Lake Whatcom Aquatic Invasive Species Inventory – 2012

For the City of Bellingham, Natural Resources Division

Funding provided by Puget Sound Partnership, WA Department of Fish and Wildlife, Whatcom County and City of Bellingham

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Overview

This inventory project involves the survey of shoreline and aquatic plants and other aquatic invasive species in Lake Whatcom. Lake Whatcom is an open, multiple-use lake that is the drinking water reservoir for 95,000 residents of Whatcom County and supports a variety of plant, fish and wildlife species, both native and non-native. It is also host to boaters from all over Washington and Canada, making it increasingly at risk for many aquatic invasive species infestations. In September of 2011, Asian clams (*Corbicula fluminea*) were discovered growing in several locations on the lake. In addition to this species, invasive plants such as garden loosestrife have recently been discovered and little information has been gathered since 1972 when the last full survey of the lake's shoreline and near shore plants was completed (L.M. Sundquist, Western Washington University).

There are nine known listed noxious weed species in the aquatic and shoreline environment of the lake. Three additional listed weed species – yellow floatingheart, parrotfeather, Brazilian elodea - are located in waterbodies adjacent to the lake. The non-native *Phragmites* has been found in Whatcom Creek, a tributary of Lake Whatcom, and flowering rush (*Butomus umbellatus*) has infested Silver Lake, also in Whatcom County. These known occurrences in and near Lake Whatcom have been mostly discovered as incidental reports and no comprehensive vegetation survey of the lake has occurred since 1972. With the high level of boating and recreational activities, the exisitng threat of new introductions from adjacent or farther distances is significant.

Washington State Department of Ecology (WSDOE) maintains an inventory list of shoreline, floating and submersed plants which were found during surveys on the lake in 1995 and 2007. The Whatcom County Noxious Weed Board also conducted a limited survey in 2004. The data for each of these surveys was gathered primarily in Basin 1. In 2007, garden loosestrife (*Lysimachia vulgaris*) was discovered growing in Basin 1, and purple loosestrife (*Lythrum salicaria*) was discovered on the northern shoreline in 2008. Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*) were first recorded in the lake in 1995 and 2004 respectively (WSDOE) although anecdotal information suggests that Eurasian watermilfoil may have been in the lake since the 1970's.

Data Collection

The Lake Whatcom inventory took place during the months of August and September on four separate days and included roughly 28 miles of shoreline. Participating staff came from Whatcom County, WA State Department of Ecology and City of Bellingham's Aquatic Invasive Species (AIS) Program. Aquatic plant samples were collected at random using a double-sided sampling rake thrown from a boat near the shoreline at depths of up to 30 feet. All species sampled were recorded on a species list and any samples for further identification were collected and bagged. Photos were also taken both of plants collected and of various areas of the lake, including private boat launches. General areas and specific locations of five listed noxious weed species were entered into a GPS unit Garmin Map76CSx.

Double-sided sampling rake with white water-buttercup plants attached

General areas of other species in the lake were noted on shoreline maps. An aquascope was also used to view substrate in shallow water to help determine the identification of other invasive species such as zebra/quagga mussels, Asian clam, or New Zealand mudsnail.

Two locations for artificial substrates installed by WDFW were also checked during the inventory for the presence of zebra/quagga mussels. Whatcom County and Department of Ecology staff performed one plankton tow in the south bay area of Lake Whatcom in August.

Artificial substrate checked

Inventory Results Summary

Plant species were categorized by habitat and growth form as **Plant-like Algae, Shoreline**, **Floating-leaved** or **Submersed** plants. **Plant-like Algae** lack true stems, leaves, or roots but can be found on or just above the sediment. **Shoreline** plants grow along the edges of the lake or on wet ground near the open water. Part of their stems, leaves and flowers emerge above the water surface and they are rooted in the sediment. **Floating leaved** plants are usually rooted in the sediment with leaves that float on the water surface. **Submersed** plants grow entirely under the water, occasionally sending leaves or flowers to the surface, and are also rooted in the sediment. The Lake Whatcom inventory revealed 38 species of plants in all categories. Out of 38 species, 24 (63%) are considered to be native to Washington State and 14 (37%) are introduced. Most of the introduced/invasive species are shoreline or nearshore species, with only 3 species submersed or floating in the lake. Broken down into two habitats, submersed or shoreline, the majority of the plants growing in the lake found during this inventory are native (**Figure 1**). As the focus of the inventory is on the health and quality of the lake itself, this survey was not considered an exhaustive inventory of nearshore species (both woody and/or herbaceous). A full list of the plant species sampled in Lake Whatcom follows (**Figure2**).

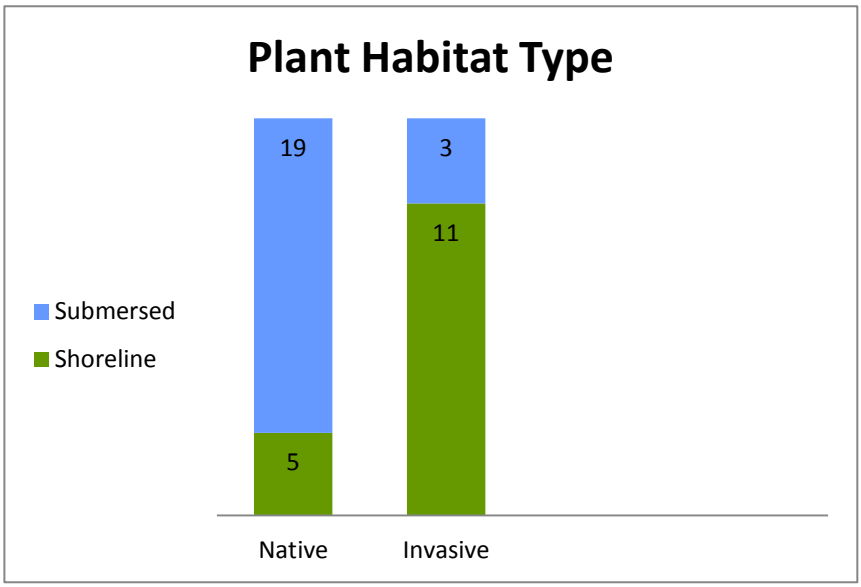


Figure 1: Comparison chart of Native and Invasive plant species in Lake Whatcom

Scientific Name	Common Name	Plant Type	DV[1]	Native or Introduced
2012 Total Plant Species - Lake Whatcom				
Buddleja davidii	Butterflybush	Shoreline	1	Int
Carex sp.	Sedge	Shoreline	1	Nat
Ceratophyllum demersum	Coontail	Submersed	1	Nat
Chara sp.	Muskwort	Plant-like algae	3	Nat
Cytisus scoparius	Scotch Broom	Shoreline	1	Int
Eleocharis acicularis	Needle spike-rush	Shoreline	1	Nat
Elodea canadensis	Common waterweed	Submersed	4	Nat
Elodea nutallii	Nuttall's waterweed	Submersed	4	Nat
Epilobium hirsutum	Hairy willow-herb	Shoreline	1	Int
Fontinalis antipyretica	Common water moss	Submersed	1	Nat
Hedera helix	English Ivy	Shoreline	3	Int
Impatiens capensis	Jewelweed	Shoreline	3	Int
Iris pseudacorus	Yellow Flag iris	Shoreline	3	Int
Isoetes sp.	Quillwort	Submersed	1	Nat
Lysichiton americanus	Skunk cabbage	Shoreline	1	Nat
Lysimachia vulgaris	Garden Loosestrife	Shoreline	2	Int
Lythrum salicaria	Purple Loosestrife	Shoreline	1	Int
Myriophyllum spicatum	Eurasian watermilfoil	Submersed	3	Int
Najas flexilis	Slender water-nymph	Submersed	2	Nat
Nitella sp.	Nitella	Plant-like algae	3	Nat
Nuphar polysepala	Spatterdock	Floating/Rooted	3	Nat
Nymphaea odorata	Fragrant waterlily	Floating/Rooted	1	Int
Phalaris arundinacea	reed canarygrass	Shoreline	4	Int
Polygonum x bohemicum	Bohemian Knotweed	Shoreline	1	Int
Potamogeton amplifolius	Big-leaf pondweed	Submersed	3	Nat
Potamogeton crispus	Curly leaf pondweed	Submersed	3	Int
Potamogeton epihydrus	Ribbonleaf pondweed	Submersed	1	Nat
Potamogeton gramineus	Grass-leaved pondweed	Submersed	1	Nat
Potamogeton natans	Floating Leaved pondweed	Submersed	1	Nat
Potamogeton richardsonii	Richardson's pondweed	Submersed	3	Nat
Potamogeton robbinsii	Fern-leaf pondweed	Submersed	2	Nat
Potamogeton zosteriformis	Eel-grass pondweed	Submersed	1	Nat
Ranunculus aquatilis	White Water-buttercup	Submersed	3	Nat
Rubus armeniacus	Himalayan blackberry	Shoreline	4	Int
Schoenoplectis acutus	Hard-stem bulrush	Shoreline	3	Nat
Typha latifolia	Common cattail	Shoreline	3	Nat
Vallisneria americana	Tapegrass	Floating/Rooted	4	Nat
Zannichellia palustris	Horned pondweed	Submersed	3	Nat
Indicates Listed Noxious Weed in Whatcom County				

Figure 2: 1. "DV" (distribution value) is an estimate of density: 1 - few plants in only 1 or a few locations; 2 - few plants, but with a wide patchy distribution; 3 - plants growing in large patches, codominant with other plants; 4 - plants in nearly monospecific patches, dominant; and 5 - thick growth covering the substrate at the exclusion of other species

Plant Distribution

Matthew Bischoff of WSDOE observes hard-stem bulrush growing in South Basin 3

Basin 3. Inventory work began at the south end of the lake in Basin 3, working northward to Basin 1. Some areas of Basin 3 had no vegetation evident as the shoreline either drops off steeply or the substrate consists of large boulders and/or bedrock. The far southeastern shore is particularly dominated by many native plant species including spatterdock, big-leaf pondweed, white water-buttercup, common elodea, and tapegrass. In South Bay there are several locations of Eurasian watermilfoil scattered near many residential docks. None of these sites appear densely populated by milfoil and the plants are scattered over this area without any canopy occurring at the surface. It is in Basin 3 where the majority of the scattered shoreline populations of butterflybush (*Buddleja davidii*) and jewelweed (*Impatiens capensis*) are located on the lake. Hard-stem bulrush (*Schoenoplectis acutus*) can be found in shoreline patches here as well as common cattail (*Typha latifolia*), reed canarygrass (*Phalaris arundinaceae*), yellow flag iris (*Iris pseudacorus*), hairy willowherb (*epilobium hirsutum*) and English ivy (*Hedera* sp.).

Moving north towards Sudden Valley the populations of curly-leaf pondweed begin to slowly increase along with other pondweed species including Richardson's and big-leaf. Other prominent species here are spatterdock, common elodea, and tapegrass. The Sudden Valley marina has a dense population of white water-buttercup, common elodea, muskwort and nitella. Reveille Island had no evident vegetation in the littoral zone and several areas of the opposite north shore were also without any submersed plants. Some scattered patches of Eurasian watermilfoil and fern-leaf pondweed were the only submersed plants found in that area.

Between Sudden Valley and Strawberry Point, locations of Eurasian watermilfoil continue along with big-leaf, Richardson's and curly-leaf pondweeds. The opposite north shore showed a similar distribution with additional sites of tapegrass, a dominant plant throughout the lake. Near Strawberry Point and the opposite shoreline there are several larger patches of hard-stem bulrush. Between Agate Bay and Dellesta Park are where some of the more dominant patches of Eurasian watermilfoil exist, but again, scattered and not in canopy at the surface. Areas exist here also where no vegetation growth occurred. Companion plants include tapegrass, common elodea, curly-leaf, Richardson's, and fern-leaf pondweeds. The shoreline has patches of hard-stem bulrush, jewelweed, yellow flag iris, and cattail.

Basin 2. North of Strawberry Point is the only location found on the lake of fragrant waterlily (*Nymphaea odorata*). The patch may have been intentionally planted for its ornamental value. Continuing north along the shoreline off Lake Whatcom Boulevard are patches of hard-stem bulrush, hairy willowherb, tapegrass, Eurasian watermilfoil, curly-leaf and Richardson's pondweed. The north shore of Basin 2 has some areas of no vegetation in between scattered patches of hard-stem bulrush, tapegrass, elodea and Richardson's pondweed.

Basin 1. On both sides of the Geneva Sill is where the sites begin of garden loosestrife (*Lysmachia vulgaris*). This plant is found in approximately 20 locations in Basin 1, growing at the shoreline in front of residential homes, often with yellow flag iris and occasionally growing near hard-stem bulrush. Tapegrass is a widespread submersed species in Basin 1 along with Eurasian watermilfoil, Richardson's and big-leaf pondweeds. Small patches of eel-leaf and floating leaved pondweeds are also found on the south and west shore towards Bloedel Donovan Park. In the slough next to Old Mill Village is a dense population of coontail and common elodea along with yellow flag iris and spatterdock. Yellow flag iris is dominant in Basin 1 and found throughout the lake shoreline. It was often found growing in cracks on floating docks, logs, and pilings. Along the shoreline are common cattail, hairy willowherb, yellow flag iris, and reed canarygrass.

Yellow flag iris growing on a residential dock

At the mouth of Silver Beach Creek is the only known site on the lake for purple loosestrife (*Lythrum salicaria*), where it grows mixed with garden loosestrife on the shoreline. In that same area is a significant patch of submersed Eurasian watermilfoil and scattered patches of tapegrass and big-leaf pondweed. Bloedel Donovan's swimming area and Scudder's Pond also have dense patches of Eurasian watermilfoil present. In the pond are also several sizeable patches of spatterdock, nitella, muskwort, slender water-nymph, and tapegrass.

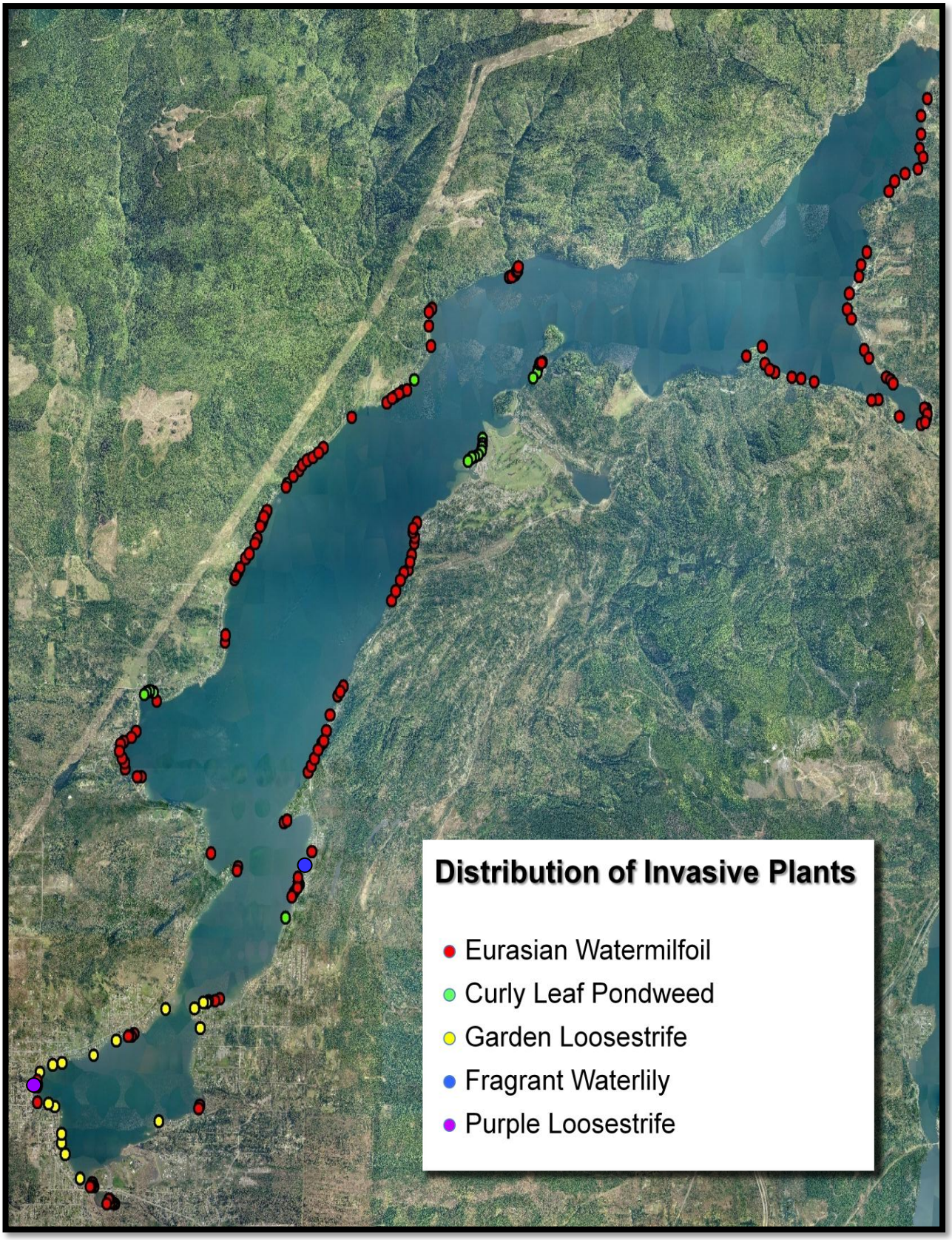
Additional Data

Plants and substrate observed underwater with the aquascope

Using the aquascope to survey substrate in shallow areas averaging less than two meter depth revealed no new locations for the Asian clam (*Corbicula fluminea*). Asian clam populations were observed only in the currently known locations throughout the lake. No Zebra or quagga mussels (*Dreissena sp*.) were observed on either of the artificial substrates checked, nor were any found during surveys with the aquascope. Plankton tows in the lake also showed no *Dreissenid* veligers (larvae) present. Staff was also looking for evidence of other species such as New Zealand mudsnail and rusty crayfish.

In an effort to better characterize the lake's available entry points, many private boat launches were observed during the survey and noted. This information assists in the recommendations for a more comprehensive and locally tailored Aquatic Invasive Species Prevention Program for the lake. A map of the boat launches can be found in **Appendix A.**

Inventory Map. The five invasive species mapped are Purple Loosestrife, Garden Loosestrife, Eurasian Watermilfoil, Fragrant Waterlily and Curly-Leaf Pondweed. All are listed noxious weeds on the Whatcom County and Washington State Noxious Weed Lists.



Recommended Actions

The Whatcom County Noxious Weed Board is recommending actions on five listed plants from the Washington State and Whatcom County Noxious Weed Lists. A complete 2012 Whatcom County Noxious Weed List along with information on the classification of listed plants can be found in **Appendix B.**

Eurasian watermilfoil is a Class B (County-selected) noxious weed in Whatcom County. A "Class B" status means that the species needs to be contained and prevented from spreading to uninfested areas. While Lake Whatcom has had a long-standing and widespread infestation of Eurasian watermilfoil, the plants have not grown into the large and often dangerous problems associated with typical milfoil infestations: dense surface canopy. Milfoil plants in Lake Whatcom are scattered and thinly distributed in most places and while plants were still vigorously growing at the time of the survey, no canopies were observed. There could be several factors influencing this. Eurasian watermilfoil does not usually grow as vigorously in lakes with low alkalinity (Smith and Barko 1990) and Lake Whatcom's alkalinity is recorded as fairly low (Matthews et al 2012). The dominant presence of a healthy native plant population (tapegrass, native pondweeds, elodea) may also be restricting the milfoil's growth (Smith and Barko 1990). The number of native plant species and the distribution of those species in Lake Whatcom currently outnumber the milfoil. Other factors such as water clarity, temperature, nutrients and freezing from the seasonal lake drawdown may also hinder its growth. The Whatcom County Noxious Weed Board does not recommend at this time that a large scale approach be taken on the management of Eurasian watermilfoil in Lake Whatcom. However, since it is the only lake known in Whatcom County which currently has this plant present, it is important to prevent its spread to other nearby lakes which might present more optimum growing conditions. Since its primary spread is by fragmentation and recreational boating activities, it is recommended that prevention measures be put in place to stop the spread of it from Lake Whatcom to other area lakes.

Curly –leaf Pondweed is a Class C (County-selected) noxious weed in Whatcom County. A "Class C" status means that it is at the County's discretion whether or not to require some form of management. Curly-leaf pondweed is a submersed plant and is widespread and somewhat denser in places than the milfoil but is often mixed in with other pondweed species such as Richardson's pondweed. Where it is found without associated species, the curly-leaf pondweed density is light. This plant reproduces vegetatively through turions or bud-like structures attached to the stems. It is likely the earliest of the aquatic plants in the lake to start growing in the spring. Like milfoil it also prefers fairly high alkalinity in order to reach dense populations. While curly-leaf pondweed is considered a nuisance plant in the Midwestern states, it is seldom a problem plant in Washington (WSDOE) and is documented in three other waterbodies in Whatcom County. Because of its distribution, lack of density in populations in Lake Whatcom, and lower ranking on the Washington State Noxious Weed List, the Whatcom County Noxious Weed Board does not recommend a large scale treatment in Lake Whatcom at this time. Since it is also spread by fragmentation and recreational boating activities, it is recommended that prevention measures be put in place to stop the spread of it from Lake Whatcom to other area lakes.

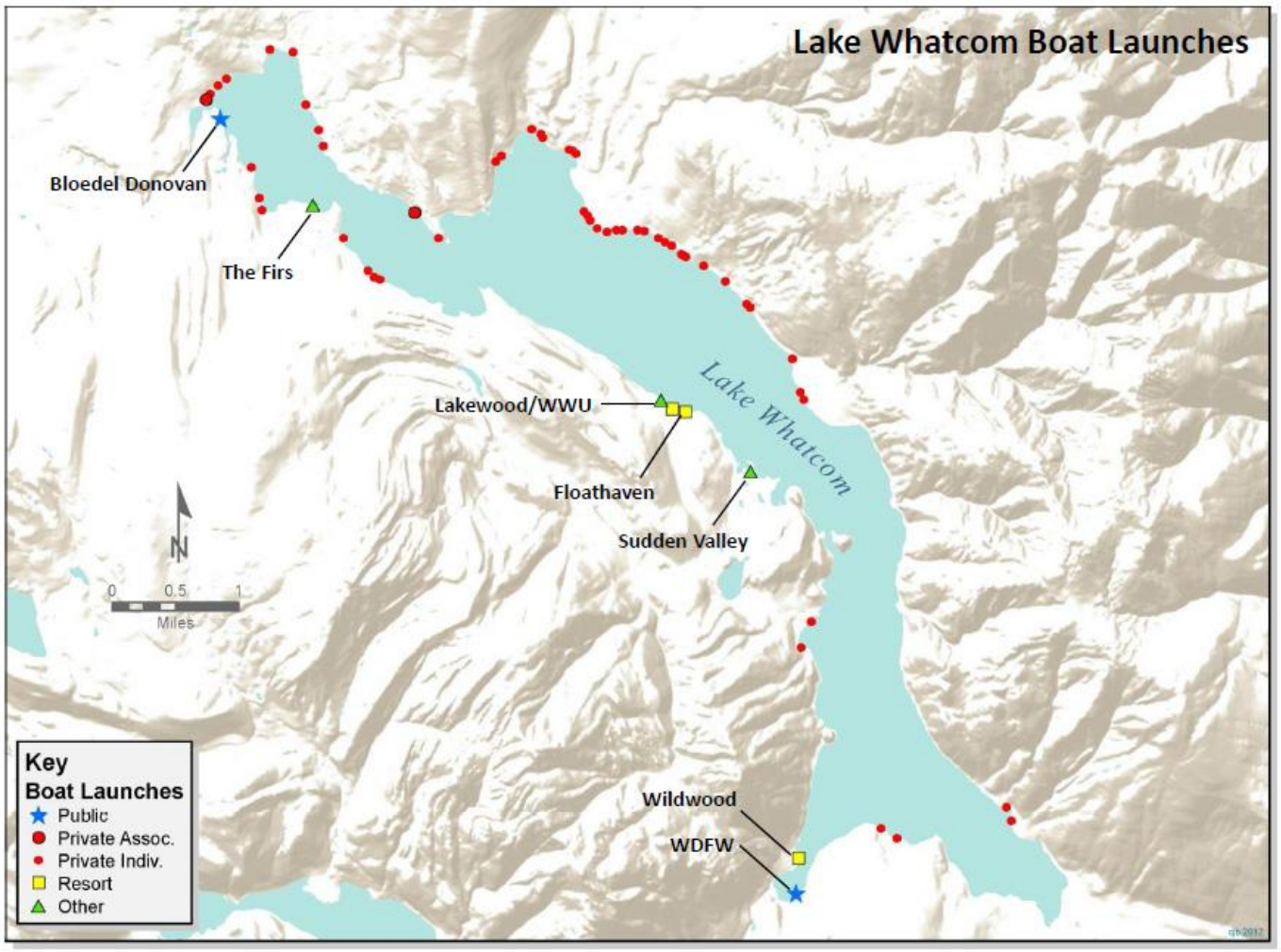
Garden Loosestrife is a Class B-designate noxious weed in Whatcom County. A "Class B-designate" status means that seedfall should be prevented with the goal of stopping infestations from spreading within the immediate area. Garden loosestrife is a shoreline plant and reproduces by seed and by long creeping rhizomes which can extend out from the plant for up to 15 feet and float on the surface of the water. Recreational activity or wave action on the water can sever these rhizomes where they can float to new locations and take root. Garden loosestrife is documented in just 7 locations in Washington, and in Whatcom County it is found only in Lake Whatcom. In the lake it is found in Basin 1 at approximately 20 locations. The Whatcom County Noxious Weed Board recommends that lake residents with garden loosestrife on their property manage garden loosestrife, at a minimum, through (1) removing seedheads prior to seedfall and (2) clipping the rhizomes and disposing of the materials through a commercial disposing facility; and/or (3) removing the entire plant by hand prior to seedfall and disposing of it through a commercial disposing facility. Staff will monitor sites and work with lake residents to ensure effective management of the plant is done with minimal impacts.

Purple Loosestrife is a Class B-designate noxious weed in Whatcom County. A "Class B-designate" status means that seedfall should be prevented with the goal of stopping infestations from spreading within the immediate area. Purple loosestrife is a shoreline plant which spreads by rhizomes and root pieces and produces prolific amounts of viable seed (2.7 million seeds/plant). Though it is currently known in approximately 27 locations in Whatcom County, It is found in just one location in Lake Whatcom (Basin 1). It is currently being managed and Whatcom County Noxious Weed Board staff will ensure that management of it continues until it is removed completely.

Fragrant Waterlily is a Class C noxious weed in Whatcom County. A "Class C" status means that it is at the County's discretion whether or not to require some form of management. Fragrant waterlily reproduces both by seed and rhizomes and is often intentionally planted for its attractive and fragrant flowers. It is non-native, crowds out other native aquatic plants and can become a nuisance to lake residents as the floating leaf canopy can prevent water access, particularly near docks. There is one known location in Lake Whatcom and the Whatcom County Noxious Weed Control Board recommends this plant be hand removed by divers and disposed. Staff will monitor the site afterwards for any regrowth.

Appendix A:

Map of Boat Launches on Lake Whatcom



Appendix B: 2012 Whatcom County Noxious Weed List (per Chapter 16-750 WAC)

Class A weeds: limited distribution in Washington. Preventing new infestations and eradicating existing infestations is highest priority. Control of these species is required by law.

Common Name	Scientific Name
blueweed, Texas	*Helianthus ciliaris*
broom, Spanish	*Spartium junceum*
buffalobur	*Solanum rostratum*
clary, meadow	*Salvia pratensis*
cordgrass, common	*Spartina anglica*
cordgrass, denseflower	*Spartina densiflora*
cordgrass, salt meadow	*Spartina patens*
cordgrass, smooth	*Spartina alterniflora*
crupina, common	*Crupina vulgaris*
false brome	*Brachypodium sylvaticum*
flax, spurge	*Thymelaea passerina*
flowering rush	*Butomus umbellatus*
four o'clock, wild	*Mirabilis nyctaginea*
geranium, shiny	*Geranium lucidum*
goatsrue	*Galega officinalis*
hawkweed, European	*Hieracium sabaudum*
hawkweed, yellow devil	*Hieracium floribundum*
hogweed, giant	*Heracleum mantegazzianum*
hydrilla	*Hydrilla verticillata*
johnsongrass	*Sorghum halepense*
knapweed, bighead	*Centaurea macrocephala*
knapweed, Vochin	*Centaurea nigrescens*
kudzu	*Pueraria Montana var.lobata*
milfoil, variable-leaf	*Myriphyllum heterophyllum*
mustard, garlic	*Alliaria petiolata*
nightshade, silverleaf	*Solanum elaegnifolium*
oriental clematis	*Clematis orientalis*
primrose-willow, floating	*Ludwigia peploides*
ricefield bulrush	*Schoenoplectus mucronatus*
sage, clary	*Salvia sclarea*
sage, Mediterranean	*Salvia aethiopsis*
spurge, eggleaf	*Euphorbia oblongata*
starthistle, purple	*Centaurea calcitrapa*
sweetgrass, reed	*Glyceria maxima*
Syrian bean-caper	*Zygophyllum fabago*
thistle, Italian	*Carduus pycnocephalus*
thistle, milk	*Silybum marianum*
thistle, slenderflower	*Carduus tenuflorus*
velvetleaf	*Abutilon theophrasti*
woad, dyers	*Isatis tinctoria*

Class B weeds: distribution limited in portions of the state. Class B species are separated into two categories: *Designated* and *County-Selected*. Prevention of seedfall of *B- Designated* required.

Class B Designated, Whatcom County

alyssum, hoary	*Berteroa incana*
arrowhead, grass-leaved	*Sagittaria graminea*
blackgrass	*Alopecurus myosuroides*
blueweed	*Echium vulgare*
bryony, white	*Bryonia alba*
bugloss, annual	*Anchusa arvensis*
bugloss, common	*Anchusa officinalis*
camelthorn	*Alhagi maurorum*
chervil, wild	*Anthriscus sylvestris*
cinquefoil, sulfur	*Potentilla recta*
fanwort	*Cabomba caroliniana*
fennel, common	*Foeniculum vulgare*
fieldcress, Austrian	*Rorippa austriaca*
floating heart, yellow	*Nymphoides peltata*
gorse	*Ulex europaeus*
hawkweed, mouseear	*Hieracium pilosella*
hawkweed, polar	*Hieracium atratum*
hawkweed, queen-devil	*Hieracium glomeratum*
hawkweed, yellow	*Hieracium caespitosum*
indigobush	*Amorpha fruticosa*
knapweed, black	*Centaurea nigra*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea jacea x nigra*
knapweed, Russian	*Acroptilon repens*
*knapweed, spotted	*Centaurea stoebe*
kochia	*Kochia scoparia*
lawnweed	*Soliva sessilis*
lepyrodiclis	*Lepyrodiclis holosteoides*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	*Lythrum salicaria*
loosestrife, wand	*Lythrum virgatum*
nutsedge, yellow	*Cyperus esculentus*
oxtongue, hawkweed	*Picris hieracioides*
parrotfeather	*Myriophyllum aquaticum*
pepperweed, perennial	*Lepidium latifolium*
primrose, water	*Ludwigia hexapetala*
saltcedar	*Tamarix ramosissima*
sandbur, longspine	*Cenchrus longispinus*
skeletonweed, rush	*Chondrilla juncea*
sowthistle, perennial	*Sonchus arvensis ssp.arvensis*
spurge, leafy	*Euphorbia esula*
starthistle, yellow	*Centaurea solstitialis*
Swainsonpea	*Sphaerophysa salsula*
thistle, musk	*Carduus nutans*
thistle, plumeless	*Carduus acanthoides*
thistle, Scotch	*Onopordum acanthium*
toadflax, Dalmatian	*Linaria dalmatica sp.dalmatica*

Class B County-Selected,Whatcom County
are targeted for educational or biological efforts only.

archangel, yellow	*Lamiastrum galeobdolon*
broom, Scotch	*Cytisus scoparius*
butterfly bush	*Buddleja davidii*
elodea, Brazilian	*Egeria densa*
hawkweed, orange	*Hieracium aurantiacum*
hawkweed, smooth	*Hieracium laevigatum*
knotweed, Bohemmian	*Polygonum bohemicum*
knotweed, Giant	*Polygonum sachalinense*
knotweed, Himalayan	*Polygonum polystachyum*
knotweed, Japanese	*Polygonum cuspidatum*
poison-hemlock	*Conium maculatum*
policeman's helmet	*Impatiens glandulifera*
ragwort, tansy	*Senecio jacobae*
reed, common	*Phragmites australis*
spurge laurel	*Daphne laureola*
watermilfoil, eurasian	*Myriophyllum spicatum*
willowherb, hairy	*Epilobium hirsutum*

Class C weeds: widespread in the state and are targeted for educational or biological efforts only.

County-Selected,Whatcom County

blackberry, evergreen	*Rubus lacinatus*
blackberry, Himalayan	*Rubus armeniacus*
canarygrass, reed	*Phalaris arundinaceae*
hawkweed, spp.	*Hieracium* (non-native)
hawkweed, common	*Hieracium lachenalii*
iris, yellow flag	*Iris pseudacorus*
ivy, English	*Hedera hibernica*, *H. helix* 'Baltica' *H. helix* 'Star', *H. helix* 'Pittsburgh'
Japanese eelgrass	*Zostera japonica (in commercial shellfish beds only)*
old man's beard	*Clematis vitalba*
pondweed, curly-leaf	*Potamogeton crispus*
St. Johnswort, common	*Hypericum perforatum*
tansy, common	*Tanacetum vulgare*
thistle, bull	*Cirsium vulgare*
thistle, Canada	*Cirsium arvense*
tree of heaven	*Ailanthus altissima*
water lily, fragrant	*Nymphaea odorata*

Noxious weeds identified with an underline receive highest priority for education, surveying and/or notification to owners of infested property. A * indicates the target species for enforcement activities for the 2012 season.