A Department of Ecology Report

Aquatic Plant Technical Assistance Implementation Plan - 1996 Field Season

Introduction

The Aquatic Plant Technical Assistance Program was created to provide technical expertise within Ecology, other agencies, local governments, lakes groups, and the general public regarding aquatic plant ecology, taxonomy, and management. The three main goals identified for this program are to:

- provide technical assistance and education on aquatic plant identification and management;
- evaluate plant community structures and the existence or potential for aquatic plant related problems in selected waterbodies; and
- assist with evaluating Freshwater Aquatic Weed Program grant applications.

This implementation plan addresses the first two goals. The plan details the three to four month field season. The remainder of the year will be spent researching and planning data collection, updating the database and herbarium collection, evaluating grant applications for Freshwater Aquatic Weed Program money, conducting special projects such as assisting with the aquatic plant identification manual contract, and providing off-season technical assistance.

Flexibility is an integral part of this plan. Changes will occur if high priority requests for assistance are received from citizens or local government officials. (High priority requests are those in which the perceived problem is likely caused by an exotic invasive species. In these cases the waterbody will be included as part of Task 3 "Survey New Lakes." In other cases it will be visited as time allows.) If new, small exotic invasive plant populations are found, the work schedule will be rearranged, and some site visits may be omitted, to provide time for plant population assessment and to alert local government officials and citizens to the potential problems posed by the plant.

Details of methods used during field surveys are described in a Quality Assurance Project Plan (Parsons, 1995a). In general, plant samples are gathered at sites throughout the lake and identified. Non-native invasive plants and rare plant populations are located with a Global Positioning System unit. Concurrent with the survey effort, contacts will be made with Washington Department of Fish and Wildlife biologists, local weed board personnel, and interested citizens to discuss aquatic plant issues. In addition, the following elements will be collected:

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a) Special attention will be paid to looking for herbivorous aquatic insects, especially for the weevil *Euhrychiopsis lecontei* which is known to cause damage to *M. spicatum*. This information will be passed on to researchers at the University of Washington working to determine the extent of this weevil's population in the state.

c) *Myriophyllum spicatum* samples will continue to be collected for DNA analysis. This summer researchers at Portland State University, The U.S. Department of Agriculture's Aquatic Research lab at Davis, California, and a Rensselaer Polytechnique Institute in New York have requested plant material or seeds.

d) Water and sediment data will be collected for as many lakes as possible (based on logistical and budgetary constraints) for the following analyses:

- open water alkalinity using a field test kit, and
- sediment penetrability measured in the field.

Tasks for the 1996 field season are described in the following five sections. The tasks are in general order of priority. However, the actual field visits will combine items from different categories in these lists based on geographical proximity of the waterbodies.

Task 1 - Revisit Selected Lakes with Invasive Plants

Return to the following waterbodies where invasive plant populations were discovered during previous surveys. Activities on each waterbody from previous field seasons are discussed in other reports (Parsons, 1995b; Parsons, 1996).

- Wapato Lake, Chelan County (*Myriophyllum spicatum* - Eurasian water-milfoil). Locate and assess this year's growth of *M. spicatum*. If mechanical control methods are still a feasible option then proceed with either hand pulling the plants or covering them with bottom barrier.

- Leland Lake, Jefferson County (*Egeria densa* - Brazilian elodea). Record the plant community boundaries with a Global Positioning System (GPS) unit. Contact the lake association members to discuss the current extent of the plant's spread. (The community is currently assessing control method options.)

- Spencer Lake, Mason County (*Lythrum salicaria* - purple loosestrife). Hand pull any live plants from this small patch. Determine if the Department of Fish and Wildlife has included this site in their herbicide spraying program.

- Chehalis River, Lewis, and Thurston Counties (*Myriophyllum aquaticum* - parrot feather). Survey part of the river with personnel from the Lewis and Thurston County Noxious Weed Control boards. Compare the distribution to that of last year.

- Pipe/Lucerne Lakes, King County (*Hydrilla verticillata* - hydrilla). Observe this year's plant growth, collect specimens for the herbarium collection, assist with mapping plant locations if necessary. Also, resurvey Sawyer Lake and Meridian Lake to check for presence of hydrilla (divers surveyed these lakes last year).

- Black Lake, Pacific County (*E. densa*). Revisit this lake to compare the plant population to levels of 1994.

- Whitestone Lake, Okanogan County (*M. spicatum*). Several scattered patches of Eurasian watermilfoil were discovered in 1994. During 1995 the patches were more widely distributed. Check the level of population expansion this year.

- Clear Lake, Pierce County (*M. spicatum*). Remnant patches of Eurasian watermilfoil were left after a whole lake herbicide application. Check for spread of these patches.

- Goodwin Lake, Snohomish County (*M. spicatum*). Revisit the lake to compare sizes of three Eurasian watermilfoil patches to observations from 1995.

Task 2 - Revisit Other Selected Lakes

Revisit lakes that appear to have a high likelihood of non-native plant invasion. These lakes are located near lakes with known populations of non-native invasive plants, and receive moderate to high recreational use. They were surveyed during previous years. However, they should be rechecked periodically to detect new populations of invasive plants at an early stage.

Spectacle Lake, Okanogan County
Davis Lake, Pend Oreille County
Campbell Lake, Skagit County
Heart Lake, Skagit County
Diamond Lake, Pend Oreille County
Tanwax Lake, Pierce County
Crocker Lake, Jefferson County
Conconully Lake, Okanogan County

Task 3 - Surveys of New Lakes

Conduct field surveys in selected lakes that were not surveyed during previous years. Concentrate on areas of high public use and locations close to known infestations of exotic invasive plants. Also, concentrate on lakes in areas designated for data collection under Ecology's five year basin rotation system. (This year this includes Island/Snohomish, Okanogan, Crab Creek, Esquatzel, and South Puget Sound Water Quality Management Areas (WQMA)). General areas of focus and candidate waterbodies are listed below.

- Survey lakes in Clallam and Grays Harbor Counties. This part of the state has not been included in previous year's studies.

Lake Pleasant
Ozette Lake
Beaver Lake
Crescent Lake

Lake Sutherland
Lake Aberdeen
Quinault Lake
Lake Sylvia

- Survey lakes on the Kitsap Peninsula that have not been surveyed yet to look for spread of *E. densa* and *M. spicatum* from Long Lake to nearby waterbodies. Also, the information will be useful for citizens working to organize a county lake program.

  Island Lake
  Horseshoe Lake
  Tiger Lake
  Mission Lake

- Survey Reservoirs along the Snake River to check if *Myriophyllum spicatum* is moving up this river system from the Columbia River via recreational boaters.

- Survey lakes in Whatcom County to check for spread of *Myriophyllum spicatum* from Lake Whatcom:

  Wiser Lake
  Terrell Lake

- Check sloughs along the lower Columbia River for the spread of *M. aquaticum*. This plant has been in the Skamokawa area since 1984.

- Survey lakes in northern Pend Oreille and Stevens Counties to check for *M. spicatum* spreading from the Pend Oreille and Columbia Rivers:

  Sullivan Lake
  Browns Lake
  Mill Pond
  Cedar Lake

- Verify suspected milfoil sightings not investigated last year. Potential sites include:

  Shoecraft Lake, Snohomish County
  Banks Lake, Grant County
  Spirit Lake, Skamania County
  Domke Lake, Chelan County
  Stevens Lake, Snohomish County
  Moses Lake, Grant County
  Winchester Wasteway, Grant County

- Conduct surveys at lakes from the WQMA's scheduled for data collection during 1996. The following lakes are targeted, based on their proximity to waterbodies with exotic invasive species and recreational use.

  <u>Island/Snohomish WQMA</u>
  Goss Lake
  Deer Lake
  Lone Lake
  Crockett Lake

South Puget Sound WQMA

Silver Lake	Harts Lake
Rapjohn Lake	Spanaway Lake

Crab Creek WQMA

Sun Lakes area, to augment water quality data to be collected this year. Include:

Dry Falls Lake	Park Lake
Blue Lake	Alkali Lake
Lenore Lake	Deep Lake

Okanogan WQMA

Sidley Lake	Bonaparte Lake
Leader Lake	Omak Lake
Crawfish Lake	

Other lakes or regions will be added if requested or as time allows, or some may be deleted if higher priorities are identified.

Task 4 - Confirm Rare Plant Sightings

Return to lakes where listed rare plant populations need to be confirmed. Last summer the plants in question did not flower, so identification to species was not possible. This includes:

Isabella Lake, Mason County	Clear Lake, Thurston County
Elbow Lake, Thurston County	Mason Lake, Mason County

Task 5 - Conduct In-Depth Community Analyses

Continue the more in-depth plant community analysis on Evergreen and Quincy Lakes (Grant County). During the 1995 field season data were gathered to create plant community maps (see Parsons, 1996). These transects will be revisited to look for changes in plant community boundaries on a year to year basis. Also, sediment samples will be collected for percent organic matter and density analysis to augment the data collected last year. Additional lakes may be added to this mapping project if time allows.

Schedule

The attached calendar contains a proposed schedule (Figure 1). All dates are tentative, subject to change based on weather, level of plant maturity, and the addition of other projects.

1996

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN	
27 MEMORIAL DAY (OBSERVED)	28	29	30 MEMORIAL DAY	31	1 2	
3	4 Clear Lk Pierce Co	5	6 Pipe/Lucerne	7	8 9	
10	11 Leland/Crocker Tarboo	12 →	13 →	14 FLAG DAY	15 16 FATHER'S DAY	JUNE
17 Olympic Pen.	18 →	19	20 →	21	22 23	
24 ST-JEAN (QUÉBEC)	25 Sun lakes/ Wapapo Lk →	26	27 →	28 →	29 30	
1 CANADA DAY (CANADA)	2 Spencer Lk	3 Rapjoha Silver Lk	4 INDEPENDENCE DAY	5	6 7	
8 Meridian	9 Sawyer	10 Harts Spanaway	11	12	13 14	JULY
15 Olympic →	16 →	17 →	18 →	19	20 21	
22 Kitsap Co	23 →	24	25	26	27 28	
29 Whatcom/	30 Island/Skagit →	31 →	1 →	2	3 4	
5 Columbia/ Snake	6	7 →	8 →	9	10 11	AUGUST
12 Isabella	13 Clear Lk Elbow Lk	14	15 Chehalis R.	16	17 18	
19 Okanogan →	20 →	21 →	22 →	23	24 25	
26 Pend Oreille →	27 →	28 →	29 →	30	31 1	
2 LABOR DAY	3	4 Okanogan	5	6	7 8	SEPTEMBER
9 Evergreen/Quincy →	10 →	11 →	12 →	13 ROSH HASHANAH begins at sundown	14 ROSH HASHANAH 15	
16 make-up →	17 →	18 →	19 →	20	21 22 YOM KIPPUR begins at sundown	
23 YOM KIPPUR	24	25	26	27	28 29	
30	1	2	3	4	5 6	OCTOBER
7	8	9	10	11	12 COLUMBUS DAY 13	
14 COLUMBUS DAY (OBSERVED) THANKSGIVING (CANADA)	15	16	17	18	19 20	
21	22	23	24 UNITED NATIONS DAY	25	26 27 DAYLIGHT SAVING TIME ends	

Figure 1. Schedule.

Budget

Cost estimates are as follows:

Lodging and per diem - approx. 40 days, average $55/day	$2,200
Travel - approx. 6,500 miles at average $0.11/mile	$ 750
Laboratory	
DNA analysis (estimated)	$1,500
water - alkalinity	
$150 for a kit to process 100 samples	
send 10 duplicate samples to the lab at $20/sample	$ 350
sediment - organic matter and density	
approx. 20 samples at $31/sample	$ 620

Contacts

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References

Parsons, J., 1995a. Aquatic Plant Technical Assistance Implementation Plan - 1995 Field Season. Washington State Department of Ecology, Olympia, WA, Publication No. 95-334.

Parsons, J., 1995b. Aquatic Plant Technical Assistance 1994 Activity Report. Washington State Department of Ecology, Olympia, WA, Publication No. 95-331.

Parsons, J., 1996. Aquatic Plant Technical Assistance Program 1995 Activity Report. Washington State Department of Ecology, Olympia, WA in press.