

A scenic landscape featuring a calm body of water in the foreground, reflecting the sky and distant mountains. The middle ground shows a line of green trees and vegetation along the shore. The background consists of rolling hills and mountains under a clear blue sky. The text is overlaid on the upper portion of the image.

Benefits of Native Aquatic Plants - and Management

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Weed

I mean invasive, non-native plants.



Adaptations of Aquatic Plants

- Flexible, buoyant stems and leaves
- Grow with low light
- Efficient at gas exchange
- Usually small flowers, often rely on fragments to reproduce



The Role of Aquatic Plants

- Provide food and nest/den building material for waterfowl, songbirds, beaver, muskrats, turtles, moose and humans etc



Role of Aquatic Plants con't

- Provide habitat, cover and food for aquatic insects and other invertebrates which are important food for fish and waterfowl.



Role of Aquatic Plants

- Provide shelter from predators for young fish.
- Also provide shelter for predators



Role of Aquatic Plants con't

- Help maintain clear water through:
 - Erosion control – they hold the sediment and prevent waves and currents from stirring up the sediment.
 - role in lake nutrient cycling, influence the supply of oxygen and pH.



Role of Aquatic Plants con't

- Healthy and diverse native plant community can be more resistant to invasive non-native species



Role of Aquatic Plants

- Therefore, good shoreline vegetation is important for lake health



Invasive Non-Native Weeds

- Lack natural controls from native waters
- Usually have rapid reproduction



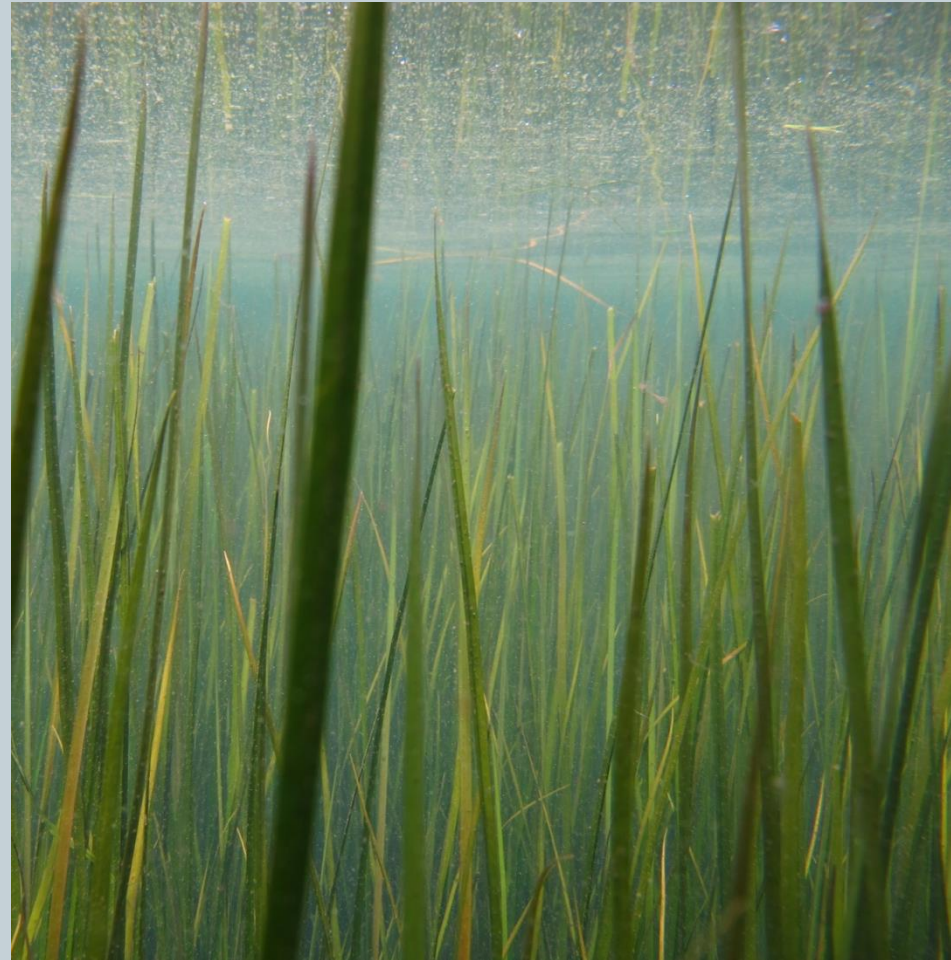
How Invasives change Habitat

- Form near monoculture
- Reduce or eliminate native plants
- Reduce diversity



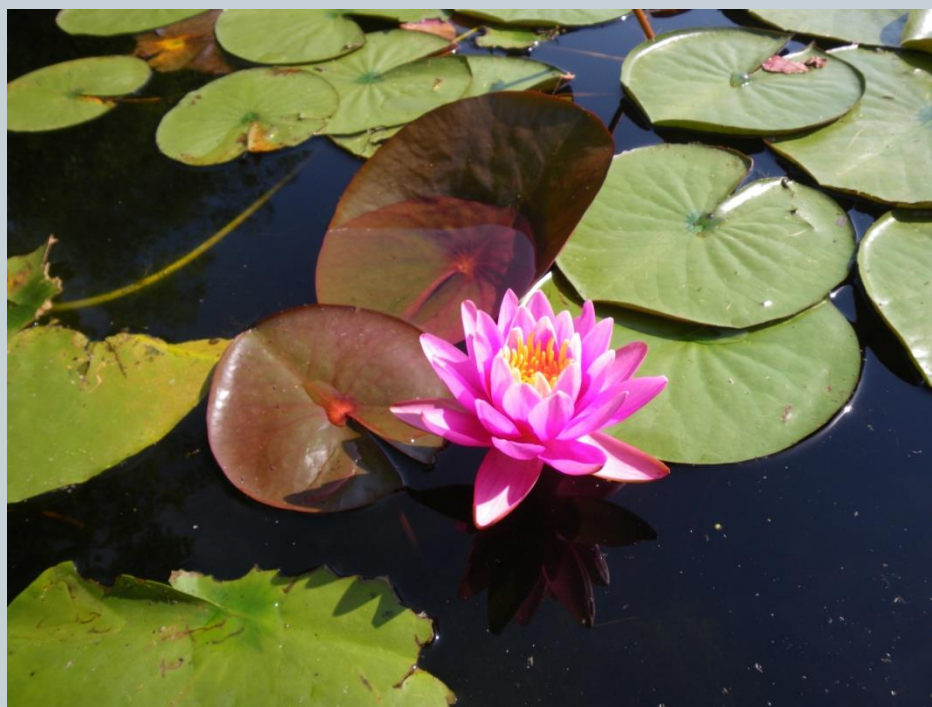
Sometimes changes are drastic

- 'Ecosystem engineers'
- Change sedimentation
- Change invertebrate assemblages
- Change cover, predator/prey relationship



Noxious Weed List

- Well established noxious weed laws
- List includes invasive non-native aquatic and wetland plants
- Categories
 - Class A
 - Class B
 - Class C
 - Monitor
 - Quarantine



Aquatic Weed Control

- Mechanical Methods
 - Hand pulling
 - Hand cutting or raking
 - Bottom barrier



Mechanical Aquatic Weed Control

- Mechanical con't
 - Mechanical cutting
 - Harvesting
 - Rotovation



Biological Control

- Biocontrol agents
 - Insects
 - Grass carp



Lake Manipulation

Water drawdown, expose to freezing or drying



Herbicides

- Specific Aquatic herbicides allowed
 - Depends on where it will be used
 - Need an aquatic endorsement on applicators license
 - Often use specialized equipment
- Separate list of allowed adjuvants/surfactants



Permits Necessary

- **Herbicide use - NPDES permits**
 - *Aquatic Plant and Algae Management Permit* - For in-lake plant or algae treatment - Ecology
 - *Aquatic Noxious Weed Management Permit* - issued to Agriculture by Ecology, covers riparian aquatic noxious weeds
 - *Irrigation System Aquatic Weed Control Permit* – covers applications to irrigation systems
- Activities like hand pulling, harvesting, diver dredging are under the **Hydraulic Project Approval** - WDFW
- **Grass Carp permit** – triploid only – WDFW

Irrigation System Permit

- Covers pesticide applications in irrigation supply waters.
- Includes chemicals not allowed under other permits (acrolein, xylene, and copper).
- Reissued last year – added higher endothall concentration
- Monitoring
- Notification



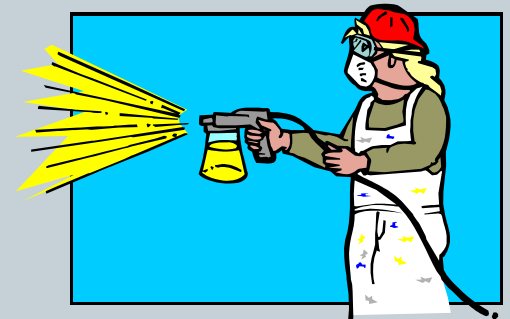
Aquatic Plant and Algae Permit

- Reissued in 2011 with many new requirements.
- For all in-water treatments of noxious weeds
- Ecology also allows treatment of native nuisance plants under this permit.
- There is a 60-day waiting period for coverage.



Aquatic Noxious Weed Permit

- Covers indirect applications to water (herbicide may drip or drift from plants into water).
- Covers listed weeds and other potential invasives
- WSDA holds permit
- Covers all but federal facilities and tribal lands (true for all the permits)





Grants



Aquatic Weed Management Fund

- Through Ecology – listed noxious weeds given priority
- Funds for
 - Early infestation
 - Planning and implementation
 - Education
 - Pilot projects/research
- Application period in fall
- <http://www.ecy.wa.gov/programs/wq/links/plants.html>

Reminder - clean your gear

Avoid spreading invasive species





**STOP AQUATIC
HITCHHIKERS!**

Please remember:

CLEAN • DRAIN • DRY

Boats and Equipment

— www.kdwp.state.ks.us —



Clean – Drain - Dry



For more info

- Aquatic Plant ID
 - An Aquatic Plant Identification Manual for Washington's Freshwater Plants; publication # 01-10-032; 360-753-6820
 - Aquatic and Riparian Weeds of the West by J. DiTomaso and E. Healy. 800-994-8849
- Native Plants for Aquatic Gardens and Aquariums
www.ecy.wa.gov/biblio/0603004.html



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<http://www.ecy.wa.gov/programs/wq/links/plants.html>