taxable Property
- Commercial and industrial properties are less than 5% of Real Estate Grand List of Taxable Property

Lake Zone Real Estate

Lake	#	Grand List (2016) *	% of 2018 R/E Grand List
Bashan	298	$40,826,040	5.30%
Hayward	728	60,099,890	7.80%
Moodus	573	47,220,030	6.13%
TOTAL	**1,599**	**$148,145,960**	**19.22%**

Total Grand List of Taxable R/E as of 12/21/2018: **$770,874,205**

* 2017 - 2018 Lake Grand List data unavailable at time of budget submission

Economic Value Conclusions

1. East Haddam's lakes are a tremendous economic multiplier for the Town!

2. As documented in a 1999 UCONN study, the economic value of lakes is dependent on their being attractive places to live and vacation.*

3. Unless the lakes are being maintained and protected, East Haddam stands to lose a sizable portion of its tax base and local spending by lake residents.

4. Seasonal properties comprise approximately 70% of all lake zone properties thereby requiring less Town services.

* 1999 Economic Study conducted by UCONN and the CT DEP entitled *How Much Is a Lake Worth To You* (http://www.coventryct.org/DocumentCenter/View/518). Corroborated by 1998 study by CT DEP entitled *Economic Evaluation of Connecticut Lakes With Alternative Water Quality Levels*, 2003 study by Bemidji State University in Minnesota entitled *Lakeshore Property Values and Water Quality*, and a 1996 Report by the Maine Agricultural Experiment Station entitled *Water Quality Affects Property Prices*.

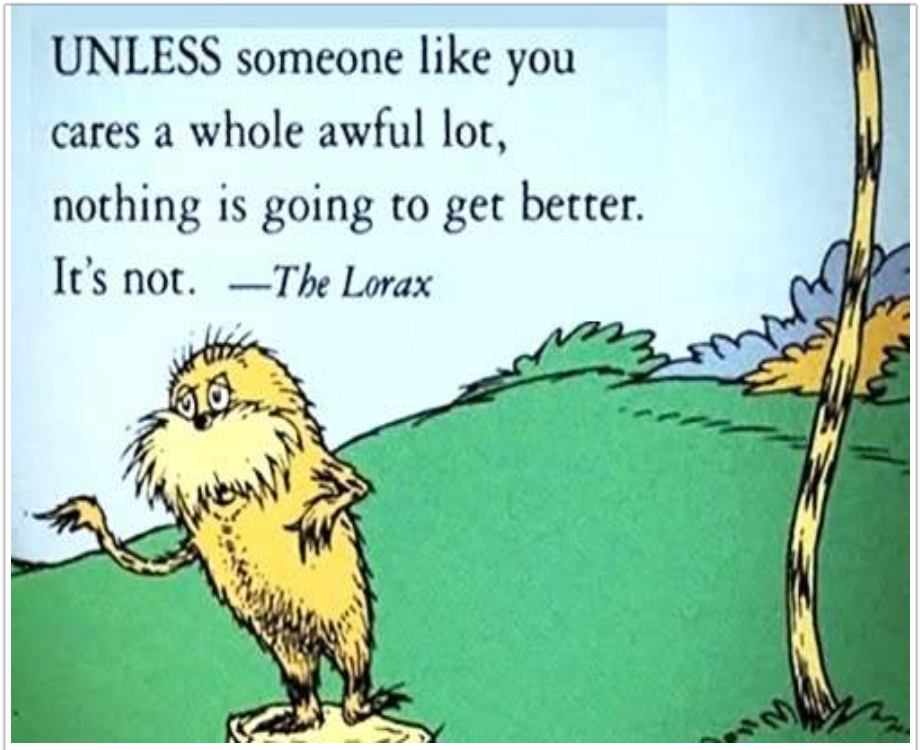
II. Primary Threats to Economic Value of Lakes and Lake Properties

- Invasive aquatic species (Existing - fanwort, milfoil, curly leaf pondweed, big floating bladderwort, Brazilian water weed. Coming: water chestnut, hydrilla, asian clams and … what's next?) and excessive algal blooms
- Storm water runoff/erosion from private/municipal sources
- Nonpoint source pollution (poorly functioning septic systems, fertilizers, pesticides, detergents)
- Introduction of invasive species to the lakes by public boat launch users with no "stake" in lake health/survival
- Reduction of lakefront native plant buffers
- Over development or out of character development

Fanwort at Lake Hayward

III. Town Support Needed

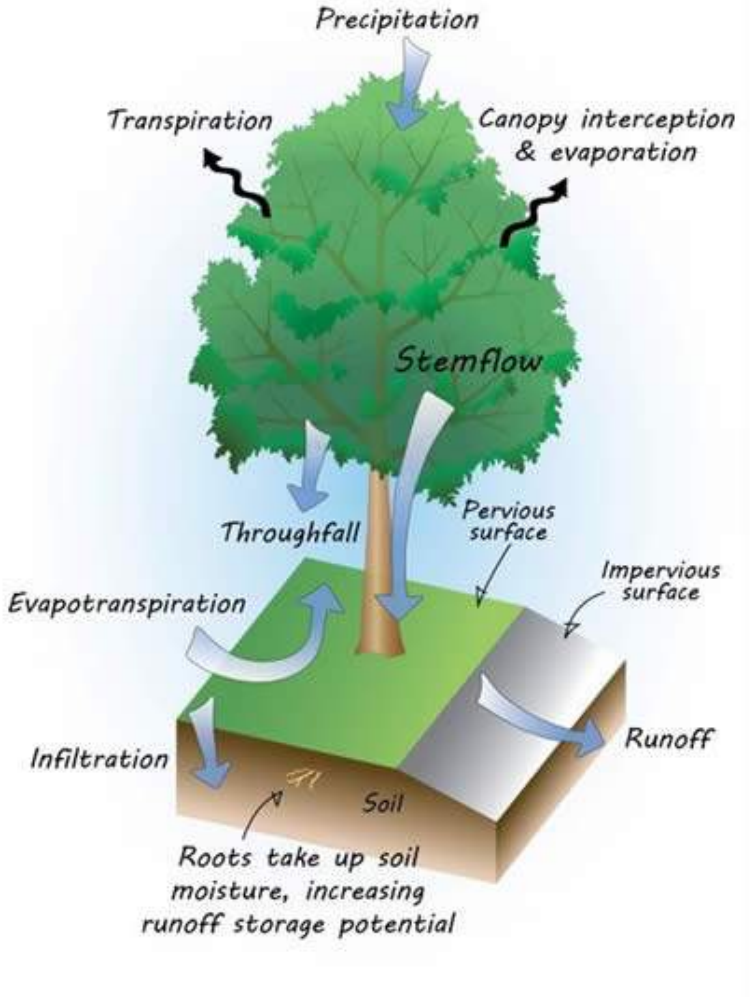
- Boat launch monitors
- Monitoring sources of pollution (septics, nonpoint sources, storm water runoff)
- Preservation of open space in watersheds
- Ensuring onsite septic systems in lake watersheds function properly (via Chatham Health District
- Education and outreach for lake property owners and other stakeholders concerning environmental best management practices.
- Mitigation of invasive species in the lakes and their watersheds



IV. EHLA Budget Request

Rationale for Request

- Based on the 1999 Economic Study conducted by UCONN and the CT DEP (funded by the U.S. EPA's Clean Lakes Program) entitled *How Much Is a Lake Worth To You*:
  - If water quality issues are ignored, tax revenues from lake properties will decrease in direct relation to the deteriorating water quality of the lakes; an
  - If water quality drops to the point where it is unsafe to swim and/or eat fish caught in the lake, lake property values will drop in the range of 36% - 43%.



Budget Request (con't)

What does this mean for East Haddam?

If lake water quality decreases, town property tax revenues also decrease.

The *financial relationship of water quality to tax revenue loss is in the range of $1.58M – $1.89M*, or *6.1% – 7.3% of annual town property tax revenue*!

Algae Bloom 2018
Lake Hayward

Budget Components and Request
Fiscal 2019 - 2020

- **Lake Restoration**
  Includes professional herbicide treatment of aquatic invasive plants, sand reclamation, benthic barriers and professional mitigation of phragmites and other weeds.

- **Aquatic Plant Monitoring**
  Periodic professional monitoring of invasive weed growth/regrowth; evaluation of prior herbicide and mechanical weed treatment/removal operations; measuring bacteria levels and other physical, chemical and biological lake water parameters … necessary to determine further treatments required. Lab analysis to determine the presence of HABs (harmful algal blooms).

- **Public Education**
  Education of lake and area residents on topics such as aquatic invasive species, septic regulations and pumping, lake buffer planting, stormwater mitigation practices and the negative effects of chemical lawn and yard products. Dissemination of this information is through in-person presentations, newsletters (hard copy and email) and websites.

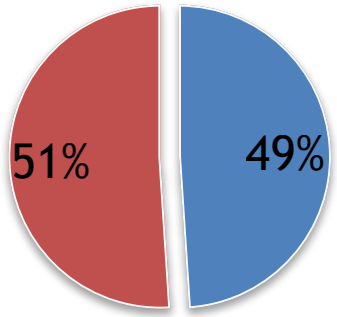
	Bashan Lake		Lake Hayward		Moodus Reservoir		Total	
	Projected Expense	Requested from Town	Projected Expense	Requested from Town	Projected Expense	Requested from Town	Projected Expense	Requested from Town
Total	$24,250	$12,125	$24,000	$12,000	$20,000	$10,000	$68,250	**$34,125**

It's Only a Sliver …

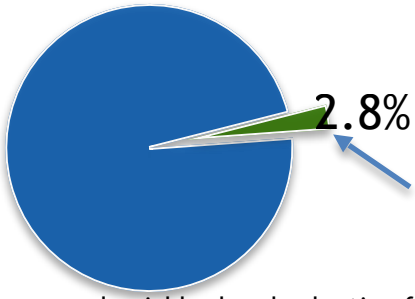
Lake Neighborhoods Property Tax Revenue (Land Only) $2.41M

Budget Request is only a 2.8% sliver of the ***INCREMENTAL*** lake neighborhoods property taxes (Land only)

$ and % if only assessed at Base Land Value
$1,228,655



$ and % ***in excess*** of Base Land Value
$1,178,485 ^



Budget Request $34,125

^ Resulting from the increased neighborhood valuation factors

WF * and LZ ** LAND ONLY PROPERTY TAXES COMPARED TO BASE VALUE TAXES, 29.66 mills (2018)

	Valuation Factor	2016 Land Assessment	Property Taxes (29.66 mils)	Base Land Value	Property Taxes @ Base Land Value
BASHAN LAKE WF	3.60	$18,936,130	$561,646	$5,260,036	$156,013
BASHAN LAKE LZ	2.00	6,041,490	179,191	3,020,745	89,595
LAKE HAYWARD WF	3.10	13,412,500	397,815	4,326,613	128,327
LAKE HAYWARD LZ	1.25	18,825,430	558,362	15,060,344	446,690
MOODUS RESERVOIR WF	2.50	14,296,010	424,020	5,718,404	169,608
MOODUS RESERVOIR LZ	1.20	9,646,220	286,107	8,038,517	238,422
TOTAL		**$81,157,780**	**$2,407,140**	**$41,424,659**	**$1,228,655**
Base Land Value Property Taxes			-$1,228,655		
Lake Zoned Property Taxes Exceed Base Land Value By			**$1,178,485**		

***WF = Waterfront land only** ****LZ = Other lake zoned property land only**

*** **Base Land Value** is the "base" or "average" land rate for East Haddam per the East Haddam Valuation Parameters (10/01/12). Positive or negative neighborhood adjustments (Valuation Factors) are made to this base corresponding to the degree of difference from the base.

V. Lake Highlights

Bashan Lake

2018-2019 Accomplishments:

1. Working with the Town and the DEEP, the DEEP granted Bashan Lake a 3-foot drawdown starting November 1, 2018 and closing the gate on or about March 1, 2019.
2. No Parking signs placed at the end of the State boat launch on East Haddam Road were monitored by Town police, resident State trooper, along with BLA members calling the proper authorities, and several tickets were issued due to parking violations.
3. Water sampling of streams and beaches performed in August of 2018. All samples that were brought to the Chatham Health District had a reading ten or under.
4. Two Secchi Disk readings were taken this season, both at eighteen plus feet. Both readings are in the range of measurements taken over many years. Secchi Disk readings provide crude measures of clarity to document trends of improving or worsening water quality.
5. Mapping of milfoil and fanwort was done on several occasions by the Connecticut Agricultural Experiment Station (CAES). Fanwort was treated with two 10 foot x 25 foot Benthic Barrier to smother the weeds. The milfoil and phragmites was again surveyed and treated in late September and early October.
6. CAES applied herbicide treatment to twelve acres of phragmites in the lake in October 2018.
7. Bashan Lake Association went paperless and email was used to inform and educate lake residents on lake preservation in 2018.
8. New buoys were purchased and installed to replace no wake and speed limit buoys for lake safety.

Bashan Lake (cont'd)

2019 - 2020 Objectives:

1. In reference to Public act No. 16-141, work with the Town of East Haddam to submit a request to the DEEP for the lake drawdown for 2019-2020.
2. Monitor illegal parking at the end of the State boat launch on East Haddam Road where there are No Parking signs. Will be monitored by the Town, Resident State Trooper and Bashan Lake Association members.
3. Continue water sampling of streams and water runoff at point of entry to Bashan Lake, along with Sunset Acres beach and Laurel Cove beach.
4. Do Secchi Disk measurements, and compare results with previous years' measurements.
5. Continue mapping of Milfoil and Fanwort, along with any other new weeds, along with herbicide treatment of these weeds.
6. Continue education of residents regarding lake preservation through newsletters and emails.

Lake Hayward

2018-2019 Accomplishments:

1. Weed Mitigation: Spot treatments were continued. Report posted on POALH website.
2. Secchi disk measurement: Bi weekly measurements were completed and compiled on our database.
3. Surveys of invasive aquatic plants both prior to and after herbicide treatment.
4. Volunteers continue toward completion of Watershed Management Plan with hopes of completion in 2019.
5. Monthly phosphorus and chlorophyll a monitoring with samples taken by volunteers and analysis at UConn lab.
6. Weekly hard and electronic copy in-season newsletters with educational articles dealing with care of the lake.
7. Published and distributed two editions of the East Shore Newsletter in-season.
8. Signage purchased reminding residents to pump septics, not put leaves in lake and not use phosphate fertilizers.
9. Educational seminar held (Kathy Connolly, landscape designer) on how to use landscaping to curb runoff into lake.

2019-2020 Objectives:

1. Continue invasive aquatic weed mitigation treatment.
2. Continue bi-weekly secchi disk measurements.
3. Continue to survey and monitor invasive aquatic plants.
4. Continue to develop Lake Hayward Watershed and Lake Management Plan.
5. Continue monitoring program for total phosphorus and chlorophyll a.
6. Continue weekly in season newsletters to educate homeowners about lake preservation.
7. Continue East Shore newsletter.
8. Continue use of signage to inform residents of educational events and discourage behavior detrimental to lake.
9. Host an educational seminar for homeowners pertaining to the health of our lake.
10. Complete planting project on assn. property to curb runoff and serve as example for individual property owners.
11. Hire a limnologist to analyze ongoing algae problems and advise as to remediation options.

Moodus Reservoir

2018-2019 Accomplishments:

1. Continued fund-raising efforts (picnic, raffle, T-shirt sales) which have raised to-date (thru November 2018) approximately $15,000. During the 6/30/18 fiscal year and current YTD fiscal year, approximately $36,000 has been raised.
2. Membership participation has increased from 44 to 60.
3. Actively pursued grants - $3,170 has been received through November 2018 (for fiscal year 6/30/19).

2019-2020 Objectives:

1. Continue fund-raising efforts to achieve $100,000 goal.
2. Pursue Grant funds from various organizations.
3. Continue to encourage additional membership participation (newspaper articles, Facebook page, website, Go Fund Me site).

Additional Budget Information:

1. The funds from the requested $10,000 budgeted expense for FYE 6/30/20 will be associated with continued fund-raising efforts and maintenance costs associated with the acquisition of the Eco-Harvester.
2. The $15,000 requested in Capital FYE 6/30/20 will be critical in Moodus Reservoir's quest to purchase the Eco-Harvester.
3. Below is a summary of Moodus Reservoir's history regarding herbicide applications and pursuit of the Eco-Harvester:

Moodus Reservoir (cont'd)

Moodus Reservoir is one of the most nutrient rich lakes in the state, with over 35 plant species identified in its upper and lower basins. Unfortunately, along with native plants, there has been a tremendous increase in the number of invasive weeds which are negatively impacting the ecosystem of the lake. Invasive weeds now cover over 80% of the reservoir's bottom. Areas of the shoreline previously free of vegetation are now covered with invasive plants which grow rapidly choking out native vegetation, decreasing oxygen content in the water, and creating a hostile environment for fish and other wildlife.

In 2015, lake consultants were commissioned to study the effectiveness of contact herbicides in controlling invasive weeds in a small portion of the lake. Unfortunately, within two months after treatment there was significant re-growth of the weeds. The consultants' conclusion was that two to three applications of a systemic herbicide applied to the entire lake followed by spot control using contact herbicides would be required to stem the rapid re-growth of the weeds.

Contact herbicides alone are not effective for long term control of invasive weeds. Consultants have indicated the invasive weeds will never be totally eliminated because of the high nutrient content of the lake. However, control of the weeds is possible so they don't negatively impact the recreational quality and value of the lake. Unfortunately, to gain control using herbicides will require extensive use of systemic chemicals to kill plant root systems, probably 2 to 3 treatments at $130,000 per treatment with ongoing spot treatments thereafter. Stakeholders of the lake have concerns about applying this amount of herbicide in the lake, especially since a number of homes have shallow wells near the shoreline and the potential risk of contamination of well water and the overall impact to the ecosystem.

An alternative method is available - an aquatic machine called an Eco-Harvester. Unlike other aquatic harvesters which simple cut the weeds in the lake, the Eco-Harvester pulls the weeds using a submersible rotating drum and conveyor belt system on a floating pontoon boat. Once pulled by the drum the weeds are automatically fed onto a conveyor and then dumped into a storage area (bunk) at the back of the boat. When the boat is full, the weeds are off loaded to the shore by reversing the conveyor belt. The conveyor allows the weeds to be offloaded to a lawn, boat dock, or a dump truck for disposal. The weeds will then be removed from the area and dropped off at local farms to be used as fertilizer.

Because the Eco-Harvester pulls the weeds rather than cutting them, it results in significantly less weed fragmentation and floating debris. While it may not remove the weeds entirely, continued seasonal use will result in a reduction in regrowth of the weeds over time. An interview was conducted with an independent lake management company which has used the harvester for 3 seasons and they report that it has become their "go to" machine for weed harvesting. They report that it is easy to operate and maintain, and very maneuverable in as little as 10 inches of water.

While the cost to purchase the machine isn't cheap at approximately $70,000 for the unit and a custom trailer plus an additional $20,000 - $30,000 for a dump truck that will be used to transport the unit and also to remove the weed debris; it is about one third the price of a commercial cutting harvester, and in the long run would be significantly less costly than ongoing herbicide treatments of the lake.

With questions or for more information please contact:
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"A Healthy Ecology is the Basis for a Healthy Economy"
~Claudine Schneider