Long Lake Landowner Workshop

Kitsap County Noxious Weed Control Program





Jade Jarvis Program Coordinator



- Born and raised in Kitsap
- Served two years in WA Conservation Corps (Americorps)
- Several years in weed control
- Dabbled in wastewater treatment, energy regulation, plumbing, electrical, carpentry
- Hired as Coordinator in November 2023



Noxious Weed Control – How it Started





Canada thistle



Noxious Weed Control – How it Started





1960s



What makes a weed *noxious*?



WASHINGTON STATE Noxious Weed Control Board



Destructive

Competitive

Difficult to control



Noxious Weed Classifications

Class A

Class B

Class C



Eradication

Control

Containment



Kitsap County's Noxious Weed Program



Outreach and education



Inspecting land for the presence of noxious weeds



Technical assistance, recommendations



Mapping, monitoring, facilitating coordination





Aquatic Plant Management in Washington State

Wesley Glisson Washington State Department of Ecology



11



Aquatic Noxious Weeds in Washington

WASHINGTON STATE Noxious Weed Control Board



Fanwort Cabomba caroliniana



Eurasian Watermilfoil Myriophyllum spicatum



Brazilian Elodea *Egeria densa*



Hydrilla

Hydrilla verticillata

12





Three broad categories

- 1. Physical/Cultural
- 2. Chemical
- 3. Biological



Kitsa	o Co	unty



Aquatic Plant Management: Physical



Kitsap County

Selective

• Hand-pulling



Aquatic Plant Management: Physical



Hand-pulling & Fragmentation





Kitsap County

Aquatic Plant Management: Physical



Selective

- Hand-pulling
- Diver-assisted suction harvesting (DASH)









Aquatic Plant Management: Physical



Selective

Non-selective

17

- Hand-pulling
- Diver-assisted suction harvesting (DASH)
- Bottom barriers





Kitsap County _____



Aquatic Plant Management: Physical

- Selective
- Hand-pulling
- Diver-assisted suction harvesting (DASH)
- Bottom barriers
- Raking

Non-selective





Kitsap County _____



Aquatic Plant Management: Physical

Selective

19

- Hand-pulling
- Diver-assisted suction harvesting (DASH)
- Bottom barriers
- Raking
- Mechanical harvesting
- Rotovation

Non-selective



Kitsap County _____



Aquatic Plant Management: Physical

Selective

20

- Hand-pulling
- Diver-assisted suction harvesting (DASH)
- Bottom barriers
- Raking
- Mechanical harvesting
- Rotovation
- Dredging
- Non-selective Drawdown





Aquatic Plant Management: Physical



• Hand-pulling

- Diver-assisted suction harvesting (DASH)
- Bottom barriers
- Raking
- Mechanical harvesting
- Rotovation
- Dredging
- Non-selective Drawdown

Recommended for early infestations



NOT Recommended for early infestations





21



Aquatic Plant Management: Physical

- Selective
- Hand-pulling
- Diver-assisted suction harvesting (DASH)
- Bottom barriers
- Raking
- Mechanical harvesting
- Rotovation
- Dredging
- Non-selective Drawdown

All require WDFW permit



Washington Department of **FISH & WILDLIFE**

OKO OKO



23



Aquatic Plant Management: Physical

All physical aquatic plant removal requires a **Hydraulic Project Approval (HPA)** from WA Dept. of Fish and Wildlife







Aquatic Plant Management: Physical

Shortcut for some projects Washington Department of Fish and Wildlife **AQUATIC PLANTS** AND FISH RULES FOR AQUATIC PLANT REMOVAL AND CONTROL = HPA ULY 2015 2ND EDITION Windowski of FISH and WILDLIFE

Kitsap County

AQUATIC PLANTS AND FISH Table 1. Permit Requirements for Aquatic Noxious Weed and Beneficial Plant Removal or Control



Washington Department of Fish and Wilding

25

Kitsap County

Washington Department of Fish and Windime AQUATIC PLANTS AND FISH Table 1. Permit Requirements for Aquatic Noxious Weed and Beneficial Plant Removal or

Table 1. Permit Rec	uirements for Aquatic Noxious Weed	and Benefici	al Plant Rem	oval or	AND THE
	Control Aquatic Beneficial Plants Permit Requirement			LES FOR AGU	
Control Method		Pamphlet without Area Limitations	* Pamphlet with Area Limitations	Individual HPA	JULY 2015 2re EDMON
Removal by Hand			✓		j.sa-
Bottom Barriers and			1		
Screens					_
Weed Rolling				✓	* Area
Mechanical Harvesting				~	
and Cutting					Limitation:
Rotovation				✓	
Diver-operated				~	< 10 linear feet
Dredging					
Other Dredging				✓	along your
Water Level				1	shoreline
Manipulation				Ŧ	

26

Kitsap County



Table 1. Permit Requirements for Aquatic Noxious Weed and Beneficial Plant Removal or

*

	Control			
	Aqua Per	Aquatic Noxious Weed Permit Requirement		
Control Method	Pamphlet without Area Limitations	* Pamphlet with Area Limitations	Individual HPA	
Removal by Hand	✓			
Bottom Barriers and		✓		
Screens				
Weed Rolling		✓		
Mechanical Harvesting	1			
and Cutting				
Rotovation			✓	
Diver-operated	1			
Dredging	•			
Other Dredging			✓	
Water Level			1	
Manipulation			Ť	





Kitsap County



Aquatic Plant Management: Chemical

Aquatic Herbicides in WA

Only herbicides labeled for aquatic uses may be used for aquatic applications All herbicides labeled for aquatic uses are considered state <u>restricted use</u> pesticides

• Applications can only be made by WSDA certified applicators





Active Ingredient

AND OTHER AQUATIC SITES.

penoxsulam: 2-(2,2-difluoroethoxy)-6-(trifluoromethyl)-N-	
(5,8-dimethoxy[1,2,4]triazolo-[1,5c]pyrimidin-2-yl)-benzenesulfonamide	21.7%
Other Ingredients	
TOTAL	100.0%
Contains 2 pounds of active ingredient (a.i.) per gallon.	



Aquatic Pesticide Permits

Aquatic Plant and Algae Management General Permit

Management of plants and algae <u>in fresh waterbodies</u>. Management of shoreline vegetation where chemicals <u>may enter the</u> <u>water</u>









Aquatic Plant and Algae Management General Permit

- Noxious weed management
 For Class A, B, and C species + quarantine species
 Limited restrictions on herbicide use
- 2. Native nuisance plant control Greater restrictions on herbicide use



Aquatic Herbicides and Algaecides

Herbicide choice Species selectivity Contact vs. systemic Contact time Irrigation and recreation restrictions Wildlife impacts

Currently registered herbicides and algaecides

2,4-D amine & ester	selective systemic herbicide	AquaKleen®, Navigate®
Bispyribac-sodium	Broad-spectrum systemic herbicide	Tradewind [™]
Carfentrazone-ethyl	Narrow-spectrum Contact herbicide	Stingray™
Diquat	Broad-spectrum Contact herbicide	Reward®
Endothall dipotassium salt	Broad-spectrum Contact herbicide	Aquathol®
Flumioxazin	Broad-spectrum Contact herbicide	Clipper™
Fluridone	Systemic herbicide	Sonar®
Glyphosate	Systemic herbicide	Rodeo®, Pondmaster®
Imazamox	selective systemic herbicide	Clearcast®
Imazapyr	Broad spectrum, Systemic herbicide	Arsenal™, Habitat
Penoxsulam	Broad-spectrum systemic herbicide	Galleon SC™
Triclopyr TEA	Selective, Systemic herbicide	Renovate®, Garlon 3A®
Endothall mono(N,N- dimethylalkylamine) salt	Broad-spectrum algaecide	Hydrothol®191
Sodium carbonate peroxyhydrate	Fast-acting broad-spectrum algaecide	GreenClean™, Pak 27™
Aminopyralid	Selective systemic herbicide	Milestone®, Capstone®, Opensight®
Florpyrauxifen-benzyl/Procellacor™	Selective systemic herbicide	Procellacor™
Topramezone	Selective systemic herbicide	Oasis®
Peracetic acid/hydrogen peroxide	Broad-spectrum disinfectant/algaecide	GreenClean™





Aquatic Herbicides and Algaecides

Potential fish impacts



Currently registered herbicides and algaecides			
2,4-D amine & ester	selective systemic herbicide	AquaKleen®, Navigate®	
Bispyribac-sodium	Broad-spectrum systemic herbicide	Tradewind [™]	
Carfentrazone-ethyl	Narrow-spectrum Contact herbicide	Stingray™	
Diquat	Broad-spectrum Contact herbicide	Reward®	
Endothall dipotassium salt	Broad-spectrum Contact herbicide	Aquathol®	
Flumioxazin	Broad-spectrum Contact herbicide	Clipper™	
Fluridone	Systemic herbicide	Sonar®	
Glyphosate	Systemic herbicide	Rodeo®, Pondmaster®	
Imazamox	selective systemic herbicide	Clearcast®	
Imazapyr	Broad spectrum, Systemic herbicide	Arsenal™, Habitat	
Penoxsulam	Broad-spectrum systemic herbicide	Galleon SC™	
Triclopyr TEA	Selective, Systemic herbicide	Renovate®, Garlon 3A®	
Endothall mono(N,N- dimethylalkylamine) salt	Broad-spectrum algaecide	Hydrothol®191	
Sodium carbonate peroxyhydrate	Fast-acting broad-spectrum algaecide	GreenClean™, Pak 27™	
Aminopyralid	Selective systemic herbicide	Milestone®, Capstone®, Opensight®	
Florpyrauxifen-benzyl/Procellacor™	Selective systemic herbicide	Procellacor™	
Topramezone	Selective systemic herbicide	Oasis®	
Peracetic acid/hydrogen peroxide	Broad-spectrum disinfectant/algaecide	GreenClean™	

Kitsap County

Biological Control



Kitsap County



Biological Control: Triploid (Sterile) Grass Carp

Good for:

Egeria densa (Brazilian elodea) Hydrilla Curly-leaf pondweed



Paul Shafland, Florida Fish and Wildlife Conservation Commission

Kitsap County

Biological Control: Triploid (Sterile) Grass Carp



Good for:

Egeria densa (Brazilian elodea) Hydrilla Curly-leaf pondweed Not good for: Eurasian watermilfoil Fragrant waterlily



Paul Shafland, Florida Fish and Wildlife Conservation Commission

37

Biological Control: Triploid (Sterile) Grass Carp



Requirements for release WDFW approval SEPA determination Lake restoration study If waterbody is public HPA

If screening is needed USFWS documentation that the carp are disease free



Paul Shafland, Florida Fish and Wildlife Conservation Commission

38

Biological Control: Triploid (Sterile) Grass Carp



Drawbacks

Decrease water clarity Long-lived + very difficult to remove Readily eat native aquatic plants Can't be used in open water systems They will move out of the waterbody



Figure 3. Aerial photo of 1-hectare carp exclosure in Lake Wingra taken July 7, 2007 showing clear water inside the exclosure contrasted with blue-green algal bloom in lake water surrounding the exclosure. Difference in growth extent of Eurasian watermilfoil inside and outside the exclosure is visible in the photo. Wave dissipater booms are also visible outside the exclosure walls (photo: Mike DeVries, The Capital Times).



Freshwater Aquatic Invasive Plant

Management Program



\$3 annual fee for WA boat trailer registration



Freshwater Aquatic Invasive Plant Management Program



Grants to cities, counties, tribes, special purpose districts, and state agencies to prevent and manage aquatic weeds



Freshwater Aquatic Invasive Plant

Management Program

Grants

- 2-year cycle
- ~ \$500,000 / year
- ~ 10 grants / year

Grant categories

- Invasive aquatic vegetation management plan (IAVMP) development ≤ \$30,000
- IAVMP implementation \leq \$75,000
- Early infestation \leq \$50,000
- Research





Thank you!

Wesley Glisson Washington State Department of Ecology <u>wes.glisson@ecy.wa.gov</u> (360) 688-8811



Long Lake





Long Lake Timeline

- 1970s to 1990s studies by UW; numerous control efforts funded by state and federal grants
- 1997 IAVMP identifies Eurasian watermilfoil; found again in 2023
- 2006 Curly leaf pondweed found; most recent invader
- 2006 to 2010 herbicide treatment resulted in more diverse plant community
- 2010 to 2018 no documented plant management
- 2016 Lake Management District (LMD) formed
- 2018 to 2022 pondweeds and fragrant white waterlily treatments; LMD expires
- 2022 IAVMP completed by Tetra Tech
- 2023 Grant awarded by Ecology; Noxious Weed Program to manage
- 2024 surveys, treatment, and outreach commence



Latest Ecology Grant (2023)

- \$100,000 awarded for 2023-2025 biennium
- \$75,000 from Ecology; \$25,000 match from Noxious Weed Program
- Funds are for treatment/control and education/outreach
- Request for Proposals (RFP) for control work was published in 2023
- Contractor, AquaTechnex was selected in early 2024
- Survey in spring 2024, treatments in summer and fall
- Second round of treatment in spring 2025



AquaTechnex - 2024 Work Completed



Surveys

- Biobase
- Aquatic Plant Survey

Mapping

- Identified focus areas for control
- Created maps to reflect survey results and control areas



Treatment

- Eurasian watermilfoil (EWM) treatment; 14.69 acres completed on August 1st with ProcellaCOR aquatic herbicide
- White water lily treatment; 14 acres completed on September 26th along the eastern and western shorelines from South to North



Lang Lake Driman, Navious Mand Zanas



24 Long Lake Aquatic Invasive Species Control Map

Legend EWM Control Areas







AquaTechnex - 2025 Work Planned

Surveys

Aquatic plant surveys to update current infestation extents



Mapping

• Identify focus areas for Brazilian elodea, EWM, and White water lily



- Treatment
- Brazilian elodea treatment with Sonar (fluoridone) aquatic herbicide; following WDFW fish timing window
- Targeted control of any EWM found in spring survey
- Continue White water lily treatment in established focus area







Best Management Practices - Assumptions

1. Referring to small shoreline infestations

2. Manual methods require years of persistent efforts and additional monitoring for new plants

3. HPA (WDFW pamphlet) should be on hand when controlling weeds along shore



Washington Department of Fish and Wildlife Hydraulic Project Approval (HPA)

- Required for most aquatic plant control projects
- WDFW Aquatic Plants and Fish Pamphlet provides guidance, serves as HPA for some projects
 - Pamphlet is free to download and print



Fragrant/white water lily

Nymphaea odorata



Class C

<u>Control</u>

- Consistent hand pulling/cutting *can* work
- Must remove all plant parts from the water
- Carbohydrate depletion technique cut and remove all emerging leaves below water level during growing seasons
- If unable to remove, at least de-flower
- Spreads by seed and plant fragments

Disposal

- Compost on land away from shore
- Yard waste bins





Brazilian elodea

Egeria densa



Class B, Non-Designate

<u>Control</u>

- Hand pulling/cutting not recommended
- Very easy to spread plant fragments
- Clean, drain, dry
- Spreads solely by fragments; not known to seed in North America

<u>Disposal</u>

- Compost on land away from shore
- Yard waste bins



Eurasian watermilfoil *Myriophyllum spicatum*



Class B, Designate

<u>Control</u>

- Hand pulling/cutting not recommended
- Very easy to spread plant fragments
- Clean, drain, dry
- Spreads by rhizome, seed, and fragments

<u>Disposal</u>

- Compost on land away from shore
- Yard waste bins





Curly leaf pond weed *Potamogeton crispus*



Class C

<u>Control</u>

- Consistent hand pulling/cutting *can* work
- Must remove all plant parts from the water
- Clean, drain, dry
- Spreads by seed and plant fragments

<u>Disposal</u>

- Composted on land
- Yard waste bins



Purple loosestrife

Lythrum salicaria



<u>Control</u>

- Hand pulling recommended when plants are rooted in mucky, sandy or loose, wet soil
- Older plants with large roots can be eased out with a garden fork.
- Remove as much of root system as possible; broken roots may sprout new plants
- Spreads mainly by seed, but also by stem and root fragmentation

Disposal

• Bag and trash - DO NOT COMPOST

Class B, Non-Designate



Bottom Barriers

Barra burlapus



- Opaque bottom barrier can suppress growth in small areas
- Copy of current Aquatic Plants and Fish pamphlet serves as HPA, unless otherwise indicated; must be on job site at all times
- For controlling aquatic noxious weeds, material can cover no more than 50% of the length of the applicant's shoreline. Advance authorization required for bottom barrier projects covering a larger area.



Bottom Barriers

Barra burlapus



- Need to be cleaned regularly; plants will root in sediment that accumulates on top of barrier
- Securely anchor bottom barrier with pea gravel-filled bags, rock, or similar material to prevent billowing and movement off site
- To remove or control aquatic beneficial plants to maintain an area for boating or swimming, a bottom barrier may be installed along <u>no more than ten linear feet</u> of the applicant's shoreline



Best Management Practices – Review of Common Themes

Any cutting or pulling requires ALL PLANT PARTS be removed from water and disposed of <u>away</u> from shoreline

Manual methods are not always recommended, especially when larger chemical treatment is ongoing

Focus on prevention of spread/new infestations (Clean, drain, dry)



Questions?

